Australian Government

ICA11 Information and Communications Technology Training Package

Release: 2.0

CONTENTS

ICA11 Information and Communications Technology Training Package 14
Training Package Details 16
Preliminary Information 17
Overview 58
Qualifications Framework 66
Employability Skills 74
Assessment Guidelines 79
Competency Standards 114
Appendices 121
ICA10111 Certificate I in Information, Digital Media and Technology 137
ICA20111 Certificate II in Information, Digital Media and Technology 140
ICA30111 Certificate III in Information, Digital Media and Technology 144
ICA40111 Certificate IV in Information Technology 150
ICA40211 Certificate IV in Information Technology Support 159
ICA40311 Certificate IV in Web-Based Technologies 165
ICA40411 Certificate IV in Information Technology Networking 170
ICA40511 Certificate IV in Programming 175
ICA40611 Certificate IV in Information Technology Testing 179
ICA40711 Certificate IV in Systems Analysis and Design 183
ICA40811 Certificate IV in Digital Media Technologies 187
ICA40911 Certificate IV in Digital and Interactive Games 192
ICA41011 Certificate IV in Computer Systems Technology 197
ICA50111 Diploma of Information Technology 202
ICA50211 Diploma of Digital and Interactive Games 211
ICA50311 Diploma of Information Technology Systems Administration 217
ICA50411 Diploma of Information Technology Networking 222
ICA50511 Diploma of Database Design and Development 228
ICA50611 Diploma of Website Development 232
ICA50711 Diploma of Software Development 238
ICA50811 Diploma of Systems Analysis and Design 243
ICA50911 Diploma of Digital Media Technologies 248
ICA60111 Advanced Diploma of Information Technology 253
ICA60211 Advanced Diploma of Network Security 258
ICA60311 Advanced Diploma of Information Technology Business Analysis 264
ICA60411 Advanced Diploma of Information Technology Project Management 269
ICA60511 Advanced Diploma of Computer Systems Technology 274
ICA70111 Vocational Graduate Certificate in Information Technology and Strategic Management 279
ICA70211 Vocational Graduate Certificate in Information Technology Sustainability 284
ICASS00001 Application Development Specialist Skill Set 291
ICASS00002 Basic Application Development Programmer Skill Set 292
ICASS00003 Basic Computer Hardware and System Troubleshooting Skill Set 293
ICASS00004 Basic Web Development Specialist Skill Set 295
ICASS00005 Certified IT Network Enterprise, Security or Server Administrator Skill Set 296
ICASS00006 Certified Network Associate Technology Specialist Skill Set 297
ICASS00007 Certified Network Professional Specialist - Voice Skill Set 298
ICASS00008 Certified Network Professional Specialist - Wireless Skill Set 299
ICASS00009 Certified Network Professional Specialist Skill Set 300
ICASS00010 Certified Networking Technician Skill Set 301

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00011 Certified Security and Architect Specialist Skill Set....302
ICASS00012 Certified Technician or Technology Specialist - Infrastructure Configuration Skill Set....303
ICASS00013 Certified Technology Specialist - Graphical User Interfaces Skill Set....304
ICASS00014 Certified Web Design Specialist Skill Set....305
ICASS00015 Computing and Application Fundamentals Skill Set....306
ICASS00016 Computing Fundamentals Skill Set....307
ICASS00017 Digital Literacy - eCitizen Skill Set....308
ICASS00018 Digital Literacy Skill Set....309
ICASS00019 Hardware Technician Skill Set....310
ICASS00020 Internetworking Systems Coordinator-Administrator Skill Set....312
ICASS00021 Rich Interactive Content Specialist Skill Set....314
ICASS00022 System and Hardware Plus Technician Skill Set....315
ICASS00023 System and Network Plus Technician Skill set....317
ICASS00024 Virtualisation Specialist Skill Set....318
ICASS00025 Visual Communications Specialist Skill Set....319
ICASS00026 Website Administration Specialist Skill Set....320
ICASS00027 Enterprise Desktop Virtualisation Specialist Skill Set....321
ICASS00028 Enterprise Server Virtualisation Specialist Skill Set....322
BSBPMG517A Manage project risk....323
BSBWHS201A Contribute to health and safety of self and others....330
BSBWHS304A Participate effectively in WHS communication and consultation processes336
BSBWHS403A Contribute to implementing and maintaining WHS consultation and participation processes....343
BSBWHS501A Ensure a safe workplace....350
BSBWOR301B Organise personal work priorities and development....356
CUVDRA201A Develop drawing skills....363
CUVPHI519A Investigate and exploit innovative imaging options....369
ICADBS401A Identify physical database requirements....377
ICADBS402A Complete database backup and restore....383
ICADBS403A Create basic databases....389
ICADBS404A Identify and resolve common database performance problems....394
ICADBS407A Monitor physical database implementation....400
ICADBS408A Link an RFID system to a database....405
ICADBS409A Monitor and administer a database....410
ICADBS412A Build a database....416
ICADBS501A Monitor and improve knowledge management system....422
ICADBS502A Design a database....427
ICADBS503B Create a data warehouse....433
ICADBS504A Integrate database with a website....440
ICADBS601B Build a data warehouse....445
ICADBS602A Develop a knowledge management strategy....451
ICADBS603B Determine suitability of database functionality and scalability....457
ICADMT401A Create visual design components for digital media....463
ICADMT402A Produce interactive animation....470
ICADMT403A Produce and edit digital images....476
ICADMT501A Incorporate and edit digital video....482
ICAGAM301A Apply simple modelling techniques....488
ICAGAM302A Design and apply simple textures to digital art....495
ICAGAM303A Review and apply the principles of animation....503
ICAGAM401A Produce an interactive game....509
ICAGAM402A Identify and apply principles of games design and game playing....519
ICAGAM403A Create design documents for interactive games....526

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM404A Apply artificial intelligence in game development 537
ICAGAM405A Write story and content for digital games 542
ICAGAM406A Create visual design components for interactive games 551
ICAGAM407A Write scripts for interactive games 558
ICAGAM408A Use 3-D animation interface and toolsets 566
ICAGAM409A Create 3-D characters for interactive games 573
ICAGAM410A Develop 3-D components for interactive games 581
ICAGAM412A Design interactive media 586
ICAGAM413A Design and create 3-D digital models 592
ICAGAM414A Create audio for digital games 599
ICAGAM415A Develop simple environments for 3-D games 605
ICAGAM416A Prepare and complete image rendering processes 613
ICAGAM417A Apply digital effects to interactive products 620
ICAGAM418A Use simple modelling for animation 625
ICAGAM419A Build a database to support a computer game 634
ICAGAM501A Create design concepts for digital games and 3-D media 643
ICAGAM503A Create a complex 3-D interactive computer game 651
ICAGAM504A Manage interactive media production 662
ICAGAM506A Create complex code for mobile game devices 668
ICAGAM507A Develop intermediate 3-D software for games and interactive media 675
ICAGAM508A Develop complex 3-D software for games and interactive media 681
ICAGAM509A Design interactive 3-D applications for scientific and mathematical modelling 688
ICAGAM510A Prepare games for different platforms and delivery modes 695
ICAGAM511A Manage testing of games and interactive media 701
ICAGAM512A Create and implement designs for a 3-D games environment 708
ICAGAM514A Design and create models for a 3-D and digital effects environment 713
ICAGAM515A Design and create advanced particles, fluids and bodies for 3-D digital effects 720
ICAGAM516A Animate a 3-D character for digital games 730
ICAGAM517A Produce a digital animation sequence 738
ICAGAM518A Animate physical attributes of models and elements 745
ICAGAM519A Manage technical art and rigging in 3-D animation 753
ICAGAM520A Create and combine 3-D digital games and components 760
ICAGAM521A Create interactive 3-D environments for digital games 767
ICAGAM522A Complete digital editing for the 3-D and digital effects environment 777
ICAGAM523A Collaborate in the design of 3-D game levels and environments 784
ICAGAM524A Integrate multiple data sources into interactive 3-D environments 793
ICAGAM525A Apply digital texturing for the 3-D environment in digital games 802
ICAGAM526A Create complex 3-D characters for games 807
ICAGAM527A Integrate database with online game 816
ICAGAM528A Create games for mobile devices 823
ICAGAM529A Analyse business opportunities in the digital games environment 833
ICAGAM530A Develop and implement physics in a 3-D digital game 840
ICAGAM531A Complete compositing to create elements for the 3-D and digital effects environment 847
ICAICT101A Operate a personal computer 854
ICAICT102A Operate word-processing applications 862
ICAICT103A Use, communicate and search securely on the internet 868
ICAICT104A Use digital devices 878
ICAICT105A Operate spreadsheet applications 885
ICAICT106A Operate presentation packages 892
ICAICT107A Use personal productivity tools 898

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT108A Use digital literacy skills to access the internet 903
ICAICT201A Use computer operating systems and hardware 912
ICAICT202A Work and communicate effectively in an IT environment 918
ICAICT203A Operate application software packages 925
ICAICT204A Operate a digital media technology package 934
ICAICT205A Design basic organisational documents using computing packages 940
ICAICT206A Install software applications 945
ICAICT207A Integrate commercial computing packages 950
ICAICT208A Operate accounting applications 955
ICAICT209A Interact with ICT clients 961
ICAICT210A Operate database applications 966
ICAICT211A Identify and use basic current industry-specific technologies 972
ICAICT212A Incorporate Indigenous needs and perspectives into IT environment 977
ICAICT301A Create user documentation 984
ICAICT302A Install and optimise operating system software 989
ICAICT303A Connect internal hardware components 997
ICAICT304A Implement system software changes 1006
ICAICT305A Identify and use current industry-specific technologies 1012
ICAICT306A Migrate to new technology 1017
ICAICT307A Customise packaged software applications for clients 1023
ICAICT308A Use advanced features of computer applications 1029
ICAICT401A Determine and confirm client business requirements 1035
ICAICT402A Determine project specifications and secure client agreement 1041
ICAICT403A Apply software development methodologies 1046
ICAICT404A Use online learning tools 1051
ICAICT405A Develop detailed technical design 1056
ICAICT406A Build a graphical user interface 1061
ICAICT407A Maintain website information standards 1066
ICAICT408A Create technical documentation 1072
ICAICT409A Develop macros and templates for clients using standard products 1079
ICAICT410A Conduct post-implementation IT system reviews 1084
ICAICT411A Select and employ software and hardware testing tools 1089
ICAICT412A Coordinate and maintain IT work teams 1096
ICAICT413A Relate to clients on a business level 1102
ICAICT415A Provide one-to-one instruction 1107
ICAICT416A Contribute to the development of strategic plans 1113
ICAICT417A Identify, evaluate and apply current industry-specific technologies to meet industry standards 1118
ICAICT418A Contribute to copyright, ethics and privacy in an IT environment 1123
ICAICT419A Work effectively in the digital media industry 1129
ICAICT420A Develop client user interface 1137
ICAICT421A Connect, maintain and configure hardware components 1143
ICAICT422A Participate in IT services 1152
ICAICT423A Select cloud storage strategies 1158
ICAICT501A Research and review hardware technology options for organisations 1164
ICAICT502A Develop detailed component specifications from project specifications 1170
ICAICT503A Validate quality and completeness of system design specifications 1175
ICAICT504A Confirm transition strategy for a new system 1181
ICAICT505A Determine acceptable developers for projects 1186
ICAICT506A Implement process re-engineering strategies 1192
ICAICT507A Select new technology models for business 1197
ICAICT508A Evaluate vendor products and equipment 1202
ICAICT509A Gather data to identify business requirements 1207

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT510A Determine appropriate IT strategies and solutions 1212
ICAICT511A Match IT needs with the strategic direction of the enterprise 1217
ICAICT512A Plan process re-engineering strategies for business 1222
ICAICT514A Identify and manage the implementation of current industry-specific technologies 1228
ICAICT515A Verify client business requirements 1234
ICAICT601A Develop IT strategic and action plans 1239
ICAICT602A Develop contracts and manage contracted performance 1245
ICAICT603A Manage the use of appropriate development methodologies 1250
ICAICT604A Identify and implement business innovation 1255
ICAICT605A Implement a knowledge management strategy 1260
ICAICT606A Develop communities of practice 1265
ICAICT608A Interact with clients on a business level 1270
ICAICT609A Lead the evaluation and implementation of current industry-specific technologies 1275
ICAICT610A Manage copyright, ethics and privacy in an IT environment 1280
ICAICT701A Lead research into identifying new marketplace opportunities 1286
ICAICT702A Direct ICT services 1291
ICAICT703A Endorse business plan components for a new initiative 1298
ICAICT704A Direct ICT in a supply chain 1304
ICAICT705A Direct ICT procurement 1310
ICAICT706A Direct outsourced ICT services 1317
ICAICT707A Direct research and business response to new ICT technology 1325
ICAICT708A Direct the development of a knowledge management strategy for a business 1335
ICAICT709A Facilitate business analysis 1341
ICAICT710A Synchronise IT projects 1348
ICAICT711A Manage an information architecture project 1354
ICAICT712A Develop a business intelligence framework 1359
ICAICT713A Manage IT services 1365
ICAICT814A Develop cloud computing strategies for a business 1370
ICANWK301A Provide network systems administration 1375
ICANWK302A Identify and resolve network problems 1382
ICANWK303A Configure and administer a network operating system 1388
ICANWK304A Administer network peripherals 1397
ICANWK305A Install and manage network protocols 1404
ICANWK306A Evaluate characteristics of cloud computing solutions and services 1409
ICANWK401A Install and manage a server 1414
ICANWK402A Install and configure virtual machines for sustainable ICT 1423
ICANWK403A Manage network and data integrity 1430
ICANWK404A Install, operate and troubleshoot a small enterprise branch network 1436
ICANWK405A Build a small wireless local area network 1442
ICANWK406A Install, configure and test network security 1449
ICANWK407A Install and configure client-server applications and services 1458
ICANWK408A Configure a desktop environment 1463
ICANWK409A Create scripts for networking 1472
ICANWK410A Install hardware to a network 1478
ICANWK411A Deploy software to networked computers 1484
ICANWK412A Create network documentation 1490
ICANWK414A Create a common gateway interface script 1496
ICANWK416A Build security into virtual private networks 1501
ICANWK417A Build an enterprise wireless network 1507
ICANWK418A Implement backbone technologies in a local area network 1515
ICANWK419A Identify and use current virtualisation technologies 1520

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK501A Plan, implement and test enterprise communication solutions 1525
ICANWK502A Implement secure encryption technologies.....1532
ICANWK503A Install and maintain valid authentication processes.....1539
ICANWK504A Design and implement an integrated server solution.....1545
ICANWK505A Design, build and test a network server.....1552
ICANWK506A Configure, verify and troubleshoot WAN links and IP services in a medium enterprise network.....1565
ICANWK507A Install, operate and troubleshoot medium enterprise routers 1572
ICANWK508A Install, operate and troubleshoot medium enterprise switches.....1578
ICANWK509A Design and implement a security perimeter for ICT networks 1584
ICANWK510A Develop, implement and evaluate system and application security 1590
ICANWK511A Manage network security 1596
ICANWK513A Manage system security.....1602
ICANWK514A Model preferred system solutions.....1608
ICANWK515A Develop configuration management protocols 1614
ICANWK516A Determine best-fit topology for a local network.....1621
ICANWK517A Determine best-fit topology for a wide area network 1626
ICANWK518A Design an enterprise wireless local area network 1631
ICANWK519A Design an IT security framework.....1638
ICANWK520A Design IT system security controls.....1644
ICANWK521A Install, configure and test a payment gateway 1650
ICANWK522A Build decks using wireless markup language.....1656
ICANWK524A Install and configure network access storage devices.....1661
ICANWK525B Configure an enterprise virtual computing environment.....1668
ICANWK527B Manage an enterprise virtual computing environment 1675
ICANWK529A Install and manage complex ICT networks.....1681
ICANWK531A Configure an internet gateway.....1689
ICANWK532A Identify and resolve network problems 1696
ICANWK533A Configure and manage advanced virtual computing environments 1703
ICANWK534A Monitor and troubleshoot virtual computing environments 1708
ICANWK535A Install an enterprise virtual computing environment.....1714
ICANWK601A Design and implement a security system 1720
ICANWK602A Plan, configure and test advanced server based security 1726
ICANWK603A Plan, configure and test advanced internetwork routing solutions.....1736
ICANWK604A Plan and configure advanced internetwork switching solutions 1742
ICANWK605A Design and configure secure integrated wireless systems 1748
ICANWK606A Implement voice applications over secure wireless networks 1758
ICANWK607A Design and implement wireless network security 1764
ICANWK608A Configure network devices for a secure network infrastructure.....1771
ICANWK609A Configure and manage intrusion prevention system on network sensors1777
ICANWK610A Design and build integrated VoIP networks.....1784
ICANWK611A Configure call processing network elements for secure VoIP networks1790
ICANWK612A Plan and manage troubleshooting advanced integrated IP networks....1798
ICANWK613A Develop plans to manage structured troubleshooting process of enterprise networks.....1805
ICANWK614A Manage IT security.....1813
ICANWK615A Design and configure desktop virtualisation 1821
ICANWK616A Manage security, privacy and compliance of cloud service deployment1828
ICAPMG401A Support small scale IT projects.....1835
ICAPMG501A Manage IT projects 1841
ICAPMG601A Establish IT project governance.....1847
ICAPMG602A Manage IT project initiation 1853
ICAPMG603A Manage IT project planning.....1858

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPMG604A Manage IT project delivery 1863
ICAPMG605A Manage IT project closure 1868
ICAPMG606A Manage IT project quality 1873
ICAPMG607A Manage and control IT project risks 1879
ICAPMG608A Manage IT project systems implementation 1884
ICAPMG609A Plan and direct complex IT projects 1890
ICAPRG301A Apply introductory programming techniques 1897
ICAPRG401A Maintain open-source code programs 1902
ICAPRG402A Apply query language 1909
ICAPRG403A Develop data-driven applications 1915
ICAPRG404A Test applications 1920
ICAPRG405A Automate processes 1926
ICAPRG406A Apply introductory object-oriented language skills 1931
ICAPRG407A Write script for software applications 1936
ICAPRG409A Develop mobile applications 1942
ICAPRG410A Build a user interface 1948
ICAPRG412A Configure and maintain databases 1953
ICAPRG413A Use a library or pre-existing components 1959
ICAPRG414A Apply introductory programming skills in another language 1964
ICAPRG415A Apply skills in object-oriented design 1970
ICAPRG416A Manage a software component reuse library 1974
ICAPRG417A Apply mathematical techniques for software development 1979
ICAPRG418A Apply intermediate programming skills in another language 1983
ICAPRG419A Analyse software requirements 1989
ICAPRG425A Use structured query language 1996
ICAPRG426A Prepare software development review 2003
ICAPRG427A Use XML effectively 2008
ICAPRG428A Use regular expressions in programming languages 2014
ICAPRG501A Apply advanced object-oriented language skills 2019
ICAPRG502A Manage a project using software management tools 2024
ICAPRG503A Debug and monitor applications 2029
ICAPRG504A Deploy an application to a production environment 2034
ICAPRG505A Build advanced user interface 2040
ICAPRG506A Design application architecture 2046
ICAPRG507A Implement security for applications 2051
ICAPRG508A Create mashups 2056
ICAPRG509A Build using rapid application development 2061
ICAPRG510A Maintain custom software 2066
ICAPRG511A Monitor and support data conversion to new IT system 2071
ICAPRG512A Prepare for the build phase of an IT system 2076
ICAPRG513A Coordinate the build phase of an IT system 2082
ICAPRG514A Prepare for software development using rapid application development 2087
ICAPRG515A Review developed software 2093
ICAPRG516A Develop integration blueprint for IT systems 2098
ICAPRG517A Install, test and evaluate pilot version of IT system 2103
ICAPRG518A Monitor the system pilot 2108
ICAPRG520A Validate an application design against specifications 2113
ICAPRG523A Apply advanced programming skills in another language 2118
ICAPRG524A Develop high-level object-oriented class specifications 2124
ICAPRG525A Build Java applets 2129
ICAPRG526A Maintain functionality of legacy code programs 2134
ICAPRG527A Apply intermediate object-oriented language skills 2139
ICAPRG528A Perform IT data conversion 2145

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG529A Apply testing techniques for software development....2150
ICAPRG601A Develop advanced mobile multi-touch applications....2156
ICAPRG602A Manage the development of technical solutions from business specifications2162
ICAPRG604A Create cloud computing services....2170
ICASAD401A Develop and present feasibility reports....2176
ICASAD501A Model data objects....2182
ICASAD502A Model data processes....2187
ICASAD503A Minimise risk of new technologies to business solutions....2192
ICASAD504A Implement quality assurance processes for business solutions....2197
ICASAD505A Develop technical requirements for business solutions....2203
ICASAD506A Produce a feasibility report....2209
ICASAD601A Perform IT-focused enterprise analysis....2215
ICASAD602A Conduct knowledge audits....2221
ICASAD603A Plan and monitor business analysis activities in an IT environment....2226
ICASAD604A Manage and communicate IT solutions....2233
ICASAD605A Elicit IT requirements....2238
ICASAD606A Analyse stakeholder requirements....2243
ICASAD607A Manage assessment and validation of IT solutions....2249
ICASAS201A Maintain inventories for equipment, software and documentation....2254
ICASAS202A Apply problem-solving techniques to routine IT malfunctions....2259
ICASAS203A Connect hardware peripherals....2265
ICASAS204A Record client support requirements....2272
ICASAS205A Maintain IT system integrity....2277
ICASAS206A Detect and protect from spam and destructive software....2284
ICASAS207A Protect and secure information assets....2290
ICASAS208A Maintain IT equipment and consumables....2295
ICASAS209A Connect and use a home-based local wireless network....2301
ICASAS301A Run standard diagnostic tests....2307
ICASAS303A Care for computer hardware....2314
ICASAS304A Provide basic system administration....2322
ICASAS305A Provide IT advice to clients....2329
ICASAS306A Maintain equipment and software....2335
ICASAS307A Install, configure and secure a small office home office network....2341
ICASAS401A Perform unit test for a class....2352
ICASAS402A Implement configuration management strategies....2357
ICASAS403A Review site environmental factors prior to IT system implementation....2364
ICASAS404A Acquire IT system components....2370
ICASAS405A Identify and evaluate IT industry vendor technologies....2376
ICASAS406A Implement and hand over system components....2381
ICASAS407A Conduct pre-installation audit for software installation....2386
ICASAS408A Complete data transition in data migration process....2391
ICASAS409A Manage risks involving ICT systems and technology....2396
ICASAS410A Identify and resolve client IT problems....2401
ICASAS411A Assist with policy development for client support procedures....2408
ICASAS412A Action change requests....2413
ICASAS413A Manage resolution of system faults on a live system....2419
ICASAS414A Evaluate system status....2425
ICASAS415A Optimise IT system performance....2431
ICASAS416A Implement maintenance procedures....2438
ICASAS417A Undertake IT system capacity planning....2444
ICASAS418A Monitor and administer security of an IT system....2452
ICASAS419A Support system software....2459
ICASAS420A Provide first-level remote help-desk support....2465

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS421A Support users and troubleshoot desktop applications....2471
ICASAS422A Scope implementation requirements....2475
ICASAS424A Support different operating systems....2480
ICASAS425A Configure and troubleshoot operating system software....2485
ICASAS426A Locate and troubleshoot IT equipment, system and software faults....2495
ICASAS501A Develop, implement and evaluate an incident response plan....2503
ICASAS502A Establish and maintain client user liaison....2508
ICASAS503A Perform systems tests....2514
ICASAS504A Develop and conduct client acceptance test....2520
ICASAS505A Review and update disaster recovery and contingency plans....2525
ICASAS506A Update IT system operational procedures....2532
ICASAS507A Implement and evaluate systems for regulatory and standards compliance2537
ICASAS509A Provide client IT support services....2541
ICASAS510A Review and develop IT maintenance strategy....2546
ICASAS511A Prioritise IT change requests....2553
ICASAS512A Review and manage delivery of maintenance services....2559
ICASAS513A Develop detailed test plans....2564
ICASAS514A Perform integration tests....2569
ICASAS515A Manage the testing process....2576
ICASAS516A Perform stress and load tests on integrated platforms....2581
ICASAS517A Use network tools....2587
ICASAS518A Install and upgrade operating systems....2592
ICASAS601A Implement change-management processes....2597
ICASUS701A Plan and manage virtualisation for IT sustainability....2603
ICASUS702A Conduct a business case study for integrating sustainability in IT planning and design projects....2612
ICASUS703A Research strategies using SAP solutions for sustainable economic and environmental outcomes....2620
ICAWEB201A Use social media tools for collaboration and engagement....2632
ICAWEB301A Create a simple markup language document....2638
ICAWEB302A Build simple websites using commercial programs....2642
ICAWEB303A Produce digital images for the web....2648
ICAWEB401A Design a website to meet technical requirements....2653
ICAWEB402A Confirm accessibility of websites for people with special needs....2659
ICAWEB403A Transfer content to a website using commercial packages....2665
ICAWEB404A Maintain website performance....2671
ICAWEB405A Monitor traffic and compile website traffic reports....2677
ICAWEB406A Create website testing procedures....2682
ICAWEB407A Conduct operational acceptance tests of websites....2687
ICAWEB408A Ensure basic website security....2693
ICAWEB409A Develop cascading style sheets....2699
ICAWEB410A Apply web authoring tool to convert client data for websites....2704
ICAWEB411A Produce basic client-side script for dynamic web pages....2710
ICAWEB412A Produce interactive web animation....2715
ICAWEB413A Optimise search engines....2721
ICAWEB414A Design simple web page layouts....2728
ICAWEB415A Produce server-side script for dynamic web pages....2733
ICAWEB416A Customise content management system....2739
ICAWEB417A Integrate social web technologies....2744
ICAWEB418A Use development software and IT tools to build a basic website....2749
ICAWEB419A Develop guidelines for uploading information to a website....2754
ICAWEB420A Write content for web pages....2760
ICAWEB421A Ensure website content meets technical protocols and standards....2765

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB422A Ensure website access and useability 2771
ICAWEB423A Ensure dynamic website security 2777
ICAWEB424A Evaluate and select a web hosting service 2784
ICAWEB425A Apply structured query language to extract and manipulate data 2790
ICAWEB429A Create a markup language document to specification 2795
ICAWEB501A Build a dynamic website 2800
ICAWEB502A Create dynamic web pages 2805
ICAWEB503A Create web-based programs 2810
ICAWEB504A Build a document using eXtensible markup language 2815
ICAWEB505A Develop complex web page layouts 2820
ICAWEB506A Develop complex cascading style sheets 2825
ICAWEB507A Customise a complex IT content management system 2830
ICAWEB508A Develop website information architecture 2835
ICAWEB509A Use site server tools for transaction management 2841
ICAWEB510A Analyse information and assign meta-tags 2847
ICAWEB511A Implement quality assurance process for websites 2852
ICAWEB512A Administer business websites and servers 2858
ICAWEB515A Implement and use web services 2865
ICAWEB516A Research and apply emerging web technology trends 2872
BSBCMM101A Apply basic communication skills 2877
BSBCRT401A Articulate, present and debate ideas 2883
BSBCRT501A Originate and develop concepts 2890
BSBEBU401A Review and maintain a website 2899
BSBEBU501A Investigate and design e business solutions 2905
BSBINN601B Manage organisational change 2913
BSBIPR301A Comply with organisational requirements for protection and use of intellectual property 2920
BSBMGT608C Manage innovation and continuous improvement 2927
BSBOHS201A Participate in OHS processes 2934
BSBOHS302B Participate effectively in OHS communication and consultative processes 2941
BSBOHS402B Contribute to the implementation of the OHS consultation process 2949
BSBOHS509A Ensure a safe workplace 2957
BSBREL701A Develop and cultivate collaborative partnerships and relationships 2964
BSBSUS201A Participate in environmentally sustainable work practices 2977
BSBSUS301A Implement and monitor environmentally sustainable work practices 2984
BSBSUS501A Develop workplace policy and procedures for sustainability 2994
BSBWOR404B Develop work priorities 3003
BSBWOR502B Ensure team effectiveness 3010
CPPSEC3009A Prepare and present evidence in court 3017
CPPSEC5003A Assess security risk management options 3026
CPPSEC5004A Prepare security risk management plan 3036
CPPSEC5005A Implement security risk management plan 3045
CPPSEC5006A Determine strategy for the implementation of biometric technology 3054
CPPSEC5007A Assess biometric system 3066
CUFANM301A Create 2D digital animations 3077
CUFANM302A Create 3D digital animations 3086
CUFANM303A Create 3D digital models 3097
CUFANM402A Create digital visual effects 3105
CUFCAM201A Assist with a basic camera shoot 3115
CUFCAM301A Shoot material for screen productions 3122
CUFDIG201A Maintain interactive content 3133
CUFDIG301A Prepare video assets 3139
CUFDIG302A Author interactive sequences 3147

© Commonwealth of Australia, 2025 Future Skills Organisation

CUFDIG303A Produce and prepare photo images 3155
CUFDIG304A Create visual design components 3165
CUFDIG401A Author interactive media 3174
CUFDIG502A Design web environments 3183
CUFDIG503A Design e-learning resources 3193
CUFDIG504A Design games 3204
CUFDIG507A Design digital simulations 3215
CUFPOS201A Perform basic vision and sound editing 3224
CUFPOS401A Edit screen content for fast turnaround 3236
CUFPOS402A Manage media assets 3248
CUFPPM404A Create storyboards 3256
CUFSOU204A Perform basic sound editing 3265
CUFSOU301A Prepare audio assets 3277
CUSSOU302A Record and mix a basic music demo 3285
CUSSOU403A Perform advanced sound editing 3294
CUSSOU502A Produce sound recordings 3305
ICPMM321C Capture a digital image 3314
ICPMM346C Incorporate video into multimedia presentations 3320
ICTBWN3082A Perform tests on optical communication system and components 3327
ICTBWN3088A Install optical fibre splitters in fibre distribution hubs 3338
ICTBWN3090A Install lead-in module and cable for fibre to the premises 3348
ICTBWN3100A Work safely with live fibre to test and commission a fibre to the x installation 3359
ICTCBL2065A Splice and terminate optical fibre cable for carriers and service providers 3371
ICTCBL2136A Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule 3382
ICTCBL2137A Install, maintain and modify customer premises communications cabling: ACMA Open Rule 3394
ICTCBL2139A Apply safe technical work practices for cabling registration 3409
ICTOPN4116A Use advanced optical test equipment 3419
ICTOPN5119A Perform acceptance and commissioning tests on optical network 3430
ICTOPN5120A Plan for an optical system upgrade and cut over 3438
ICTOPN5122A Test the performance of specialised optical devices 3448
ICTOPN5123A Analyse and integrate specialised optical devices in the network 3458
ICTPMG8143A Manage a telecommunications project 3468
ICTPMG8149A Evaluate and use telecommunications management networks 3475
ICTSUS4183A Install and test renewable energy system for ICT networks 3482
ICTSUS4184A Install and test power saving hardware 3491
ICTSUS4185A Install and test power management software 3498
ICTSUS4186A Install thin client applications for power over ethernet 3504
ICTSUS5187A Implement server virtualisation for a sustainable ICT system 3511
ICTSUS6233A Integrate sustainability in ICT planning and design projects 3519
ICTSUS6234A Establish a business case for sustainability and competitive advantage in ICT projects 3529
ICTSUS7235A Use ICT to improve sustainability outcomes 3538
ICTSUS7236A Manage improvements in ICT sustainability 3546
ICTSUS8237A Lead applied research in ICT sustainability 3555
ICTSUS8238A Conduct and manage a life cycle assessment for sustainability 3567
ICTTEN2140A Use hand and power tools 3581
ICTTEN4081A Locate, diagnose and rectify faults 3591
ICTTEN4198A Install, configure and test an internet protocol network 3601
ICTTEN4199A Install, configure and test a router 3610
ICTTEN4202A Install and test a radio frequency identification system 3620

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTTEN4210A Implement and troubleshoot enterprise routers and switches.....3629
ICTTEN4211A Design, install and configure an internetwork 3638
ICTTEN4213A Configure and troubleshoot advanced network switching.....3647
ICTTEN5024A Provide consultancy and technical support in the customer premises equipment sector.....3655
ICTTEN5168A Design and implement an enterprise voice over internet protocol and a unified communications network 3663
ICTTEN5200A Install, configure and test a local area network switch.....3672
ICTTEN5201A Install, configure and test a server 3681
ICTTEN5203A Dimension and design a radio frequency identification system.....3690
ICTTEN5204A Produce technical solutions from business specifications.....3699
ICTTEN5217A Plan a wireless mesh network 3709
ICTTEN6172A Design and configure an IP-MPLS network with virtual private network tunnelling.....3717
ICTTEN6206A Produce an ICT network architecture design 3726
ICTTEN8195A Evaluate and apply network security.....3737

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA11 Information and Communications Technology Training Package

Modification History

Version	Release Date	Comments
2	November 2013	**NSSC endorsement:** **Units of competency** **Ten new units:** • ICAICT423A Select cloud storage strategies • ICAICT814A Develop cloud computing strategies for a business • ICANWK306A Evaluate characteristics of cloud computing solutions and services • ICANWK419A Identify and use current virtualisation technologies • ICANWK533A Configure and manage advanced virtual computing environments • ICANWK534A Monitor and troubleshoot virtual computing environments • ICANWK535A Install an enterprise virtual computing environment • ICANWK615A Design and configure desktop virtualisation • ICANWK616A Manage security, privacy and compliance of cloud service deployment • ICAPRG604A Create cloud computing services **ISC upgrade:** • **Update qualifications to reflect the addition of new units of competency to elective group/s:** • ICA10111 Certificate I in Information, Digital Media and Technology • ICA30111 Certificate III in Information, Digital Media and Technology • ICA40111 Certificate IV in Information Technology • ICA40211 Certificate IV in Information Technology Support • ICA41011 Certificate IV in Computer Systems Technology • ICA40411 Certificate IV in Information Technology Networking • ICA40511 Certificate IV in Programming • ICA40711 Certificate IV in Systems Analysis and Design

© Commonwealth of Australia, 2025 Future Skills Organisation

Version	Release Date	Comments
		• ICA40911 Certificate IV in Digital and Interactive Games • ICA50111 Diploma of Information Technology • ICA50311 Diploma of Information Technology Systems Administration • ICA50411 Diploma of Information Technology Networking • ICA50511 Diploma of Database Design and Development • ICA50711 Diploma of Software Development • ICA50911 Diploma of Digital Media Technologies • ICA60111 Advanced Diploma of Information Technology • ICA60211 Advanced Diploma of Network Security • ICA60511 Advanced Diploma of Computer Systems Technology • ICA70111 Vocational Graduate Certificate in Information Technology and Strategic Management • Update five units to reflect new technology in the cloud virtualisation area: • ICADBS503B Create a data warehouse • ICADBS601B Build a data warehouse • ICADBS603B Determine suitability of database functionality and scalability • ICANWK525B Configure an enterprise virtual computing environment • ICANWK527B Manage an enterprise virtual computing environment • Develop two new skill sets: • Enterprise Server Virtualisation Specialist • Enterprise Desktop Virtualisation Specialist
1	July 2011	Primary release, replacing ICA05 Information and Communications Technology Training Package

© Commonwealth of Australia, 2025 Future Skills Organisation

Imprint Oct 24

Copyright Statement

© Commonwealth of Australia 2024.

The content of this Training Package is licensed under a Creative Commons Attribution 4.0 International Licence, with the exception of:

- the Department's logo,
- the Commonwealth Coat of Arms,
- material protected by a trademark, and
- any third party material,

More information on this CC BY licence is set out at the Creative Commons website (www.creativecommons.org.au).

Use of all or part of this content must contain the following attribution:

ICA11 Information and Communications Technology Training Package Release 2.0 © **Commonwealth of Australia.**

The terms of use for the Commonwealth Coat of Arms available from the Department of the Prime Minister and Cabinet's website.

Disclaimer

The content of this Training Package was prepared in consultation with Australian industry participants. It does not necessarily represent the view of the Department of Employment and Workplace Relations (Department) or any specific body. The Department does not make any representation or warranty about the accuracy, reliability, currency or completeness of any training material and you should exercise your own independent skill and judgement before you rely on it.
The Department is not liable for any loss resulting from any action taken or reliance made by you on any information contained in the training material or incorporated into it by reference (including, without limitation, third party information). No responsibility is taken for any information or services which may appear on any linked websites.

Training Package Details

Training Package Code:	ICA11
Training Package Name:	Information and Communications Technology

© Commonwealth of Australia, 2025 Future Skills Organisation

Training Package Code:	ICA11
First Published:	November 2013
Print Version Number:	Version 2
Endorsed Date:	November 2013
Copyright Year:	2012
Training Package Review Date:	9 May 2014
ISC Name:	Innovation and Business Skills Australia
ISC Website URL:	www.ibsa.org.au

Training Package Volume Number	**Training Package Volume Name**
1	ICA11 Information and Communications Technology Training Package

Preliminary Information

Important Note to Users

Training Packages are not static documents; they are amended periodically to reflect the latest industry practices and are version controlled. It is essential that the latest version is always used.

Check the version number before commencing training or assessment

This Training Package is Version 2.0 – check whether this is the latest version by going to the National Training Information Service (*www.ntis.gov.au*) and locating information about the Training Package. Alternatively, contact Innovation and Business Industry Skills Council at http://www.ibsa.org.au to confirm the latest version number.

Explanation of version number conventions

© Commonwealth of Australia, 2025 Future Skills Organisation

The primary release Training Package is Version 1. When changes are made to a Training Package, sometimes the version number is changed and sometimes it is not, depending on the extent of the change. When a Training Package is reviewed it is considered to be a new Training Package for the purposes of version control, and is Version 1. Do not confuse the version number with the Training Package's national code (which remains the same during its period of endorsement).

Explanation of the review date

The review date (shown on the title page and in the footer of each page) indicates when the Training Package is expected to be reviewed in the light of changes such as changing technologies and circumstances. The review date is not an expiry date. Endorsed Training Packages and their components remain current until they are reviewed or replaced.

Version modification history

The version details of this endorsed Training Package are in the table below. The latest information is at the top of the table.

Version	Release Date	Comments
2	November 2013	**NSSC endorsement:** **Units of competency** **Ten new units:** • ICAICT423A Select cloud storage strategies • ICAICT814A Develop cloud computing strategies for a business • ICANWK306A Evaluate characteristics of cloud computing solutions and services • ICANWK419A Identify and use current virtualisation technologies • ICANWK533A Configure and manage advanced virtual computing environments • ICANWK534A Monitor and troubleshoot virtual computing environments • ICANWK535A Install an enterprise virtual computing environment • ICANWK615A Design and configure desktop virtualisation • ICANWK616A Manage security, privacy and compliance of cloud service deployment • ICAPRG604A Create cloud computing services **ISC upgrade:** • **Update qualifications to reflect the addition of new units of**

© Commonwealth of Australia, 2025 Future Skills Organisation

Version	Release Date	Comments
		competency to elective group/s: • ICA10111 Certificate I in Information, Digital Media and Technology • ICA30111 Certificate III in Information, Digital Media and Technology • ICA40111 Certificate IV in Information Technology • ICA40211 Certificate IV in Information Technology Support • ICA41011 Certificate IV in Computer Systems Technology • ICA40411 Certificate IV in Information Technology Networking • ICA40511 Certificate IV in Programming • ICA40711 Certificate IV in Systems Analysis and Design • ICA40911 Certificate IV in Digital and Interactive Games • ICA50111 Diploma of Information Technology • ICA50311 Diploma of Information Technology Systems Administration • ICA50411 Diploma of Information Technology Networking • ICA50511 Diploma of Database Design and Development • ICA50711 Diploma of Software Development • ICA50911 Diploma of Digital Media Technologies • ICA60111 Advanced Diploma of Information Technology • ICA60211 Advanced Diploma of Network Security • ICA60511 Advanced Diploma of Computer Systems Technology • ICA70111 Vocational Graduate Certificate in Information Technology and Strategic Management • Update five units to reflect new technology in the cloud virtualisation area: • ICADBS503B Create a data warehouse • ICADBS601B Build a data warehouse • ICADBS603B Determine suitability of database functionality and scalability • ICANWK525B Configure an enterprise virtual computing environment • ICANWK527B Manage an enterprise virtual computing environment • Develop two new skill sets: • Enterprise Server Virtualisation Specialist • Enterprise Desktop Virtualisation Specialist
1	July 2011	Primary release, replacing ICA05 Information and Communications

© Commonwealth of Australia, 2025 Future Skills Organisation

Version	Release Date	Comments
		Technology Training Package

History

The ICA11 Information and Communications Training Package was released in July 2011. Subsequent industry consultation has identified that since this time advances in technology have seen the expansion of cloud and virtualisation technologies as the cornerstone of many business enterprises.

The development of the ICT cloud computing technologies has resulted in a number of changes to several qualifications in the ICA11 Information and Communications Technology Training Package Version 2.

Two areas that have now been developed ensure that the ICA11 Information and Communications Technology Training Package continue to meet current and future industry needs in the areas of cloud computing conceptualisation, big data and virtualisation technologies.

Summary of AQF qualifications in ICA11 Information and Communications Technology Training Package

Code	Title
ICA10111	Certificate I in Information, Digital Media and Technology
ICA20111	Certificate II in Information, Digital Media and Technology
ICA30111	Certificate III in Information, Digital Media and Technology
ICA40111	Certificate IV in Information Technology
ICA40211	Certificate IV in Information Technology Support
ICA40311	Certificate IV in Web-Based Technologies
ICA40411	Certificate IV in Information Technology Networking
ICA40511	Certificate IV in Programming
ICA40611	Certificate IV in Information Technology Testing
ICA40711	Certificate IV in Systems Analysis and Design
ICA40811	Certificate IV in Digital Media Technologies

© Commonwealth of Australia, 2025 Future Skills Organisation

Code	Title
ICA40911	Certificate IV in Digital and Interactive Games
ICA41011	Certificate IV in Computer Systems Technology
ICA50111	Diploma of Information Technology
ICA50211	Diploma of Digital and Interactive Games
ICA50311	Diploma of Information Technology Systems Administration
ICA50411	Diploma of Information Technology Networking
ICA50511	Diploma of Database Design and Development
ICA50611	Diploma of Website Development
ICA50711	Diploma of Software Development
ICA50811	Diploma of Systems Analysis and Design
ICA50911	Diploma of Digital Media Technologies
ICA60111	Advanced Diploma of Information Technology
ICA60211	Advanced Diploma of Network Security
ICA60311	Advanced Diploma of Information Technology Business Analysis
ICA60411	Advanced Diploma of Information Technology Project Management
ICA60511	Advanced Diploma of Computer Systems Technology
ICA70111	Vocational Graduate Certificate in Information Technology and Strategic Management
ICA70211	Vocational Graduate Certificate in Information Technology Sustainability

Qualifications in this Training Package

Packaging rules for qualifications are clear and consistent and allow a logical progression of skills development between AQF levels. The packaging allows for multiple entry points and progression pathways enabling progression from AQF I through to Advanced Diploma and through to Vocational Graduate Certificate level.

There is an articulation pathway with a possible Year 12 entry requirement:

- ICA41011 Certificate IV in Computer Systems Technology

© Commonwealth of Australia, 2025 Future Skills Organisation

- ICA60511 Advanced Diploma of Computer Systems Technology.

The judicious packaging of core and elective units represents great flexibility for participants to cross over from stream to stream with minimal disruptions. This has been possible by minimising the number of core units and allowing greater choice of elective units.

Following the Federal Government announcement on the inclusion of sustainability in all qualifications for 2010, sustainability content has been included in the core of the majority or qualifications and is available in the elective units in the remainder of the qualifications.

The importation of units from Training Packages provides clear support to the information and communications technology qualifications in the area of sustainability, project management, digital media technologies and IT convergence networks.

Whole of Industry Qualification Information

There are 29 qualifications in the Training Package, 28 skill sets and 405 units of competency.

The units of competency cover the following functional areas:

Function area	Code	Number
Database	DBS	15
Digital media technologies	DMT	4
Game development	GAM	49
General ICT	ICT	87
Networking	NWK	69
IT project management	PMG	11
Programming and software development	PRG	51
Systems analysis and design	SAD	14
Systems administration and support	SAS	58
Sustainability	SUS	3

© Commonwealth of Australia, 2025 Future Skills Organisation

Function area	Code	Number
Web	WEB	44
Total		405

Summary of Skill Sets in ICA11 Information and Communications Technology Training Package

The following 28 skills sets are in this Training Package.

- Application Development Specialist Skill Set
- Basic Application Development Programmer Skill Set
- Basic Computer Hardware and System Troubleshooting Skill Set
- Basic Web Development Specialist Skill Set
- Certified IT Network Enterprise, Security or Server Administrator Skill Set
- Certified Network Associate Technology Specialist Skill Set
- Certified Network Professional Specialist Skill Set
- Certified Network Professional Specialist – Voice Skill Set
- Certified Network Professional Specialist – Wireless Skill Set
- Certified Networking Technician Skill Set
- Certified Security and Architect Specialist Skill Set
- Certified Technician or Technology Specialist - Infrastructure Configuration Skill Set
- Certified Technology Specialist - Graphical User Interfaces Skill Set
- Certified Web Design Specialist Skill Set
- Computing and Application Fundamentals Skill Set
- Computing Fundamentals Skill Set
- Digital Literacy Skill Set
- Digital Literacy - eCitizen Skill Set
- Enterprise Desktop Virtualisation Specialist Skill Set
- Enterprise Server Virtualisation Specialist Skill Set
- Hardware Technician Skill Set
- Internetworking Systems Coordinator/Administrator Skill Set
- Rich Interactive Content Specialist Skill Set
- System and Hardware Plus Technician Skill Set
- System and Network Plus Technician Skill Set
- Virtualisation Specialist Skill Set
- Visual Communications Specialist Skill Set
- Website Administration Specialist Skill Set

© Commonwealth of Australia, 2025 Future Skills Organisation

Skill sets are designed to be available to industry to train participants in a particular skill set. They contain units of competency that will be awarded with a Statement of Attainment and are able to be counted towards a qualification. Where possible, skill sets are aligned to a range of vendor training programs that are used as a basis for industry certifications. Users should ensure that they have also read the part of the Training Package that outlines licensing and regulatory requirements.

Summary of Units of Competency in ICA11 Information and Communications Technology Training Package and their Pre-Requisite Requirements

Unit code	Unit title
ICADBS401A	Identify physical database requirements
ICADBS402A	Complete database backup and restore
ICADBS403A	Create basic databases
ICADBS404A	Identify and resolve common database performance problems
ICADBS407A	Monitor physical database implementation
ICADBS408A	Link an RFID system to a database
ICADBS409A	Monitor and administer a database
ICADBS412A	Build a database
ICADBS501A	Monitor and improve knowledge management system
ICADBS502A	Design a database
ICADBS503B	Create a data warehouse
ICADBS504A	Integrate database with a website
ICADBS601B	Build a data warehouse
ICADBS602A	Develop a knowledge management strategy
ICADBS603B	Determine suitability of database functionality and scalability
ICADMT401A	Create visual design components for digital media

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title
ICADMT402A	Produce interactive animation
ICADMT403A	Produce and edit digital images
ICADMT501A	Incorporate and edit digital video
ICAGAM301A	Apply simple modelling techniques
ICAGAM302A	Design and apply simple textures to digital art
ICAGAM303A	Review and apply the principles of animation
ICAGAM401A	Produce an interactive game
ICAGAM402A	Identify and apply principles of games design and game playing
ICAGAM403A	Create design documents for interactive games
ICAGAM404A	Apply artificial intelligence in game development
ICAGAM405A	Write story and content for digital games
ICAGAM406A	Create visual design components for interactive games
ICAGAM407A	Write scripts for interactive games
ICAGAM408A	Use 3-D animation interface and toolsets
ICAGAM409A	Create 3-D characters for interactive games
ICAGAM410A	Develop 3-D components for interactive games
ICAGAM412A	Design interactive media
ICAGAM413A	Design and create 3-D digital models
ICAGAM414A	Create audio for digital games
ICAGAM415A	Develop simple environments for 3-D games
ICAGAM416A	Prepare and complete image rendering processes

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title
ICAGAM417A	Apply digital effects to interactive products
ICAGAM418A	Use simple modelling for animation
ICAGAM419A	Build a database to support a computer game
ICAGAM501A	Create design concepts for digital games and 3-D media
ICAGAM503A	Create a complex 3-D interactive computer game
ICAGAM504A	Manage interactive media production
ICAGAM506A	Create complex code for mobile game devices
ICAGAM507A	Develop intermediate 3-D software for games and interactive media
ICAGAM508A	Develop complex 3-D software for games and interactive media
ICAGAM509A	Design interactive 3-D applications for scientific and mathematical modelling
ICAGAM510A	Prepare games for different platforms and delivery modes
ICAGAM511A	Manage testing of games and interactive media
ICAGAM512A	Create and implement designs for a 3-D games environment
ICAGAM514A	Design and create models for a 3-D and digital effects environment
ICAGAM515A	Design and create advanced particles, fluids and bodies for 3-D digital effects
ICAGAM516A	Animate a 3-D character for digital games
ICAGAM517A	Produce a digital animation sequence
ICAGAM518A	Animate physical attributes of models and elements

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title
ICAGAM519A	Manage technical art and rigging in 3-D animation
ICAGAM520A	Create and combine 3-D digital games and components
ICAGAM521A	Create interactive 3-D environments for digital games
ICAGAM522A	Complete digital editing for the 3-D and digital effects environment
ICAGAM523A	Collaborate in the design of 3-D game levels and environments
ICAGAM524A	Integrate multiple data sources into interactive 3-D environments
ICAGAM525A	Apply digital texturing for the 3-D environment in digital games
ICAGAM526A	Create complex 3-D characters for games
ICAGAM527A	Integrate database with online game
ICAGAM528A	Create games for mobile devices
ICAGAM529A	Analyse business opportunities in the digital games environment
ICAGAM530A	Develop and implement physics in a 3-D digital game
ICAGAM531A	Complete compositing to create elements for the 3-D and digital effects environment
ICAICT101A	Operate a personal computer
ICAICT102A	Operate word-processing applications
ICAICT103A	Use, communicate and search securely on the internet
ICAICT104A	Use digital devices
ICAICT105A	Operate spreadsheet applications

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title
ICAICT106A	Operate presentation packages
ICAICT107A	Use personal productivity tools
ICAICT108A	Use digital literacy skills to access the internet
ICAICT201A	Use computer operating systems and hardware
ICAICT202A	Work and communicate effectively in an IT environment
ICAICT203A	Operate application software packages
ICAICT204A	Operate a digital media technology package
ICAICT205A	Design basic organisational documents using computing packages
ICAICT206A	Install software applications
ICAICT207A	Integrate commercial computing packages
ICAICT208A	Operate accounting applications
ICAICT209A	Interact with ICT clients
ICAICT210A	Operate database applications
ICAICT211A	Identify and use basic current industry-specific technologies
ICAICT212A	Incorporate Indigenous needs and perspectives into IT environment
ICAICT301A	Create user documentation
ICAICT302A	Install and optimise operating system software
ICAICT303A	Connect internal hardware components
ICAICT304A	Implement system software changes
ICAICT305A	Identify and use current industry-specific technologies

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title
ICAICT306A	Migrate to new technology
ICAICT307A	Customise packaged software applications for clients
ICAICT308A	Use advanced features of computer applications
ICAICT401A	Determine and confirm client business requirements
ICAICT402A	Determine project specifications and secure client agreement
ICAICT403A	Apply software development methodologies
ICAICT404A	Use online learning tools
ICAICT405A	Develop detailed technical design
ICAICT406A	Build a graphical user interface
ICAICT407A	Maintain website information standards
ICAICT408A	Create technical documentation
ICAICT409A	Develop macros and templates for clients using standard products
ICAICT410A	Conduct post-implementation IT system reviews
ICAICT411A	Select and employ software and hardware testing tools
ICAICT412A	Coordinate and maintain IT work teams
ICAICT413A	Relate to clients on a business level
ICAICT415A	Provide one-to-one instruction
ICAICT416A	Contribute to the development of strategic plans
ICAICT417A	Identify, evaluate and apply current industry-specific technologies to meet industry standards

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title
ICAICT418A	Contribute to copyright, ethics and privacy in an IT environment
ICAICT419A	Work effectively in the digital media industry
ICAICT420A	Develop client user interface
ICAICT421A	Connect, maintain and configure hardware components
ICAICT422A	Participate in IT services
ICAICT423A	Select cloud storage strategies
ICAICT501A	Research and review hardware technology options for organisations
ICAICT502A	Develop detailed component specifications from project specifications
ICAICT503A	Validate quality and completeness of system design specifications
ICAICT504A	Confirm transition strategy for a new system
ICAICT505A	Determine acceptable developers for projects
ICAICT506A	Implement process re-engineering strategies
ICAICT507A	Select new technology models for business
ICAICT508A	Evaluate vendor products and equipment
ICAICT509A	Gather data to identify business requirements
ICAICT510A	Determine appropriate IT strategies and solutions
ICAICT511A	Match IT needs with the strategic direction of the enterprise
ICAICT512A	Plan process re-engineering strategies for business
ICAICT514A	Identify and manage the implementation of current industry-specific technologies

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title
ICAICT515A	Verify client business requirements
ICAICT601A	Develop IT strategic and action plans
ICAICT602A	Develop contracts and manage contracted performance
ICAICT603A	Manage the use of appropriate development methodologies
ICAICT604A	Identify and implement business innovation
ICAICT605A	Implement a knowledge management strategy
ICAICT606A	Develop communities of practice
ICAICT608A	Interact with clients on a business level
ICAICT609A	Lead the evaluation and implementation of current industry-specific technologies
ICAICT610A	Manage copyright, ethics and privacy in an IT environment
ICAICT701A	Lead research into identifying new marketplace opportunities
ICAICT702A	Direct ICT services
ICAICT703A	Endorse business plan components for a new initiative
ICAICT704A	Direct ICT in a supply chain
ICAICT705A	Direct ICT procurement
ICAICT706A	Direct outsourced ICT services
ICAICT707A	Direct research and business response to new ICT technology
ICAICT708A	Direct the development of a knowledge management strategy for a business
ICAICT709A	Facilitate business analysis
ICAICT710A	Synchronise IT projects

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title
ICAICT711A	Manage an information architecture project
ICAICT712A	Develop a business intelligence framework
ICAICT713A	Manage IT services
ICAICT814A	Develop cloud computing strategies for a business
ICANWK301A	
ICANWK302A	Determine and action network problems
ICANWK303A	Configure and administer a network operating system
ICANWK304A	Administer network peripherals
ICANWK305A	Install and manage network protocols
ICANWK306A	Evaluate characteristics of cloud computing solutions and services
ICANWK401A	Install and manage a server
ICANWK402A	Install and configure virtual machines for sustainable ICT
ICANWK403A	Manage network and data integrity
ICANWK404A	Install, operate and troubleshoot a small enterprise branch network
ICANWK405A	Build a small wireless local area network
ICANWK406A	Install, configure and test network security
ICANWK407A	Install and configure client-server applications and services
ICANWK408A	Configure a desktop environment
ICANWK409A	Create scripts for networking
ICANWK410A	Install hardware to a network
ICANWK411A	Deploy software to networked computers

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title
ICANWK412A	Create network documentation
ICANWK414A	Create a common gateway interface script
ICANWK416A	Build security into virtual private networks
ICANWK417A	Build an enterprise wireless network
ICANWK418A	Implement backbone technologies in a local area network
ICANWK419A	Identify and use current virtualisation technologies
ICANWK501A	Plan, implement and test enterprise communication solutions
ICANWK502A	Implement secure encryption technologies
ICANWK503A	Install and maintain valid authentication processes
ICANWK504A	Design and implement an integrated server solution
ICANWK505A	Design, build and test a network server
ICANWK506A	Configure, verify and troubleshoot WAN links and IP services in a medium enterprise network
ICANWK507A	Install, operate and troubleshoot medium enterprise routers
ICANWK508A	Install, operate and troubleshoot medium enterprise switches
ICANWK509A	Design and implement a security perimeter for ICT networks
ICANWK510A	Develop, implement and evaluate system and application security
ICANWK511A	Manage network security
ICANWK513A	Manage system security

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title
ICANWK514A	Model preferred system solutions
ICANWK515A	Develop configuration management protocols
ICANWK516A	Determine best-fit topology for a local network
ICANWK517A	Determine best-fit topology for a wide area network
ICANWK518A	Design an enterprise wireless local area network
ICANWK519A	Design an IT security framework
ICANWK520A	Design IT system security controls
ICANWK521A	Install, configure and test a payment gateway
ICANWK522A	Build decks using wireless markup language
ICANWK524A	Install and configure network access storage devices
ICANWK525B	Configure an enterprise virtual computing environment
ICANWK527B	Manage an enterprise virtual computing environment
ICANWK529A	Install and manage complex ICT networks
ICANWK531A	Configure an internet gateway
ICANWK532A	Identify and resolve network problems
ICANWK533A	Configure and manage advanced virtual computing environments
ICANWK534A	Monitor and troubleshoot virtual computing environments
ICANWK535A	Install an enterprise virtual computing environment
ICANWK601A	Design and implement a security system

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title
ICANWK602A	Plan, configure and test advanced server based security
ICANWK603A	Plan, configure and test advanced internetwork routing solutions
ICANWK604A	Plan and configure advanced internetwork switching solutions
ICANWK605A	Design and configure secure integrated wireless systems
ICANWK606A	Implement voice applications over secure wireless networks
ICANWK607A	Design and implement wireless network security
ICANWK608A	Configure network devices for a secure network infrastructure
ICANWK609A	Configure and manage intrusion prevention system on network sensors
ICANWK610A	Design and build integrated VoIP networks
ICANWK611A	Configure call processing network elements for secure VoIP networks
ICANWK612A	Plan and manage troubleshooting advanced integrated IP networks
ICANWK613A	Develop plans to manage structured troubleshooting process of enterprise networks
ICANWK614A	Manage IT security
ICANWK615A	Design and configure desktop virtualisation
ICANWK616A	Manage security, privacy and compliance of cloud service deployment
ICAPMG401A	Support small scale IT projects
ICAPMG501A	Manage IT projects

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title
ICAPMG601A	Establish IT project governance
ICAPMG602A	Manage IT project initiation
ICAPMG603A	Manage IT project planning
ICAPMG604A	Manage IT project delivery
ICAPMG605A	Manage IT project closure
ICAPMG606A	Manage IT project quality
ICAPMG607A	Manage and control IT project risks
ICAPMG608A	Manage IT project systems implementation
ICAPMG609A	Plan and direct complex IT projects
ICAPRG301A	Apply introductory programming techniques
ICAPRG401A	Maintain open-source code programs
ICAPRG402A	Apply query language
ICAPRG403A	Develop data-driven applications
ICAPRG404A	Test applications
ICAPRG405A	Automate processes
ICAPRG406A	Apply introductory object-oriented language skills
ICAPRG407A	Write script for software applications
ICAPRG409A	Develop mobile applications
ICAPRG410A	Build a user interface
ICAPRG412A	Configure and maintain databases
ICAPRG413A	Use a library or pre-existing components
ICAPRG414A	Apply introductory programming skills in another language
ICAPRG415A	Apply skills in object-oriented design

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title
ICAPRG416A	Manage a software component reuse library
ICAPRG417A	Apply mathematical techniques for software development
ICAPRG418A	Apply intermediate programming skills in another language
ICAPRG419A	Analyse software requirements
ICAPRG425A	Use structured query language
ICAPRG426A	Prepare software development review
ICAPRG427A	Use XML effectively
ICAPRG428A	Use regular expressions in programming languages
ICAPRG501A	Apply advanced object-oriented language skills
ICAPRG502A	Manage a project using software management tools
ICAPRG503A	Debug and monitor applications
ICAPRG504A	Deploy an application to a production environment
ICAPRG505A	Build advanced user interface
ICAPRG506A	Design application architecture
ICAPRG507A	Implement security for applications
ICAPRG508A	Create mashups
ICAPRG509A	Build using rapid application development
ICAPRG510A	Maintain custom software
ICAPRG511A	Monitor and support data conversion to new IT system
ICAPRG512A	Prepare for the build phase of an IT system

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title
ICAPRG513A	Coordinate the build phase of an IT system
ICAPRG514A	Prepare for software development using rapid application development
ICAPRG515A	Review developed software
ICAPRG516A	Develop integration blueprint for IT systems
ICAPRG517A	Install, test and evaluate pilot version of IT system
ICAPRG518A	Monitor the system pilot
ICAPRG520A	Validate an application design against specifications
ICAPRG523A	Apply advanced programming skills in another language
ICAPRG524A	Develop high-level object-oriented class specifications
ICAPRG525A	Build Java applets
ICAPRG526A	Maintain functionality of legacy code programs
ICAPRG527A	Apply intermediate object-oriented language skills
ICAPRG528A	Perform IT data conversion
ICAPRG529A	Apply testing techniques for software development
ICAPRG601A	Develop advanced mobile multi-touch applications
ICAPRG602A	Manage the development of technical solutions from business specifications
ICAPRG604A	Create cloud computing services
ICASAD401A	Develop and present feasibility reports
ICASAD501A	Model data objects

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title
ICASAD502A	Model data processes
ICASAD503A	Minimise risk of new technologies to business solutions
ICASAD504A	Implement quality assurance processes for business solutions
ICASAD505A	Develop technical requirements for business solutions
ICASAD506A	Produce a feasibility report
ICASAD601A	Perform IT-focused enterprise analysis
ICASAD602A	Conduct knowledge audits
ICASAD603A	Plan and monitor business analysis activities in an IT environment
ICASAD604A	Manage and communicate IT solutions
ICASAD605A	Elicit IT requirements
ICASAD606A	Analyse stakeholder requirements
ICASAD607A	Manage assessment and validation of IT solutions
ICASAS201A	Maintain inventories for equipment, software and documentation
ICASAS202A	Apply problem-solving techniques to routine IT malfunctions
ICASAS203A	Connect hardware peripherals
ICASAS204A	Record client support requirements
ICASAS205A	Maintain IT system integrity
ICASAS206A	Detect and protect from spam and destructive software
ICASAS207A	Protect and secure information assets
ICASAS208A	Maintain IT equipment and consumables

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title
ICASAS209A	Connect and use a home-based local wireless network
ICASAS301A	Run standard diagnostic tests
ICASAS303A	Care for computer hardware
ICASAS304A	Provide basic system administration
ICASAS305A	Provide IT advice to clients
ICASAS306A	Maintain equipment and software
ICASAS307A	Install, configure and secure a small office home office network
ICASAS401A	Perform unit test for a class
ICASAS402A	Implement configuration management strategies
ICASAS403A	Review site environmental factors prior to IT system implementation
ICASAS404A	Acquire IT system components
ICASAS405A	Identify and evaluate IT industry vendor technologies
ICASAS406A	Implement and hand over system components
ICASAS407A	Conduct pre-installation audit for software installation
ICASAS408A	Complete data transition in data migration process
ICASAS409A	Manage risks involving ICT systems and technology
ICASAS410A	Identify and resolve client IT problems
ICASAS411A	Assist with policy development for client support procedures
ICASAS412A	Action change requests

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title
ICASAS413A	Manage resolution of system faults on a live system
ICASAS414A	Evaluate system status
ICASAS415A	Optimise IT system performance
ICASAS416A	Implement maintenance procedures
ICASAS417A	Undertake IT system capacity planning
ICASAS418A	Monitor and administer security of an IT system
ICASAS419A	Support system software
ICASAS420A	Provide first-level remote help-desk support
ICASAS421A	Support users and troubleshoot desktop applications
ICASAS422A	Scope implementation requirements
ICASAS424A	Support different operating systems
ICASAS425A	Configure and troubleshoot operating system software
ICASAS426A	Locate and troubleshoot IT equipment, system and software faults
ICASAS501A	Develop, implement and evaluate an incident response plan
ICASAS502A	Establish and maintain client user liaison
ICASAS503A	Perform systems tests
ICASAS504A	Develop and conduct client acceptance test
ICASAS505A	Review and update disaster recovery and contingency plans
ICASAS506A	Update IT system operational procedures
ICASAS507A	Implement and evaluate systems for regulatory and standards compliance

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title
ICASAS509A	Provide client IT support services
ICASAS510A	Review and develop IT maintenance strategy
ICASAS511A	Prioritise IT change requests
ICASAS512A	Review and manage delivery of maintenance services
ICASAS513A	Develop detailed test plans
ICASAS514A	Perform integration tests
ICASAS515A	Manage the testing process
ICASAS516A	Perform stress and load tests on integrated platforms
ICASAS517A	Use network tools
ICASAS518A	Install and upgrade operating systems
ICASAS601A	Implement change-management processes
ICASUS701A	Plan and manage virtualisation for IT sustainability
ICASUS702A	Conduct a business case study for integrating sustainability in IT planning and design projects
ICASUS703A	Research strategies using SAP solutions for sustainable economic and environmental outcomes
ICAWEB201A	Use social media tools for collaboration and engagement
ICAWEB301A	Create a simple markup language document
ICAWEB302A	Build simple websites using commercial programs
ICAWEB303A	Produce digital images for the web
ICAWEB401A	Design a website to meet technical requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title
ICAWEB402A	Confirm accessibility of websites for people with special needs
ICAWEB403A	Transfer content to a website using commercial packages
ICAWEB404A	Maintain website performance
ICAWEB405A	Monitor traffic and compile website traffic reports
ICAWEB406A	Create website testing procedures
ICAWEB407A	Conduct operational acceptance tests of websites
ICAWEB408A	Ensure basic website security
ICAWEB409A	Develop cascading style sheets
ICAWEB410A	Apply web authoring tool to convert client data for websites
ICAWEB411A	Produce basic client-side script for dynamic web pages
ICAWEB412A	Produce interactive web animation
ICAWEB413A	Optimise search engines
ICAWEB414A	Design simple web page layouts
ICAWEB415A	Produce server-side script for dynamic web pages
ICAWEB416A	Customise content management system
ICAWEB417A	Integrate social web technologies
ICAWEB418A	Use development software and IT tools to build a basic website
ICAWEB419A	Develop guidelines for uploading information to a website
ICAWEB420A	Write content for web pages

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title
ICAWEB421A	Ensure website content meets technical protocols and standards
ICAWEB422A	Ensure website access and useability
ICAWEB423A	Ensure dynamic website security
ICAWEB424A	Evaluate and select a web hosting service
ICAWEB425A	Apply structured query language to extract and manipulate data
ICAWEB429A	Create a markup language document to specification
ICAWEB501A	Build a dynamic website
ICAWEB502A	Create dynamic web pages
ICAWEB503A	Create web-based programs
ICAWEB504A	Build a document using eXtensible markup language
ICAWEB505A	Develop complex web page layouts
ICAWEB506A	Develop complex cascading style sheets
ICAWEB507A	Customise a complex IT content management system
ICAWEB508A	Develop website information architecture
ICAWEB509A	Use site server tools for transaction management
ICAWEB510A	Analyse information and assign meta-tags
ICAWEB511A	Implement quality assurance process for websites
ICAWEB512A	Administer business websites and servers
ICAWEB515A	Implement and use web services
ICAWEB516A	Research and apply emerging web technology trends

© Commonwealth of Australia, 2025 Future Skills Organisation

Imported Units of Competency in ICA11 Information and Communications Technology Training Package

Unit code	Unit title	Origin
BSBCMM101A	Apply basic communication skills	BSB07 Business Services Training Package
BSBCRT401A	Articulate, present and debate ideas	BSB07 Business Services Training Package
BSBCRT501A	Originate and develop concepts	BSB07 Business Services Training Package
BSBEBU401A	Review and maintain a website	BSB07 Business Services Training Package
BSBEBU501A	Investigate and design e-business solutions	BSB07 Business Services Training Package
BSBINN601B	Manage organisational change	BSB07 Business Services Training Package
BSBIPR301A	Comply with organisational requirements for protection and use of intellectual property	BSB07 Business Services Training Package
BSBMGT608C	Manage innovation and continuous improvement	BSB07 Business Services Training Package
BSBPMG517A	Manage project risk	BSB07 Business Services Training Package
BSBREL701A	Develop and cultivate collaborative partnerships and relationships	BSB07 Business Services Training Package
BSBSUS201A	Participate in environmentally sustainable work practices	BSB07 Business Services Training Package
BSBSUS301A	Implement and monitor environmentally sustainable work practices	BSB07 Business Services Training Package

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title	Origin
BSBSUS501A	Develop workplace policy and procedures for sustainability	BSB07 Business Services Training Package
BSBWHS201A	Contribute to health and safety of self and others	BSB07 Business Services Training Package
BSBWHS304A	Participate effectively in WHS communication and consultative processes	BSB07 Business Services Training Package
BSBWHS403A	Contribute to implementing and maintaining WHS consultation and participation process	BSB07 Business Services Training Package
BSBWHS501A	Ensure a safe workplace	BSB07 Business Services Training Package
BSBWOR301B	Organise personal work priorities and development	BSB07 Business Services Training Package
BSBWOR404B	Develop work priorities	BSB07 Business Services Training Package
BSBWOR502B	Ensure team effectiveness	BSB07 Business Services Training Package
CPPSEC3009A	Prepare and present evidence in court	CPP07 Property Services Training Package
CPPSEC5003A	Assess security risk management options	CPP07 Property Services Training Package
CPPSEC5004A	Prepare security risk management plan	CPP07 Property Services Training Package
CPPSEC5005A	Implement security risk management plan	CPP07 Property Services Training Package
CPPSEC5006A	Determine strategy for the implementation of biometric technology	CPP07 Property Services Training Package
CPPSEC5007A	Assess biometric system	CPP07 Property Services Training Package
CUFANM30	Create 2D digital animations	CUF07 Screen and Media

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title	Origin
1A		Training Package
CUFANM302A	Create 3D digital animations	CUF07 Screen and Media Training Package
CUFANM303A	Create 3D digital models	CUF07 Screen and Media Training Package
CUFANM402A	Create digital visual effects	CUF07 Screen and Media Training Package
CUFCAM201A	Assist with a basic camera shoot	CUF07 Screen and Media Training Package
CUFCAM301A	Shoot material for screen productions	CUF07 Screen and Media Training Package
CUFDIG201A	Maintain interactive content	CUF07 Screen and Media Training Package
CUFDIG301A	Prepare video assets	CUF07 Screen and Media Training Package
CUFDIG302A	Author interactive sequences	CUF07 Screen and Media Training Package
CUFDIG303A	Produce and prepare photo images	CUF07 Screen and Media Training Package
CUFDIG304A	Create visual design components	CUF07 Screen and Media Training Package
CUFDIG401A	Author interactive media	CUF07 Screen and Media Training Package
CUFDIG502A	Design web environments	CUF07 Screen and Media Training Package
CUFDIG503A	Design e-learning resources	CUF07 Screen and Media Training Package
CUFDIG504A	Design games	CUF07 Screen and Media Training Package
CUFDIG507A	Design digital simulations	CUF07 Screen and Media Training Package
CUFPOS201	Perform basic vision and	CUF07 Screen and Media

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title	Origin
A	sound editing	Training Package
CUFPOS401 A	Edit screen content for fast turnaround	CUF07 Screen and Media Training Package
CUFPOS402 A	Manage media assets	CUF07 Screen and Media Training Package
CUFPPM404 A	Create storyboards	CUF07 Screen and Media Training Package
CUFSOU204 A	Perform basic sound editing	CUF07 Screen and Media Training Package
CUFSOU301 A	Prepare audio assets	CUF07 Screen and Media Training Package
CUSSOU302 A	Record and mix a basic music demo	CUS09 Music Training Package
CUSSOU403 A	Perform advanced sound editing	CUS09 Music Training Package
CUSSOU502 A	Produce sound recordings	CUS09 Music Training Package
CUVPHI519 A	Investigate and exploit innovative imaging options	CUV11 Visual Arts, Craft and Design Training Package
CUVDRA201A	Develop drawing skills	CUV11 Visual Arts, Craft and Design Training Package
ICPMM321 C	Capture a digital image	ICP10 Printing and Graphic Arts Training Package
ICPMM346 C	Incorporate video into multimedia presentations	ICP10 Printing and Graphic Arts Training Package
ICTBWN308 2A	Perform tests on optical communication system and components	ICT10 Integrated Telecommunications Training Package
ICTBWN308 8A	Install optical fibre splitters in fibre distribution hubs	ICT10 Integrated Telecommunications Training Package

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title	Origin
ICTBWN3090A	Install lead-in module and cable for fibre to the premises	ICT10 Integrated Telecommunications Training Package
ICTBWN3100A	Work safely with live fibre to test and commission a fibre to the x installation	ICT10 Integrated Telecommunications Training Package
ICTCBL2065A	Splice and terminate optical fibre cable for carriers and service providers	ICT10 Integrated Telecommunications Training Package
ICTCBL2136A	Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule	ICT10 Integrated Telecommunications Training Package
ICTCBL2137A	Install, maintain and modify customer premises communications cabling: ACMA Open Rule	ICT10 Integrated Telecommunications Training Package
ICTCBL2139A	Apply safe technical work practices for cabling registration	ICT10 Integrated Telecommunications Training Package
ICTOPN4116A	Use advanced optical test equipment	ICT10 Integrated Telecommunications Training Package
ICTOPN5119A	Perform acceptance and commissioning tests on optical network	ICT10 Integrated Telecommunications Training Package
ICTOPN5120A	Plan for an optical system upgrade and cut over	ICT10 Integrated Telecommunications Training Package
ICTOPN5122A	Test the performance of specialised optical devices	ICT10 Integrated Telecommunications Training Package
ICTOPN5123A	Analyse and integrate specialised optical devices in the network	ICT10 Integrated Telecommunications Training Package
ICTPMG814	Manage a telecommunications	ICT10 Integrated

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title	Origin
3A	project	Telecommunications Training Package
ICTPMG8149A	Evaluate and use telecommunications management networks	ICT10 Integrated Telecommunications Training Package
ICTSUS4183A	Install and test renewable energy system for ICT networks	ICT10 Integrated Telecommunications Training Package
ICTSUS4184A	Install and test power saving hardware	ICT10 Integrated Telecommunications Training Package
ICTSUS4185A	Install and test power management software	ICT10 Integrated Telecommunications Training Package
ICTSUS4186A	Install thin client applications for power over ethernet	ICT10 Integrated Telecommunications Training Package
ICTSUS5187A	Implement server virtualisation for a sustainable ICT system	ICT10 Integrated Telecommunications Training Package
ICTSUS6233A	Integrate sustainability in ICT planning and design projects	ICT10 Integrated Telecommunications Training Package
ICTSUS6234A	Establish a business case for sustainability and competitive advantage in ICT projects	ICT10 Integrated Telecommunications Training Package
ICTSUS7235A	Use ICT to improve sustainability outcomes	ICT10 Integrated Telecommunications Training Package
ICTSUS7236A	Manage improvements in ICT sustainability	ICT10 Integrated Telecommunications Training Package
ICTSUS8237A	Lead applied research in ICT sustainability	ICT10 Integrated Telecommunications Training Package

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title	Origin
ICTSUS8238A	Conduct and manage a life cycle assessment for sustainability	ICT10 Integrated Telecommunications Training Package
ICTTEN2140A	Use hand and power tools	ICT10 Integrated Telecommunications Training Package
ICTTEN4081A	Locate, diagnose and rectify faults	ICT10 Integrated Telecommunications Training Package
ICTTEN4198A	Install, configure and test an internet protocol network	ICT10 Integrated Telecommunications Training Package
ICTTEN4199A	Install, configure and test a router	ICT10 Integrated Telecommunications Training Package
ICTTEN4202A	Install and test a radio frequency identification system	ICT10 Integrated Telecommunications Training Package
ICTTEN4210A	Implement and troubleshoot enterprise routers and switches	ICT10 Integrated Telecommunications Training Package
ICTTEN4211A	Design, install and configure an internetwork	ICT10 Integrated Telecommunications Training Package
ICTTEN4213A	Configure and troubleshoot advanced network switching	ICT10 Integrated Telecommunications Training Package
ICTTEN5024A	Provide consultancy and technical support in the customer premises equipment sector	ICT10 Integrated Telecommunications Training Package
ICTTEN5168A	Design and implement an enterprise voice over internet protocol and a unified communications network	ICT10 Integrated Telecommunications Training Package
ICTTEN520	Install, configure and test a	ICT10 Integrated

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit code	Unit title	Origin
0A	local area network switch	Telecommunications Training Package
ICTTEN5201A	Install, configure and test a server	ICT10 Integrated Telecommunications Training Package
ICTTEN5203A	Dimension and design a radio frequency identification system	ICT10 Integrated Telecommunications Training Package
ICTTEN5204A	Produce technical solutions from business specifications	ICT10 Integrated Telecommunications Training Package
ICTTEN5217A	Plan a wireless mesh network	ICT10 Integrated Telecommunications Training Package
ICTTEN6172A	Design and configure an IP-MPLS network with virtual private network tunnelling	ICT10 Integrated Telecommunications Training Package
ICTTEN6206A	Produce an ICT network architecture design	ICT10 Integrated Telecommunications Training Package
ICTTEN8195A	Evaluate and apply network security	ICT10 Integrated Telecommunications Training Package

Summary of Mapping

Mapping of Qualifications Key: E = equivalent, N = not equivalent			
Qualification code and title ICA11 v2	**Qualification code and title ICA11 v1**	**Comments**	**E/N**
ICA10111 Certificate I in Information, Digital Media and Technology	ICA10111 Certificate I in Information, Digital Media and Technology	Outcomes deemed equivalent. , BSBWHS201A Contribute to health and safety of self and others added to list of elective units.	E

© Commonwealth of Australia, 2025 Future Skills Organisation

Mapping of Qualifications Key: E = equivalent, N = not equivalent			
Qualification code and title ICA11 v2	**Qualification code and title ICA11 v1**	**Comments**	**E/N**
ICA30111 Certificate III in Information, Digital Media and Technology	ICA30111 Certificate III in Information, Digital Media and Technology	Outcomes deemed equivalent. ICANWK306A Evaluate characteristics of cloud computing solutions and services and ICANWK419A Identify and use current virtualisation technologies added to Elective Group F. Adjustment to elective choice to increase flexibility.	E
ICA40111 Certificate IV in Information Technology	ICA40111 Certificate IV in Information Technology	Outcomes deemed equivalent. ICAICT423A Select cloud storage strategies and ICANWK419A Identify and use current virtualisation technologies added to Elective Group A. Adjustment to elective choice to increase flexibility.	E
ICA40211 Certificate IV in Information Technology Support	ICA40211 Certificate IV in Information Technology Support	Outcomes deemed equivalent. ICAICT423A Select cloud storage strategies and ICANWK419A Identify and use current virtualisation technologies added to Elective Group E. Adjustment to elective choice to increase flexibility.	E
ICA40411 Certificate IV in Information Technology Networking	ICA40411 Certificate IV in Information Technology Networking	Outcomes deemed equivalent. ICAICT423A Select cloud storage strategies and ICANWK419A Identify and use current virtualisation technologies added to list of elective units. Adjustment to elective choice to increase flexibility.	E
ICA40511 Certificate IV in Programming	ICA40511 Certificate IV in Programming	Outcomes deemed equivalent. BSBWHS304A Participate effectively in WHS communication and consultation processes added to list of elective units.	E
ICA40711 Certificate IV in Systems Analysis and Design	ICA40711 Certificate IV in Systems Analysis and Design	Outcomes deemed equivalent. BSBWOR301B Organise personal work priorities and development added to list	E

© Commonwealth of Australia, 2025 Future Skills Organisation

Mapping of Qualifications Key: E = equivalent, N = not equivalent			
Qualification code and title ICA11 v2	**Qualification code and title ICA11 v1**	**Comments**	**E/N**
		of elective units.	
ICA40911 Certificate IV in Digital and Interactive Games	ICA40911 Certificate IV in Digital and Interactive Games	Outcomes deemed equivalent. CUVDRA201A Develop drawing skills added to list of elective units.	E
ICA41011 Certificate IV in Computer Systems Technology	ICA40111 Certificate IV in Computer Systems Technology	Outcomes deemed equivalent. ICAICT423A Select cloud storage strategies and ICANWK419A Identify and use current virtualisation technologies added to list of elective choice to increase flexibility.	E
ICA50111 Diploma of Information Technology	ICA50111 Diploma of Information Technology	Outcomes deemed equivalent. ICANWK533A Configure and manage advanced virtual computing environments, ICANWK534A Monitor and troubleshoot virtual computing environments, ICANWK535A Install an enterprise virtual computing environment and ICANWK615A Design and configure desktop virtualisation added to Elective Group A. Adjustment to elective choice to increase flexibility.	E
ICA50311 Diploma of Information Technology Systems Administration	ICA50311 Diploma of Information Technology Systems Administration	Outcomes deemed equivalent. ICANWK533A Configure and manage advanced virtual computing environments, ICANWK534A Monitor and troubleshoot virtual computing environments, ICANWK535A Install an enterprise virtual computing environment and ICANWK615A Design and configure desktop virtualisation added to list of elective units. Adjustment to elective choice to increase flexibility.	E
ICA50411 Diploma of Information Technology Networking	ICA50411 Diploma of Information Technology Networking	Outcomes deemed equivalent. ICANWK533A Configure and manage advanced virtual computing environments, ICANWK534A Monitor and troubleshoot virtual computing	E

© Commonwealth of Australia, 2025 Future Skills Organisation

Mapping of Qualifications Key: E = equivalent, N = not equivalent			
Qualification code and title ICA11 v2	**Qualification code and title ICA11 v1**	**Comments**	**E/N**
		environments, ICANWK535A Install an enterprise virtual computing environment and ICANWK615A Design and configure desktop virtualisation added to list of elective units. Adjustment to elective choice to increase flexibility.	
ICA50511 Diploma of Database Design and Development	ICA50511 Diploma of Information Database Design and Development	Outcomes deemed equivalent. ICAICT423A Select cloud storage strategies added to list of elective units.	E
ICA50711 Diploma of Software Development	ICA50711 Diploma of Software Development	Outcomes deemed equivalent. Elective unit ICAPRG603A Create cloud computing services replaced with non-equivalent revised unit ICAPRG604A. Adjustment to elective choice to increase flexibility.	E
ICA50911 Diploma of Digital Media Technologies	ICA50911 Diploma of Digital Media Technologies	Outcomes deemed equivalent. CUVPHI519A Investigate and exploit innovative imaging options added to list of elective units.	E
ICA60111 Advanced Diploma of Information Technology	ICA60111 Advanced Diploma of Information Technology	Outcomes deemed equivalent. ICANWK616A Manage security, privacy and compliance of cloud service deployment added to Elective Group C. Adjustment to elective choice to increase flexibility.	E
ICA60211 Advanced Diploma of Network Security	ICA60208 Advanced Diploma of Network Security	Outcomes deemed equivalent. ICANWK615A Design and configure desktop virtualisation and ICANWK616A Manage security, privacy and compliance of cloud service deployment added to list of elective units. Adjustment to elective choice to increase flexibility.	E
ICA60511 Advanced Diploma of Computer	ICA60511 Advanced Diploma of Computer	Outcomes deemed equivalent. ICANWK533A Configure and manage	E

© Commonwealth of Australia, 2025 Future Skills Organisation

Mapping of Qualifications Key: E = equivalent, N = not equivalent			
Qualification code and title ICA11 v2	**Qualification code and title ICA11 v1**	**Comments**	**E/N**
Systems Technology	Systems Technology	advanced virtual computing environments, ICANWK534A Monitor and troubleshoot virtual computing environments, ICANWK535A Install an enterprise virtual computing environment , ICANWK615A Design and configure desktop virtualisation, and ICANWK616A Manage security, privacy and compliance of cloud service deployment added to list of elective units. Adjustment to elective choice to increase flexibility.	
ICA70111 Vocational Graduate Certificate in Information Technology and Strategic Management	ICA70111 Vocational Graduate Certificate in Information Technology and Strategic Management	Outcomes deemed equivalent. ICAICT814A Develop cloud computing strategies for a business added to list of elective units. Adjustment to elective choice to increase flexibility.	E
NOTE: The equivalence of qualifications reflects a vocational outcome rather than a structural change linked to greater flexibility of the new package qualifications; and removal of entry requirements and prerequisites.			

Mapping to Previous Training Package			
Mapping of units of competency Key: E = equivalent, N = not equivalent			
ICA11 v2 Unit code and title	**ICA v1 Unit code and title**	**Comments**	**E/N**
ICADBS503B Create a data warehouse	ICADBS503A Create a data warehouse	Revised unit. Outcomes deemed equivalent. Added performance criteria under element 1. Added to range statement. A range of minor editorial changes.	E

© Commonwealth of Australia, 2025 Future Skills Organisation

Mapping to Previous Training Package			
Mapping of units of competency Key: E = equivalent, N = not equivalent			
ICA11 v2 Unit code and title	**ICA v1 Unit code and title**	**Comments**	**E/N**
ICADBS601B Build a data warehouse	ICADBS601A Build a data warehouse	Revised unit. Outcomes deemed equivalent. Added performance criteria under element 1. Added to range statement. A range of minor editorial changes.	E
ICADBS603B Determine suitability of database functionality and scalability	ICADBS603A Determine suitability of database functionality and scalability	Revised unit. Outcomes deemed equivalent. Added performance criteria under element 2. Added to range statement. A range of minor editorial changes.	E
ICAICT423A Select cloud storage strategies	N/A	New unit	
ICAICT814A Develop cloud computing strategies for a business	N/A	New unit.	
ICANWK306A Evaluate characteristics of cloud computing solutions and services	N/A	New unit	
ICANWK419A Identify and use current virtualisation technologies	N/A	New unit	
ICANWK525B Configure an enterprise virtual computing environment	ICANWK525A Configure an enterprise virtual computing environment	Revised unit. Outcomes deemed equivalent. Added performance criteria under elements 1 and 2. Added to range statement. A range of minor editorial changes.	E

© Commonwealth of Australia, 2025 Future Skills Organisation

Mapping to Previous Training Package			
Mapping of units of competency Key: E = equivalent, N = not equivalent			
ICA11 v2 Unit code and title	**ICA v1 Unit code and title**	**Comments**	**E/N**
ICANWK527B Manage an enterprise virtual computing environment	ICANWK527A Manage an enterprise virtual computing environment	Revised unit. Outcomes deemed equivalent. Added performance criteria under elements 3 and 4. A range of minor editorial changes.	E
ICANWK533A Configure and manage advanced virtual computing environments	N/A	New unit	
ICANWK534A Monitor and troubleshoot virtual computing	N/A	New unit	
ICANWK535A Install an enterprise virtual computing environment	ICANWK526A Install an enterprise virtual computing environment	New unit based on ICANWK526A.	
ICANWK615A Design and configure desktop virtualisation	N/A	New unit	
ICANWK616A Manage security, privacy and compliance of cloud service deployment	N/A	New unit	
ICAPRG604A Create cloud computing services	ICAPRG603A Create cloud computing services	New unit based on ICAPRG603A	N

Overview

What is a Training Package?

A Training Package is an integrated set of nationally endorsed competency standards, assessment guidelines and Australian Qualifications Framework (AQF) qualifications for a specific industry, industry sector or enterprise.

© Commonwealth of Australia, 2025 Future Skills Organisation

Each Training Package:

- provides a consistent and reliable set of components for training, recognising and assessing peoples skills, and may also have optional support materials
- enables nationally recognised qualifications to be awarded through direct assessment of workplace competencies
- encourages the development and delivery of flexible training which suits individual and industry requirements
- encourages learning and assessment in a work-related environment which leads to verifiable workplace outcomes.

How do Training Packages fit within the National Skills Framework?

The National Skills Framework applies nationally, is endorsed by the Ministerial Council for Vocational and Technical Education, and comprises the Australian Quality Training Framework 2010 (AQTF 2010), and Training Packages endorsed by the National Quality Council (NQC).

How are Training Packages developed?

Training Packages are developed by Industry Skills Councils or enterprises to meet the identified training needs of specific industries or industry sectors. To gain national endorsement of Training Packages, developers must provide evidence of extensive research, consultation and support within the industry area or enterprise.

How do Training Packages encourage flexibility?

Training Packages describe the skills and knowledge needed to perform effectively in the workplace without prescribing how people should be trained.

Training Packages acknowledge that people can achieve vocational competency in many ways by emphasising what the learner can do, not how or where they learned to do it. For example, some experienced workers might be able to demonstrate competency against the units of competency, and even gain a qualification, without completing a formal training program.

With Training Packages, assessment and training may be conducted at the workplace, off-the-job, at a training organisation, during regular work, or through work experience, work placement, work simulation or any combination of these.

Who can deliver and assess using Training Packages?

Training and assessment using Training Packages must be conducted by a Registered Training Organisation (RTO) that has the qualifications or specific units of competency on its scope of registration, or that works in partnership with another RTO, as specified in the AQTF 2010.

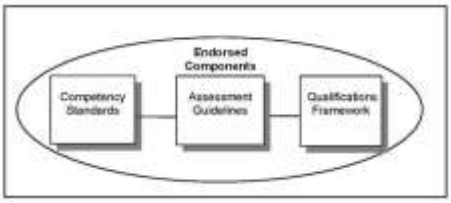
Training Package Components

Training Packages are made up of mandatory components endorsed by the NQC, and optional support materials.

© Commonwealth of Australia, 2025 Future Skills Organisation

Training Package Endorsed Components

The nationally endorsed components include the Competency Standards, Assessment Guidelines and Qualifications Framework. These form the basis of training and assessment in the Training Package and, as such, they must be used.



Competency Standards

Each unit of competency identifies a discrete workplace requirement and includes the knowledge and skills that underpin competency as well as language, literacy and numeracy; and occupational health and safety requirements. The units of competency must be adhered to in training and assessment to ensure consistency of outcomes.

Assessment Guidelines

The Assessment Guidelines provide an industry framework to ensure all assessments meet industry needs and nationally agreed standards as expressed in the Training Package and the AQTF 2010. The Assessment Guidelines must be followed to ensure the integrity of assessment leading to nationally recognised qualifications.

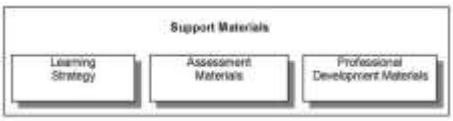
Qualifications Framework

Each Training Package provides details of those units of competency that must be achieved to award AQF qualifications. The rules around which units of competency can be combined to make up a valid AQF qualification in the Training Package are referred to as the ‘packaging rules’. The packaging rules must be followed to ensure the integrity of nationally recognised qualifications issued.

Training Package Support Materials

The endorsed components of Training Packages are complemented and supported by optional support materials that provide for choice in the design of training and assessment to meet the needs of industry and learners.

Training Package support materials can relate to single or multiple units of competency, an industry sector, a qualification or the whole Training Package. They tend to fall into one or more of the categories illustrated below.



Training Package support materials are produced by a range of stakeholders such as RTOs, individual trainers and assessors, private and commercial developers and Government agencies.

© Commonwealth of Australia, 2025 Future Skills Organisation

Training Package, Qualification and Unit of Competency Codes

There are agreed conventions for the national codes used for Training Packages and their components. Always use the correct codes, exactly as they appear in the Training Package, **and with the code always before the title**.

Training Package Codes

Each Training Package has a unique five-character national code assigned when the Training Package is endorsed, for example XYZ08. The first three characters are letters identifying the Training Package industry coverage and the last two characters are numbers identifying the year of endorsement.

Qualification Codes

Within each Training Package, each qualification has a unique eight-character code, for example XYZ10108. Qualification codes are developed as follows:

- the first three letters identify the Training Package;
- the first number identifies the qualification level (noting that, in the qualification titles themselves, arabic numbers are **not** used);
- the next two numbers identify the position in the sequence of the qualification at that level; and
- the last two numbers identify the year in which the qualification was endorsed. (Where qualifications are added after the initial Training Package endorsement, the last two numbers may differ from other Training Package qualifications as they identify the year in which those particular qualifications were endorsed.)

Unit of Competency Codes

Within each Training Package, each unit of competency has a unique code. Unit of competency codes are assigned when the Training Package is endorsed, or when new units of competency are added to an existing endorsed Training Package. Unit codes are developed as follows:

- a typical code is made up of 12 characters, normally a mixture of uppercase letters and numbers, as in ICADBS401A;
- the first three characters signify the Training Package – ICA11 Information and Communications Technology Training Package – in the above example and up to eight characters, relating to an industry sector, function or skill area, follow;
- the last character is always a letter and identifies the unit of competency version. An ‘A’ at the end of the code indicates that this is the original unit of competency. ‘B’, or another incremented version identifier means that minor changes have been made. Typically this would mean that wording has changed in the range statement or evidence guide, providing clearer intent; and
- where changes are made that alter the outcome, a new code is assigned and the title is changed.

Training Package, Qualification and Unit of Competency Titles

There are agreed conventions for titling Training Packages and their components. Always use the correct titles, exactly as they appear in the Training Package, and with the code always placed before the title.

© Commonwealth of Australia, 2025 Future Skills Organisation

Training Package Titles

The title of each endorsed Training Package is unique and relates the Training Packages broad industry coverage.

Qualification Titles

The title of each endorsed Training Package qualification is unique. Qualification titles use the following sequence:

- first, the qualification is identified as either Certificate I, Certificate II, Certificate III, Certificate IV, Diploma, Advanced Diploma, Vocational Graduate Certificate, or Vocational Graduate Diploma;
- this is followed by the words ‘in’ for Certificates I to IV, and ‘of’ for Diploma, Advanced Diploma, Vocational Graduate Certificate and Vocational Graduate Diploma;
- then, the industry descriptor, for example Telecommunications; and
- then, if applicable, the occupational or functional stream in brackets, for example (Computer Systems).

For example: ICA10111 Certificate I in Information, Digital Media and Technology

Unit of Competency Titles

Each unit of competency title is unique. Unit of competency titles describe the competency outcome concisely, and are written in sentence case.

For example: ICADBS401A Identify physical database requirements

Introduction to the ICA11 Information and Communications Technology Training Package

Historical and General Information

Over the past few years, ICT industry coverage has expanded to include the convergence of technologies across a number of industry areas, including networking, web development, software development, database integration, sustainability, application implementation, telecommunications, digital and interactive games and digital media technologies.

The ICA11 Training Package review project identified a number of new and emerging technology trends in the industry that have occurred since the ICA05 Information and Communications Technology Training Package was developed.

Also, the Federal Government is heavily committed to initiatives, such as the high-speed National Broadband Network (NBN) roll out, the Digital Economy, Digital Education Revolution (DER) computers in schools program, and the implementation of the ‘Green ICT’ sustainability strategy, all of which will impact on the Information and Communications Technology industry.

New technologies

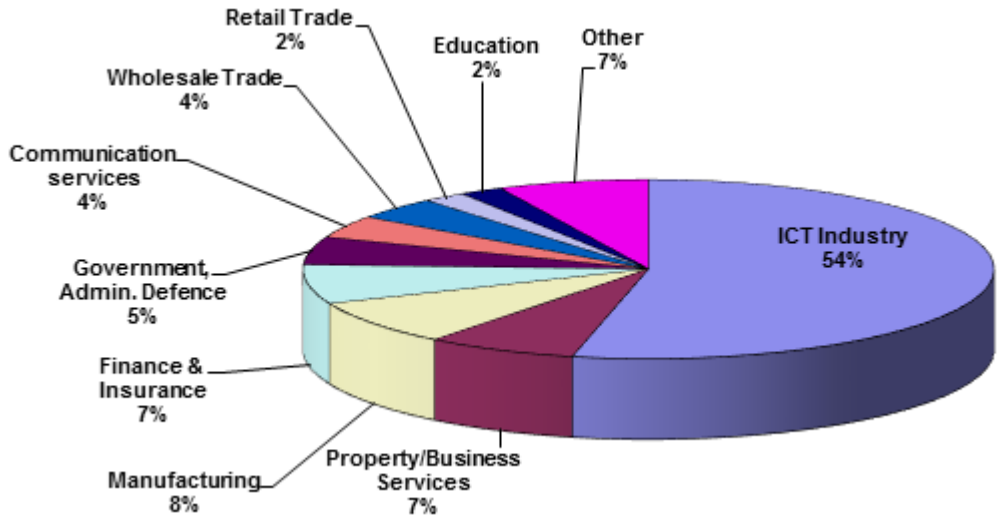
© Commonwealth of Australia, 2025 Future Skills Organisation

ICT industry coverage includes convergence of technologies across a number of industry areas, including networking, web development, software development, database integration, cloud computing conceptualisation, big data, virtualisation technologies, sustainability, application implementation, telecommunications, digital and interactive games and digital media technologies.

Introduction to the Industry

The ICT industry in Australia is estimated to have generated $85-$98 billion in revenue for the year 2008-2009, to have employed some 268,000 people in 2007-2008 and, as of February 2009, to employ a total of 532,500 ICT workers in all industries across Australia. *(Source: ABS Labour Market Survey Feb 2009, ICT Industry logistics CIIER 2008 as reported in Australian Computer Society (July 2009). ACS Australian ICT Statistical Compendium 2009. pages 6-7)*

ICT employment and occupations fall across all sectors and industries in Australia. Of the total number or people employed in ICT occupations in 2007-2008 (ABS 2008), just over half (54%) actually fell within what can be classified as the ICT industry division.



DEEWR 2007, adjusted by CIIER to compensate for ICT industry sector excision as reported in IBSA eScan report; Allen Consulting Group (April 2009). Environmental Scan 2009. IBSA: Melbourne. p. 35.

ICA11 needs to cater for those seeking a professional career pathway in the ICT industry as well as those seeking the ICT skills to support careers in a myriad of associated industries. It also needs to be acknowledged that information technology and IT workers are spread across many diverse non-ICT industries, with their jobs not recognised in the ICT occupation skills classifications. Indications are that up to 80% of students undertaking ICT qualifications do not progress beyond AQF Certificate III level, but move horizontally with their ICT knowledge and skills into other non-ICT industries.

© Commonwealth of Australia, 2025 Future Skills Organisation

As with many other sectors, technological convergence is affecting the way people work in the technical industries. The changing nature of the information and communications technology industries over the past decade has resulted in the need to accommodate a variety of changes in the review of ICA11.

The Australian ICT industry has become more of a service industry then a specialised IT focused industry with the result that national ICT career pathways are becoming more vertical than horizontal and are requiring the versatility to incorporate a mix of various ICT skills rather than relying on the historically fixed specialist ICT stream career pathway.

The shift to a more service-focused industry base and the need for flexibility in career pathways for the Australian ICT industry has had a major influence on the development of ICA11. When the ICA Training Package was updated from 1999 to later versions, stand-alone career pathways were created in anticipation of Australia becoming a ‘development house’ for Asia and the local region. These aspirations simply have not eventuated and the feedback and data from the ICA05 Scoping Report indicate that we are now further away than ever from being a globally competitive, development-oriented IT industry. To clarify this position we can analyse, as an example, the career pathway data for specialist programmers which shows a gradual decline in demand over the past decade. This is not to say such jobs do not exist in niche industry areas or regions, but the national career pathways have now blurred and converged across other sectors both in IT and non-IT areas. "Programming" now needs to be augmented with some other skill sets, such as management, games development, web development; "Software Development" with other skill sets such as helpdesk/service centre support. This scenario relating to increasing skills also holds true for many of the other ICT career pathways.

To fully encompass these industry-identified changes, ICA11 has incorporated both a horizontal and vertical approach to ICT career pathway progression. The ICA11 qualifications have been developed to enable a specialist outcome in the key ICT areas combined with the flexibility to incorporate a diverse range of skill sets so as to provide a wider career pathway outcome.

Medium to small business enterprises are becoming more common in the industry. Due to their cost structures and business requirements, these enterprises need graduates with applied general IT skills rather than with a full specialist qualification. While the need to develop specialist pathways is still critically important, ICA11 needs to also offer the flexibility to cater for broader cross-specialisation skill sets and career pathways.

© Commonwealth of Australia, 2025 Future Skills Organisation

The combination of the above with the most recent initiatives also detailed above, such as NBN, DER, computers in schools, and green and sustainable IT, is creating major growth in the ICT industry in Australia as well as potentially generating a rising demand for both general and niche specialist IT skills. This situation is also causing a blurring of traditional IT job profiles and formal IT occupational boundaries, with the integration of competencies across IT, telecommunications, digital art and 3D rendering, mobile applications development, data storage, games development and entertainment.

As a result, this has created a significant shift to current ICT technologies including a greater application of:

- networks (using wireless for data and voice) and overlay of broadband
- IP-based communications, broadcasting, switching and transmission
- enhancements to content and network management capabilities
- wireless and mobile systems
- mesh and cloud networks
- green technology requirements
- interactive and digital games development
- digital media technologies
- social web technologies
- network security
- digital literacy.

Additionally:

- sustainability skills units are embedded in the core or elective groups of each qualification
- language, literacy and numeracy skills are described appropriately for all competency outcomes
- units of competency covering digital literacy are incorporated at entry level.

The ICA11 Training Package also provides support for movement of skills within and across organisations and sectors. The packaging rules for qualifications are clear and consistent and allow a logical progression of skills development between AQF levels. The Training Package allows for multiple entry points and progression pathways enabling a formal learning progression from AQF 1 through to Advanced Diploma and Vocational Graduate Certificate level.

To increase the flexibility and portability of ICA11 qualifications, units of competency have been imported from the following endorsed Training Packages:

- BSB07 Business Services
- CPP07 Property Services
- CUF07 Screen and MediaCUS09 Music
- CUV11 Visual Arts, Craft and Design

© Commonwealth of Australia, 2025 Future Skills Organisation

- ICP10 Printing and Graphic Arts
- ICT10 Integrated Telecommunications.
-

Qualifications Framework

The Australian Qualifications Framework

What is the Australian Qualifications Framework?

A brief overview of the Australian Qualifications Framework (AQF) follows. For a full explanation of the AQF, see the *AQF Implementation Handbook*.
http://www.aqf.edu.au/Portals/0/Documents/Handbook/AQF_Handbook_07.pdf

The AQF provides a comprehensive, nationally consistent framework for all qualifications in post-compulsory education and training in Australia. In the vocational education and training (VET) sector it assists national consistency for all trainees, learners, employers and providers by enabling national recognition of qualifications and Statements of Attainment.

Training Package qualifications in the VET sector must comply with the titles and guidelines of the AQF. Endorsed Training Packages provide a unique title for each AQF qualification which must always be reproduced accurately.

Qualifications

Training Packages can incorporate the following eight AQF qualifications.

- Certificate I in ...
- Certificate II in ...
- Certificate III in ...
- Certificate IV in ...
- Diploma of ...
- Advanced Diploma of ...
- Vocational Graduate Certificate of ...
- Vocational Graduate Diploma of ...

On completion of the requirements defined in the Training Package, a Registered Training Organisation (RTO) may issue a nationally recognised AQF qualification. Issuance of AQF qualifications must comply with the advice provided in the *AQF Implementation Handbook* and the AQTF 2010 *Essential Standards for Initial and Continuing Registration*.

Statement of Attainment

A Statement of Attainment is issued by a Registered Training Organisation when an individual has completed one or more units of competency from nationally recognised qualification(s)/courses(s). Issuance of Statements of Attainment must comply with the advice provided in the current *AQF Implementation Handbook* and the AQTF 2010 *Essential Standards for Initial and Continuing Registration*.

© Commonwealth of Australia, 2025 Future Skills Organisation

Under the AQTF 2010, RTOs must recognise the achievement of competencies as recorded on a qualification or Statement of Attainment issued by other RTOs. Given this, recognised competencies can progressively build towards a full AQF qualification.

AQF Guidelines and Learning Outcomes

The *AQF Implementation Handbook* provides a comprehensive guideline for each AQF qualification. A summary of the learning outcome characteristics and their distinguishing features for each VET related AQF qualification is provided below.

Certificate I

Characteristics of Learning Outcomes

Breadth, depth and complexity of knowledge and skills would prepare a person to perform a defined range of activities most of which may be routine and predictable.

Applications may include a variety of employment related skills including preparatory access and participation skills, broad-based induction skills and/or specific workplace skills. They may also include participation in a team or work group.

Distinguishing Features of Learning Outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate knowledge by recall in a narrow range of areas;
- demonstrate basic practical skills, such as the use of relevant tools;
- perform a sequence of routine tasks given clear direction
- receive and pass on messages/information.

Certificate II

Characteristics of Learning Outcomes

Breadth, depth and complexity of knowledge and skills would prepare a person to perform in a range of varied activities or knowledge application where there is a clearly defined range of contexts in which the choice of actions required is usually clear and there is limited complexity in the range of operations to be applied.

Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes.

Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team.

Distinguishing Features of Learning Outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate basic operational knowledge in a moderate range of areas;
- apply a defined range of skills;
- apply known solutions to a limited range of predictable problems;
- perform a range of tasks where choice between a limited range of options is required;

© Commonwealth of Australia, 2025 Future Skills Organisation

- assess and record information from varied sources;
- take limited responsibility for own outputs in work and learning.

Certificate III

Characteristics of Learning Outcomes

Breadth, depth and complexity of knowledge and competencies would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available.

Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the section of equipment, services or contingency measures and within known time constraints.

Applications may involve some responsibility for others. Participation in teams including group or team co-ordination may be involved.

Distinguishing Features of Learning Outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate some relevant theoretical knowledge
- apply a range of well-developed skills
- apply known solutions to a variety of predictable problems
- perform processes that require a range of well-developed skills where some discretion and judgement is required
- interpret available information, using discretion and judgement
- take responsibility for own outputs in work and learning
- take limited responsibility for the output of others.

Certificate IV

Characteristics of Learning Outcomes

Breadth, depth and complexity of knowledge and competencies would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance are involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills. Applications involve responsibility for, and limited organisation of, others.

Distinguishing Features of Learning Outcomes

Do the competencies enable an individual with this qualification to:

© Commonwealth of Australia, 2025 Future Skills Organisation

- demonstrate understanding of a broad knowledge base incorporating some theoretical concepts
- apply solutions to a defined range of unpredictable problems
- identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas
- identify, analyse and evaluate information from a variety of sources
- take responsibility for own outputs in relation to specified quality standards
- take limited responsibility for the quantity and quality of the output of others.

Diploma

Characteristics of Learning Outcomes

Breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and co-ordination.

The self directed application of knowledge and skills, with substantial depth in some areas where judgment is required in planning and selecting appropriate equipment, services and techniques for self and others.

Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team co-ordination may be involved.

The degree of emphasis on breadth as against depth of knowledge and skills may vary between qualifications granted at this level.

Distinguishing Features of Learning Outcomes

Do the competencies or learning outcomes enable an individual with this qualification to:

- demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas
- analyse and plan approaches to technical problems or management requirements
- transfer and apply theoretical concepts and/or technical or creative skills to a range of situations
- evaluate information, using it to forecast for planning or research purposes
- take responsibility for own outputs in relation to broad quantity and quality parameters
- take some responsibility for the achievement of group outcomes.

Advanced Diploma

Characteristics of Learning Outcomes

Breadth, depth and complexity involving analysis, design, planning, execution and evaluation across a range of technical and/or management functions including development of new criteria or applications or knowledge or procedures.

© Commonwealth of Australia, 2025 Future Skills Organisation

The application of a significant range of fundamental principles and complex techniques across a wide and often unpredictable variety of contexts in relation to either varied or highly specific functions. Contribution to the development of a broad plan, budget or strategy is involved and accountability and responsibility for self and others in achieving the outcomes is involved.

Applications involve significant judgement in planning, design, technical or leadership/guidance functions related to products, services, operations or procedures.

The degree of emphasis on breadth as against depth of knowledge and skills may vary between qualifications granted at this level.

Distinguishing Features of Learning Outcomes

Do the competencies or learning outcomes enable an individual with this qualification to:

- demonstrate understanding of specialised knowledge with depth in some areas
- analyse, diagnose, design and execute judgements across a broad range of technical or management functions
- generate ideas through the analysis of information and concepts at an abstract level
- demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills
- demonstrate accountability for personal outputs within broad parameters
- demonstrate accountability for personal and group outcomes within broad parameters.

Vocational Graduate Certificate

Characteristics of competencies or learning outcomes

- The self-directed development and achievement of broad and specialised areas of knowledge and skills, building on prior knowledge and skills.
- Substantial breadth and complexity involving the initiation, analysis, design, planning, execution and evaluation of technical and management functions in highly varied and highly specialised contexts.
- Applications involve making significant, high-level, independent judgements in major broad or planning, design, operational, technical and management functions in highly varied and specialised contexts. They may include responsibility and broad-ranging accountability for the structure, management and output of the work or functions of others.
- The degree of emphasis on breadth, as opposed to depth, of knowledge and skills may vary between qualifications granted at this level.

Distinguishing features of learning outcomes

- Demonstrate the self-directed development and achievement of broad and specialised areas of knowledge and skills, building on prior knowledge and skills.
- Initiate, analyse, design, plan, execute and evaluate major broad or technical and management functions in highly varied and highly specialised contexts.
- Generate and evaluate ideas through the analysis of information and concepts at an abstract level.

© Commonwealth of Australia, 2025 Future Skills Organisation

- Demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills in complex contexts.
- Demonstrate responsibility and broad-ranging accountability for the structure, management and output of the work or functions of others.

Vocational Graduate Diploma

Characteristics of competencies or learning outcomes

- The self-directed development and achievement of broad and specialised areas of knowledge and skills, building on prior knowledge and skills.
- Substantial breadth, depth and complexity involving the initiation, analysis, design, planning, execution and evaluation of major functions, both broad and highly specialised, in highly varied and highly specialised contexts.
- Further specialisation within a systematic and coherent body of knowledge.
- Applications involve making high-level, fully independent, complex judgements in broad planning, design, operational, technical and management functions in highly varied and highly specialised contexts. They may include full responsibility and accountability for all aspects of work and functions of others, including planning, budgeting and strategy development.
- The degree of emphasis on breadth, as opposed to depth, of knowledge and skills may vary between qualifications granted at this level.

Distinguishing features of learning outcomes

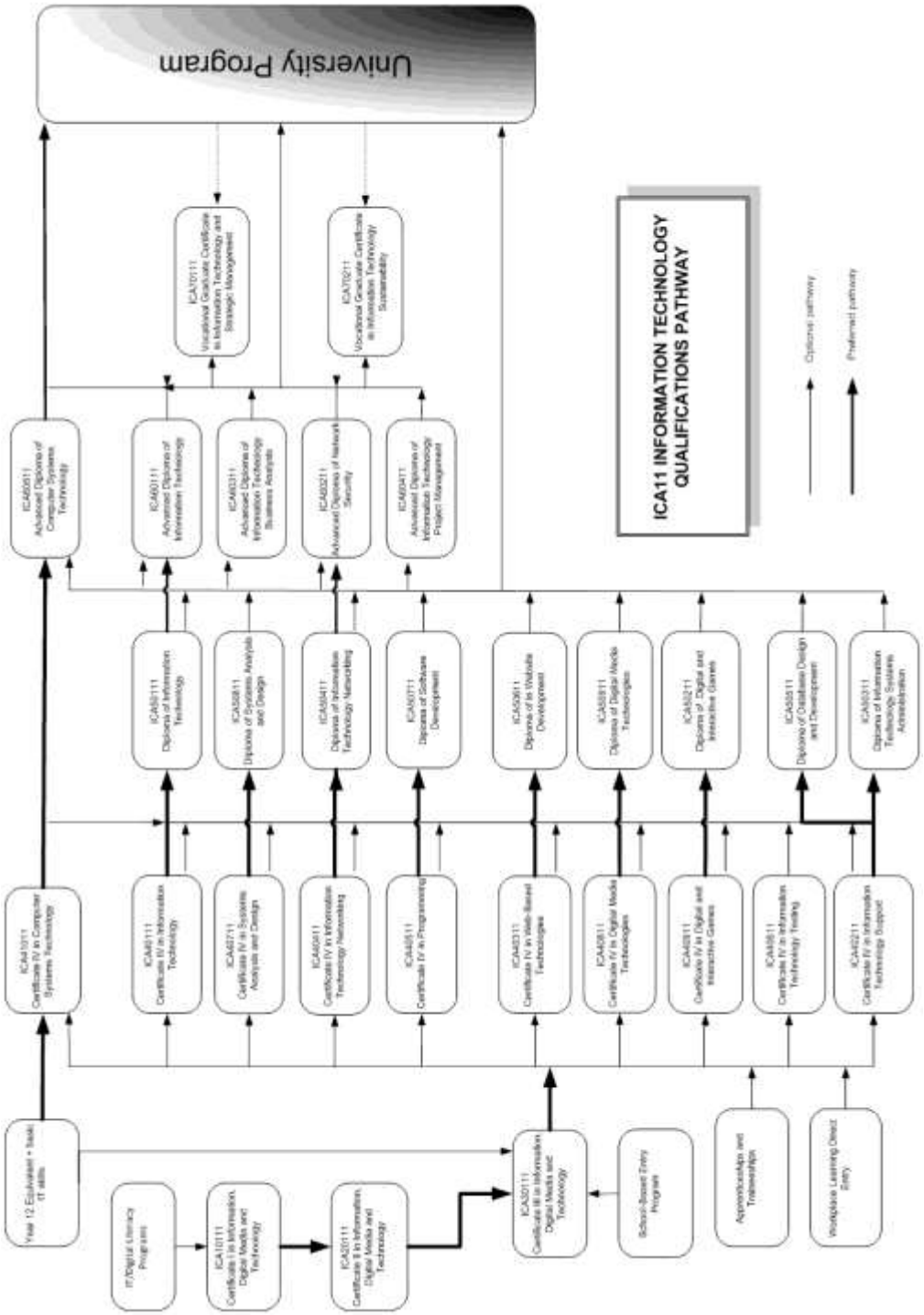
- Demonstrate the self-directed development and achievement of broad and highly specialised areas of knowledge and skills, building on prior knowledge and skills.
- Initiate, analyse, design, plan, execute and evaluate major functions, both broad and within highly varied and highly specialised contexts.
- Generate and evaluate complex ideas through the analysis of information and concepts at an abstract level.
- Demonstrate an expert command of wide-ranging, highly specialised, technical, creative or conceptual skills in complex and highly specialised or varied contexts.
- Demonstrate full responsibility and accountability for personal outputs.
- Demonstrate full responsibility and accountability for all aspects of the work or functions of others, including planning, budgeting and strategy.

Qualifications and Packaging Rules

© Commonwealth of Australia, 2025 Future Skills Organisation

Qualification Pathways

The following pathways charts are provided to show the types of pathways into and from qualifications that are possible with this Training Package. For more information about qualifications and pathways contact Innovation and Business Skills Australia on phone +61 3 9815 7000 or email at virtual@ibsa.org.au.



© Commonwealth of Australia, 2025 Future Skills Organisation

Skill Sets

Definition

Skill sets are defined as single units of competency, or combinations of units of competency from an endorsed Training Package, which link to a licence or regulatory requirement, or defined industry need.

Wording on Statements of Attainment

Skill sets are a way of publicly identifying logical groupings of units of competency which meet an identified need or industry outcome. Skill sets are not qualifications.

Where skill sets are identified in a Training Package, the Statement of Attainment can set out the competencies a person has achieved in a way that is consistent and clear for employers and others. This is done by including the wording 'these competencies meet *[insert skill set title or identified industry area]* need' on the Statement of Attainment. This wording applies only to skill sets that are formally identified as such in the endorsed Training Package. See the 2010 edition of the AQF Implementation Handbook for advice on wording on Statements of Attainment. http://www.aqf.edu.au/Portals/0/Documents/Handbook/AQF_Handbook_07.pdf

Skill Sets in this Training Package

This section provides information on Skill Sets within this Training Package, with the following important disclaimer: Readers should ensure that they have also read the part of the Training Package that outlines licensing and regulatory requirements.

Where this section is blank, nationally recognised Skill Sets have yet to be identified in this industry.

The following 28 skills sets are in this Training Package.

- Application Development Specialist Skill Set
- Basic Application Development Programmer Skill Set
- Basic Computer Hardware and System Troubleshooting Skill Set
- Basic Web Development Specialist Skill Set
- Certified IT Network Enterprise, Security or Server Administrator Skill Set
- Certified Network Associate Technology Specialist Skill Set
- Certified Network Professional Specialist Skill Set
- Certified Network Professional Specialist – Voice Skill Set
- Certified Network Professional Specialist – Wireless Skill Set
- Certified Networking Technician Skill Set
- Certified Security and Architect Specialist Skill Set
- Certified Technician or Technology Specialist - Infrastructure Configuration Skill Set
- Certified Technology Specialist - Graphical User Interfaces Skill Set
- Certified Web Design Specialist Skill Set
- Computing and Application Fundamentals Skill Set
- Computing Fundamentals Skill Set
- Digital Literacy Skill Set

© Commonwealth of Australia, 2025 Future Skills Organisation

- Digital Literacy - eCitizen Skill Set
- Enterprise Desktop Virtualisation Specialist Skill Se
- Enterprise Server Virtualisation Specialist Skill Set
- Hardware Technician Skill Set
- Internetworking Systems Coordinator/Administrator Skill Set
- Rich Interactive Content Specialist Skill Set
- System and Hardware Plus Technician Skill Set
- System and Network Plus Technician Skill Set
- Virtualisation Specialist Skill Set
- Visual Communications Specialist Skill Set
- Website Administration Specialist Skill Set

Skill sets are designed to be available to industry to train participants in a particular skill set. They contain units of competency that will be awarded with a Statement of Attainment and are able to be counted towards a qualification. Where possible, skill sets are aligned to a range of vendor training programs that are used as a basis for industry certifications. Users should ensure that they have also read the part of the Training Package that outlines licensing and regulatory requirements.

Employability Skills

Employability Skills replacing Key Competency information from 2006

In May 2005, the approach to incorporate Employability Skills within Training Package qualifications and units of competency was endorsed. As a result, from 2006 Employability Skills will progressively replace Key Competency information in Training Packages.

Background to Employability Skills

Employability Skills are also sometimes referred to as generic skills, capabilities or Key Competencies. The Employability Skills discussed here build on the Mayer Committee's Key Competencies, which were developed in 1992 and attempted to describe generic competencies for effective participation in work.

The Business Council of Australia (BCA) and the Australian Chamber of Commerce and Industry (ACCI), produced the Employability Skills for the Future report in 2002 in consultation with other peak employer bodies and with funding provided by the Department of Education, Science and Training (DEST) and the Australian National Training Authority (ANTA). Officially released by Dr Nelson (Minister for Education, Science and Training) on 23 May 2002, copies of the report are available from the DEST website at: http://www.dest.gov.au/archive/ty/publications/employability_skills/index.htm.

The report indicated that business and industry now require a broader range of skills than the Mayer Key Competencies Framework and featured an Employability Skills Framework identifying eight Employability Skills:

- Communication
- Teamwork

© Commonwealth of Australia, 2025 Future Skills Organisation

- Problem solving
- Initiative and enterprise
- Planning and organising
- Self-management
- Learning
- Technology.

The report demonstrated how Employability Skills can be further described for particular occupational and industry contexts by sets of facets. The facets listed in the report are the aspects of the Employability Skills that the sample of employers surveyed identified as being important work skills. These facets were seen by employers as being dependent both in their nature and priority on an enterprise's business activity.

Employability Skills Framework

The following table contains the Employability Skills facets identified in the report Employability Skills for the Future.

Skill	**Facets** *Aspects of the skill that employers identify as important. The nature and application of these facets will vary depending on industry and job type.*
Communication that contributes to productive and harmonious relations across employees and customers	• listening and understanding • speaking clearly and directly • writing to the needs of the audience • negotiating responsively • reading independently • empathising • using numeracy effectively • understanding the needs of internal and external customers • persuading effectively • establishing and using networks • being assertive • sharing information • speaking and writing in languages other than English
Teamwork that contributes to productive working relationships and outcomes	• working across different ages irrespective of gender, race, religion or political persuasion • working as an individual and as a member of a team

© Commonwealth of Australia, 2025 Future Skills Organisation

	• knowing how to define a role as part of the team • applying teamwork to a range of situations e.g. futures planning and crisis problem solving • identifying the strengths of team members • coaching and mentoring skills, including giving feedback
Problem solving that contributes to productive outcomes	• developing creative, innovative and practical solutions • showing independence and initiative in identifying and solving problems • solving problems in teams • applying a range of strategies to problem solving • using mathematics, including budgeting and financial management to solve problems • applying problem-solving strategies across a range of areas • testing assumptions, taking into account the context of data and circumstances • resolving customer concerns in relation to complex project issues
Initiative and enterprise that contribute to innovative outcomes	• adapting to new situations • developing a strategic, creative and long-term vision • being creative • identifying opportunities not obvious to others • translating ideas into action • generating a range of options • initiating innovative solutions
Planning and organising that contribute to long and short-term strategic planning	• managing time and priorities - setting time lines, coordinating tasks for self and with others • being resourceful • taking initiative and making decisions • adapting resource allocations to cope with contingencies • establishing clear project goals and deliverables • allocating people and other resources to tasks • planning the use of resources, including time management

© Commonwealth of Australia, 2025 Future Skills Organisation

	• participating in continuous improvement and planning processes • developing a vision and a proactive plan to accompany it • predicting - weighing up risk, evaluating alternatives and applying evaluation criteria • collecting, analysing and organising information • understanding basic business systems and their relationships
Self-management that contributes to employee satisfaction and growth	• having a personal vision and goals • evaluating and monitoring own performance • having knowledge and confidence in own ideas and visions • articulating own ideas and visions • taking responsibility
Learning that contributes to ongoing improvement and expansion in employee and company operations and outcomes	• managing own learning • contributing to the learning community at the workplace • using a range of mediums to learn - mentoring, peer support and networking, IT and courses • applying learning to technical issues (e.g. learning about products) and people issues (e.g. interpersonal and cultural aspects of work) • having enthusiasm for ongoing learning • being willing to learn in any setting - on and off the job • being open to new ideas and techniques • being prepared to invest time and effort in learning new skills • acknowledging the need to learn in order to accommodate change
Technology that contributes to the effective carrying out of tasks	• having a range of basic IT skills • applying IT as a management tool • using IT to organise data • being willing to learn new IT skills • having the OHS knowledge to apply technology • having the appropriate physical capacity

Employability Skills Summary

© Commonwealth of Australia, 2025 Future Skills Organisation

An Employability Skills Summary exists for each qualification. Summaries provide a lens through which to view Employability Skills at the qualification level and capture the key aspects or facets of the Employability Skills that are important to the job roles covered by the qualification. Summaries are designed to assist trainers and assessors to identify and include important industry application of Employability Skills in learning and assessment strategies.

The following is important information for trainers and assessors about Employability Skills Summaries.

- Employability Skills Summaries provide examples of how each skill is applicable to the job roles covered by the qualification.
- Employability Skills Summaries contain general information about industry context which is further explained as measurable outcomes of performance in the units of competency in each qualification.
- The detail in each Employability Skills Summary will vary depending on the range of job roles covered by the qualification in question.
- Employability Skills Summaries are not exhaustive lists of qualification requirements or checklists of performance (which are separate assessment tools that should be designed by trainers and assessors after analysis at the unit level).
- Employability Skills Summaries contain information that may also assist in building learners' understanding of industry and workplace expectations.

Industry Requirements for Employability Skills

ICA11 Information and Communications Training Package seeks to ensure that industry-endorsed employability skills are explicitly embedded in units of competency. The application of each skill and the level of detail included in each part of the unit will vary according to industry requirements and the nature of the unit of competency.

Employability skills are both explicit and embedded within units of competency. This means that employability skills are:

- embedded in units of competency as part of the other performance requirements that make up the competency as a whole
- explicitly described within units of competency to enable Training Package users to identify accurately the performance requirements of each unit with regards to employability skills.

ICA11 Information and Communications Technology Training Package also seeks to ensure that employability skills are well-defined and written into units of competency so that they are apparent, clear and can be delivered and assessed as an essential component of unit work outcomes.

© Commonwealth of Australia, 2025 Future Skills Organisation

Assessment Guidelines

Introduction

These Assessment Guidelines provide the endorsed framework for assessment of units of competency in this Training Package. They are designed to ensure that assessment is consistent with the Australian Quality Training Framework *(AQTF) Essential Standards for Initial and Continuing Registration.* Assessments against the units of competency in this Training Package must be carried out in accordance with these Assessment Guidelines.

Assessment System Overview

This section provides an overview of the requirements for assessment when using this Training Package, including a summary of the AQTF requirements; licensing and registration requirements; and assessment pathways.

Quality assessment underpins the credibility of the vocational education and training sector. The Assessment Guidelines of a Training Package are an important tool in supporting quality assessment.

Assessment within the National Skills Framework is the process of collecting evidence and making judgements about whether competency has been achieved to confirm whether an individual can perform to the standards expected in the workplace, as expressed in the relevant endorsed unit of competency.

Assessment must be carried out in accordance with the:

- benchmarks for assessment
- specific industry requirements
- principles of assessment
- rules of evidence
- assessment requirements set out in the AQTF.

Benchmarks for Assessment

The endorsed units of competency in this Training Package are the benchmarks for assessment. As such, they provide the basis for nationally recognised Australian Qualifications Framework (AQF) qualifications and Statements of Attainment issued by Registered Training Organisations (RTOs).

© Commonwealth of Australia, 2025 Future Skills Organisation

Principles of Assessment

All assessments carried out by RTOs are required to demonstrate compliance with the principles of assessment:

- validity
- reliability
- flexibility
- fairness
- sufficiency.

These principles must be addressed in the:

- design, establishment and management of the assessment system for this Training Package
- development of assessment tools, and
- the conduct of assessment.
-

Validity

Assessment is valid when the process is sound and assesses what it claims to assess. Validity requires that:

(a) assessment against the units of competency must cover the broad range of skills and knowledge that are essential to competent performance

(b) assessment of knowledge and skills must be integrated with their practical application

judgement of competence must be based on sufficient evidence (that is, evidence gathered on (c) a number of occasions and in a range of contexts using different assessment methods). The specific evidence requirements of each unit of competency provide advice on sufficiency

Reliability

Reliability refers to the degree to which evidence presented for assessment is consistently interpreted and results in consistent assessment outcomes. Reliability requires the assessor to have the required competencies in assessment and relevant vocational competencies (or to assess in conjunction with someone who has the vocational competencies). It can only be achieved when assessors share a common interpretation of the assessment requirements of the unit(s) being assessed.

Flexibility

© Commonwealth of Australia, 2025 Future Skills Organisation

To be flexible, assessment should reflect the candidate's needs; provide for recognition of competencies no matter how, where or when they have been acquired; draw on a range of methods appropriate to the context, competency and the candidate; and support continuous competency development.

Fairness

Fairness in assessment requires consideration of the individual candidate's needs and characteristics, and any reasonable adjustments that need to be applied to take account of them. It requires clear communication between the assessor and the candidate to ensure that the candidate is fully informed about, understands and is able to participate in, the assessment process, and agrees that the process is appropriate. It also includes an opportunity for the person being assessed to challenge the result of the assessment and to be reassessed if necessary.

Sufficiency

Sufficiency relates to the quality and quantity of evidence assessed. It requires collection of enough appropriate evidence to ensure that all aspects of competency have been satisfied and that competency can be demonstrated repeatedly. Supplementary sources of evidence may be necessary. The specific evidence requirements of each unit of competency provide advice on sufficiency. Sufficiency is also one of the rules of evidence.

Rules of Evidence

The rules of evidence guide the collection of evidence that address the principles of validity and reliability, guiding the collection of evidence to ensure that it is valid, sufficient, current and authentic.

Valid

Valid evidence must relate directly to the requirements of the unit of competency. In ensuring evidence is valid, assessors must ensure that the evidence collected supports demonstration of the outcomes and performance requirements of the unit of competency together with the knowledge and skills necessary for competent performance. Valid evidence must encapsulate the breadth and depth of the unit of competency, which will necessitate using a number of different assessment methods.

Sufficient

© Commonwealth of Australia, 2025 Future Skills Organisation

Sufficiency relates to the quality and quantity of evidence assessed. It requires collection of enough appropriate evidence to ensure that all aspects of competency have been satisfied and that competency can be demonstrated repeatedly. Supplementary sources of evidence may be necessary. The specific evidence requirements of each unit of competency provide advice on sufficiency.

Current

In assessment, currency relates to the age of the evidence presented by a candidate to demonstrate that they are still competent. Competency requires demonstration of current performance, so the evidence collected must be from either the present or the very recent past.

Authentic

To accept evidence as authentic, an assessor must be assured that the evidence presented for assessment is the candidate's own work.

Assessment Requirements of the Australian Quality Training Framework

Assessment leading to nationally recognised AQF qualifications and Statements of Attainment in the vocational education and training sector must meet the requirements of the AQTF as expressed in the AQTF 2010 Essential Standards for Registration.

The AQTF 2010 Essential Standards for Initial and Continuing Registration can be downloaded from <www.training.com.au>.

The following points summarise the assessment requirements.

Registration of Training Organisations

Assessment must be conducted by, or on behalf of, an RTO formally registered by a State or Territory Registering Body in accordance with the AQTF. The RTO must have the specific units of competency and/or AQF qualifications on its scope of registration.

Quality Training and Assessment

Each RTO must provide quality training and assessment across all its operations. See the *AQTF 2010 Essential Standards for Initial and Continuing Registration,* Standard 1.

© Commonwealth of Australia, 2025 Future Skills Organisation

Assessor Competency Requirements

Each person involved in training and assessment must be competent for the functions they perform. See the AQTF 2010 *Essential Standards for Initial and Continuing Registration*, Standard 1 for assessor (and trainer) competency requirements. See also the AQTF 2010 *Users' Guide to the Essential Standards for Registration* – Appendix 2.

Assessment Requirements

The RTOs assessments, including RPL, must meet the requirements of the relevant endorsed Training Package. See the AQTF 2010 *Essential Standards for Initial and Continuing Registration.*

Assessment Strategies

Each RTO must have strategies for training and assessment that meet the requirements of the relevant Training Package or accredited course and are developed in consultation with industry stakeholders. See the AQTF 2010 *Essential Standards for Initial and Continuing Registration.*

National Recognition

Each RTO must recognise the AQF qualifications and Statements of Attainment issued by any other RTO. See the AQTF 2010 *Essential Standards for Initial and Continuing Registration*.

Access and Equity and Client Outcomes

Each RTO must adhere to the principles of access and equity and maximise outcomes for its clients. See the AQTF 2010 *Essential Standards for Initial and Continuing Registration.*

Monitoring Assessments

Training and/or assessment provided on behalf of the RTO must be monitored to ensure that it is in accordance with all aspects of the AQTF 2010 *Essential Standards for Initial and Continuing Registration.*

Recording Assessment Outcomes

© Commonwealth of Australia, 2025 Future Skills Organisation

Each RTO must manage records to ensure their accuracy and integrity. See the AQTF 2010 *Essential Standards for Initial and Continuing Registration*.

Issuing AQF qualifications and Statements of Attainment

Each RTO must issue AQF qualifications and Statements of Attainment that meet the requirements of the current AQF *Implementation Handbook* and the endorsed Training Packages within the scope of its registration. An AQF qualification is issued once the full requirements for a qualification, as specified in the nationally endorsed Training Package are met. A Statement of Attainment is issued when an individual has completed one or more units of competency from nationally recognised qualification(s)/courses(s). See the AQTF and the edition of the *AQF Implementation Handbook* – available on the AQF Council website <www.aqf.edu.au>.

Licensing/Registration Requirements

This section provides information on licensing/registration requirements for this Training Package, with the following important disclaimer:

Licensing and registration requirements that apply to specific industries, and vocational education and training, vary between each State and Territory, and can regularly change. The developers of this Training Package, and DEEWR, consider that the licensing/registration requirements described in this section apply to registered training organisations (RTOs), assessors or candidates with respect to this Training Package. While reasonable care has been taken in its preparation, the developers of this Training Package and DEEWR cannot guarantee it is definitive or accurate at the time of reading; the information is provided in good faith on that basis.

The ICA11 Information and Communications Technology Training Package has minimal licensing/registration requirements. The only units of competency requiring licensing are the following elective units imported from the ICT10 Integrated Telecommunications Training Package into the Certificate IV in Information Technology Support:

- ICTCBL2136A Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule
- ICTCBL2137A Install, maintain and modify customer premises communications cabling: ACMA Open Rule.
-

If using these units please contact the relevant State or Territory Department(s) to check if the licensing/registration requirements described below still apply, and to check if there are any others with which you must comply. Please refer to the ICT10 Integrated Telecommunications Training Package for further details.

Requirements for Assessors

© Commonwealth of Australia, 2025 Future Skills Organisation

In order to conduct assessment in these units for statutory licensing or other industry registration requirements, assessors must meet the requirements outlined in the following table, in addition to the AQTF requirements.

LICENCE/ REGISTRATION	JURISDICTION	REQUIREMENTS
Restricted Registration ICTCBL2136A	Australian Communications and Media Authority	Restricted Registered Cabler TITAB registered assessor
Open Registration ICTCBL2137A	Australian Communications and Media Authority	Open Registered Cabler TITAB registered assessor

Assessor competencies

The AQTF specifies mandatory competency requirements for assessors. For information, Element 1.4 from the AQTF Essential Standards for Registration follows.

1.4 Training and assessment are conducted by trainers and assessors who:

a) have the necessary training and assessment competencies as determined by the National Quality Council or its successors

b) have the relevant vocational competencies at least to the level being delivered or assessed

c) can demonstrate current industry skills directly relevant to the training/assessment being undertaken, and

d) continue to develop their vocational education and training (VET) knowledge and skills as well as their industry currency and trainer/assessor competence.

Requirements for RTOs

Training and assessment in remote and regional areas

Training and assessing candidates in remote and regional areas present a range of challenges. These include:

- lack of numbers preventing the establishment of traditional class sizes
- physical remoteness of some communities, where access to training facilities is limited
- scarcity of teachers with the required industry experience

© Commonwealth of Australia, 2025 Future Skills Organisation

- scarcity of physical training resources (e.g. current and emerging technology).
-

Some options for overcoming these challenges include:

- partnerships between RTOs to establish classes, i.e. programs delivered on a regional rather than local basis
- delivering certain units by distance mode
- partnerships between industry and RTOs to share resources and personnel
- partnerships between schools and RTOs
- use of technology (e.g. email, CDs and internet) and self-paced resources.
-

Assessment in a simulated environment

Units of competency in the ICA11 Information and Communications Technology Training Package may be assessed in the workplace or in a simulated environment.

The information technology industry involves the use of technologies and processes which have a potentially high impact on customers and a high cost of failure. Normal practice is to protect these technologies and processes from any risk. Therefore assessment of training candidates often cannot be undertaken in normal operating environments.

In response to this, industry practice for many years has been to develop models and simulations on which assessments are conducted. As a result, assessment of candidates for many of the units of competency in the ICA11 Information and Communications Technology Training Package can only be undertaken using simulations. To maintain the integrity of these assessments, RTOs and assessors need to be vigilant in keeping pace with the industry and in checking that assessment simulations accurately reflect workplace activities. RTOs will need regular contact with industry to ensure the currency and validity of assessment simulations.

To assist assessors, the following information provides a framework for conducting assessments in simulated environments.

Simulations must provide opportunities for integrated assessment of competence that includes:

- performing the task (task skills)
- managing a number of tasks (task management skills)
- dealing with workplace irregularities such as unexpected problems, breakdowns and changes in routine (contingency management skills)
- fulfilling the responsibilities and expectations of the job and workplace, including working with others (job/role environment skills)
- transferring competencies to new contexts.
-

© Commonwealth of Australia, 2025 Future Skills Organisation

All evidence from simulated activities must result from activities that have taken place in a realistic work environment that replicates the conditions and circumstances in which the candidate will usually be expected to work.

Working conditions should reflect those found in the workplace and include facilities, equipment and materials used in the workplace for the activities being assessed. Most importantly they should also include relationships, constraints and pressures met in the workplace.

Assessment activities must be realistic and reasonable in terms of scale.

Any assessment conducted under simulated conditions must take into consideration what would be typical ambient conditions encountered in the normal workplace as well as reflect the typical workflow involved.

Workplace simulation criteria

In conducting an assessment using a simulation, assessors should review the process prior to its implementation. The simulation must give the candidate the opportunity to meet three critical criteria. These are:

- quality – the work is of the standard required for entry into the industry
- productivity – the work is performed within a time frame appropriate for entry to the industry
- safety – the work is performed in a manner that meets industry safety standards.
-

Where assessment simulations meet these criteria, RTOs can be sure that candidates are ‘work ready’ on successful completion of the assessment task.

In addition, the assessment process should be reviewed to ensure that, wherever applicable, it:

- uses facilities and equipment that meet current industry standards
- includes typical customers, including difficult customers and diverse types of customers
- integrates various types of work performance – multiple tasks, prioritisation, service standards and OHS
- requires allocation of time to tasks and deadlines
- measures consistent performance over time
- includes work with others in teams
- requires consideration of budget constraints
- includes use of operational procedures and guidelines.
-

© Commonwealth of Australia, 2025 Future Skills Organisation

To further enhance the validity of assessment process using simulation, the assessor should consider:

- assessments covering a range of interconnected units of competency
- use of assessment checklists to assist in identifying critical performance criteria
- use of self assessment, peer assessment and debriefing activities
- use of authentic documentation, e.g. workplace roles, OHS regulations, salary advice, marketing information, procedural manuals, policies, and enterprise bargaining agreements.
-

Training and assessment issues for schools

Implementation of ICA11 Information and Communications Technology Training Package within the school sector, while encouraged, needs to ensure the following:

- currency of skills and knowledge of those charged with training and assessing students
- access to industry-current equipment, facilities and training resources so that students acquire a realistic view of the realities and conditions within the workplace
- comprehensive coverage of underpinning skills and knowledge as delineated within the units of competency
- appropriateness of learning and assessment experiences to ensure that these are current and realistic.

The units of competency provide more detailed guidance for training and assessment purposes, as well as examples relevant to each unit, and schools are encouraged to use these guidelines when planning training and assessment.

For information on VET in Schools, please refer to Appendix A.

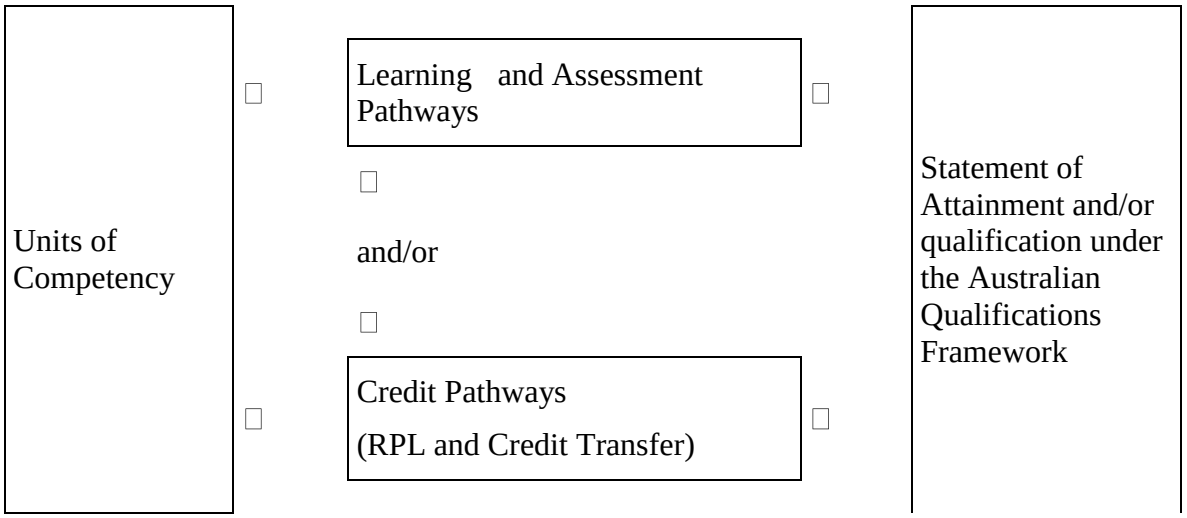
Pathways

The competencies in this Training Package may be attained in a number of ways including through:

- formal or informal education and training
- experiences in the workplace
- general life experience, and/or
- any combination of the above.

Assessment under this Training Package leading to an AQF qualification or Statement of Attainment may follow a learning and assessment pathway, or a recognition pathway, or a combination of the two as illustrated in the following diagram.

© Commonwealth of Australia, 2025 Future Skills Organisation



Each of these assessment pathways leads to full recognition of competencies held – the critical issue is that the candidate is competent, not how the competency was acquired.

Assessment, by any pathway, must comply with the assessment requirements set out in the Assessment Guidelines of the Training Package , the AQTF and, where relevant, the Australian Qualifications Framework.

Learning and Assessment Pathways

Usually, learning and assessment are integrated, with evidence being collected and feedback provided to the candidate at anytime throughout the learning and assessment process.

Learning and assessment pathways may include structured programs in a variety of contexts using a range of strategies to meet different learner needs. Structured learning and assessment programs could be: group-based, work-based, project-based, self-paced, action learning-based; conducted by distance or e-learning; and/or involve practice and experience in the workplace.

Learning and assessment pathways to suit Australian Apprenticeships have a mix of formal structured training and structured workplace experience with formative assessment activities through which candidates can acquire and demonstrate skills and knowledge from the relevant units of competency.

Credit Pathways

Credit is the value assigned for the recognition of equivalence in content between different types of learning and/or qualifications which reduces the volume of learning required to achieve a qualification.

© Commonwealth of Australia, 2025 Future Skills Organisation

Credit arrangements must be offered by all RTOs that offer Training Package qualifications. Each RTO must have a systematic institutional approach with clear, accessible and transparent policies and procedures.

Competencies already held by individuals can be formally assessed against the units of competency in this Training Package, and should be recognised regardless of how, when or where they were acquired, provided that the learning is relevant to the unit of competency outcomes.

Recognition of Prior Learning

Recognition of Prior Learning (RPL) is an assessment process which determines the credit outcomes of an individual application for credit.

The availability of Recognition of Prior Learning (RPL) provides all potential learners with access to credit opportunities.

The recognition of prior learning pathway is appropriate for candidates who have previously attained skills and knowledge and who, when enrolling in qualifications, seek to shorten the duration of their training and either continue or commence working. This may include the following groups of people:

- existing workers;
- individuals with overseas qualifications;
- recent migrants with established work histories;
- people returning to the workplace; and
- people with disabilities or injuries requiring a change in career.
-

As with all assessment, RPL assessment should be undertaken by academic or teaching staff with expertise in the subject, content of skills area, as well as knowledge of and expertise in RPL assessment policies and procedures.

Assessment methods used for RPL should provide a range of ways for individuals to demonstrate that they have met the required outcomes and can be granted credit. These might include:

- questioning (oral or written)
- consideration of a portfolio and review of contents

© Commonwealth of Australia, 2025 Future Skills Organisation

- consideration of third party reports and/or other documentation such as documentation such as articles, reports, project material, papers, testimonials or other products prepared by the RPL applicant that relate to the learning outcomes of the relevant qualification component
- mapping of learning outcomes from prior formal or non-formal learning to the relevant qualification components
- observation of performance, and
- participation in structured assessment activities the individual would normally be required to undertake if they were enrolled in the qualification component/s.
-

In a Recognition of Prior Learning (RPL) pathway, the candidate provides current, quality evidence of their competency against the relevant unit of competency. This process may be directed by the candidate and verified by the assessor. Where the outcomes of this process indicate that the candidate is competent, structured training is not required. The RPL requirements of the AQTF must be met.

As with all assessment, the assessor must be confident that the evidence indicates that the candidate is currently competent against the endorsed unit of competency. This evidence may take a variety of forms and might include certification, references from past employers, testimonials from clients, work samples and/or observation of the candidate. The onus is on candidates to provide sufficient evidence to satisfy assessors that they currently hold the relevant competencies. In judging evidence, the assessor must ensure that the evidence of prior learning is:

- authentic (the candidate's own work);
- valid (directly related to the current version of the relevant endorsed unit of competency);
- reliable (shows that the candidate consistently meets the endorsed unit of competency);
- current (reflects the candidate's current capacity to perform the aspect of the work covered by the endorsed unit of competency); and
- sufficient (covers the full range of elements in the relevant unit of competency and addresses the four dimensions of competency, namely task skills, task management skills, contingency management skills, and job/role environment skills).
-

Credit Transfer

Credit transfer is a process which provides learners with agreed and consistent credit outcomes based on equivalences in content between matched qualifications.

This process involves education institutions:

© Commonwealth of Australia, 2025 Future Skills Organisation

- mapping, comparing and evaluating the extent to which the *defined learning outcomes and assessment requirements* of the *individual components of one qualification* are equivalent to the learning outcomes and assessment requirements of the individual components of another qualification
- making an educational judgment of the credit outcomes to be assigned between the matched components of the two qualifications
- setting out the agreed credit outcomes in a documented arrangement or agreement, and
- publicising the arrangement/agreement and credit available.
-

Combination of Pathways

Credit may be awarded on the basis of a combination of credit transfer plus an individual RPL assessment for additional learning. Once credit has been awarded on the basis of RPL, subsequent credit transfer based on these learning outcomes should not include revisiting the RPL assessment but should be based on credit transfer or articulation or other arrangements between providers.

Where candidates for assessment have gained competencies through work and life experience and gaps in their competence are identified, or where they require training in new areas, a combination of pathways may be appropriate.

In such situations, the candidate may undertake an initial assessment to determine their current competency. Once current competency is identified, a structured learning and assessment program ensures that the candidate acquires the required additional competencies identified as gaps.

Assessor Requirements

This section identifies the specific requirements on the vocational competence and experience for assessors, to ensure that they meet the needs of industry and their obligations under AQTF, and clarifies how others may contribute to the assessment process where one person alone does not hold all the required competencies.

Assessor Competencies

The AQTF specifies mandatory competency requirements for assessors. For information, Element 1.4 from the AQTF 2007 *Essential Standards for Registration* follows:

© Commonwealth of Australia, 2025 Future Skills Organisation

1.4 Training and assessment are conducted by trainers and assessors who:

a. have the necessary training and assessment competencies as determined by the National Quality Council or its successors, and

b. have the relevant vocational competencies at least to the level being delivered or assessed, and

c. can demonstrate current industry skills directly relevant to the training/assessment being undertaken, and

d. continue to develop their Vocational Education and Training (VET) knowledge and skills as well as their industry currency and trainer/assessor competence.

* See AQTF *2010 Users' Guide to the Essential Standards for Registration* – Appendix 2

Industry Assessment Contextualisation 1

Training and assessment for people with specific needs

Disability Standards for Education were formed under the Disability Discrimination Act 1992 and were introduced in August 2005. They clarify the obligations of education and training providers to ensure that students who have a disability are able to access and participate in education without experiencing discrimination.

The Department of Education, Employment and Workplace Relations (DEEWR) provides further information in the *Disability Standards for Education 2005 Guidance Notes*, accessible via the DEEWR website (www.deewr.gov.au/Schooling/DisabilityStandardsforEducation/Documents/ Disability_Standards_Education_Guidance_Notes_pdf.pdf).

Good vocational training and assessment are often about making adjustments to what we do to meet the learning support needs of individuals. The information provided in this section is aimed at assisting teachers/trainers to meet the reasonable adjustment needs of people who have a disability.

According to the Australian Bureau of Statistics (ABS), 2003, Survey of Disability, Ageing and Carers (SDAC) in the section on education and employment:

© Commonwealth of Australia, 2025 Future Skills Organisation

‘In 2003, one in four people (24%) aged 15–64 years with a profound or severe core activity limitation, who were living in households, had completed Year 12. This compares to half (49%) of those without a disability. People with a profound or severe core activity limitation were less likely to have completed a diploma or higher qualification (14%) than those without a disability (28%).’

Employment related findings, for people aged 15–64 years living in households, from the ABS 2003 SDAC include:

- those with a profound level of core-activity limitation had a much lower labour force participation rate (15%) than people without a disability (81%)
- people with a disability who were employed were more likely to work part-time (37%) than those who were employed and did not have a disability (29%)
- people employed in agriculture, forestry and fishing (16%) had a relatively high disability rate compared to the overall rate for those employed (11%).’
-

Clearly there is much work still to be done to ensure that people who have a disability are able to participate in employment and vocational education and training as fully as possible.

What is a disability?

A disability presents some impairment to everyday activity. Some people with a disability do not have any impairments resulting from their disability. For example, a person who has a hearing impairment which is compensated for by a hearing aid may function without any adjustments. While some people with a disability may have an impairment because of the environment, not the disability itself. For example, hearing loss can be accentuated in a room with loud, competing noise and poor acoustics.

A disability may affect or relate to a range of human functions, including mobility, stamina, lifting ability, memory, vision, hearing, speech, comprehension and mood swings. This may be due to accidents, illnesses or birth.

According to the ABS 2003 SDAC:

‘One in five people in Australia (3,958,300 or 20.0%) had a reported disability. This rate was much the same for males (19.8%) and females (20.1%). Disability was defined as any limitation, restriction or impairment, which has lasted, or is likely to last, for at least six months and restricts everyday activities. Examples range from hearing loss which requires the use of a hearing aid, to difficulty dressing due to arthritis, to advanced dementia requiring constant help and supervision.’

© Commonwealth of Australia, 2025 Future Skills Organisation

The ABS 2003 SDAC information also tells us that:

‘15.2% (600,300) of people with a disability reported that the cause of their main health condition was accident or injury, 14% (557 300) that it was disease, illness or heredity, and 11% (423,500) that it was "working conditions, work or over-work".’

Health conditions can also be acquired through sporting accidents, repetitive or over-use (through regular or sporting activities), or the daily activities of life.

There are many resources available that provide information on how to adjust training and assessment for someone who has a disability; some of these are listed in the contacts section below.

Adjustments in training and assessment

An open mind, common sense and tailoring to individual circumstances will, as often as not, ensure individuals achieve the standards that employers and training providers expect. Reasonable adjustments need only be that – reasonable. It is about identifying what adjustments might reasonably be made and how they may be put into place.

Training and assessment can be made more appropriate and fairer for a person who has a disability through attitude, preparation and application.

Attitude

The attitude of others is often the greatest barrier for people who have a disability. While most people who have a disability will only ever require minor adjustments to ensure learning is positive, some will require additional support. There are many support agencies that can provide advice, however teachers/trainers may need to take additional time to ensure their teaching/training meets the learning support needs of the individual concerned.

Positive language creates an atmosphere of mutual respect, which is essential to learning. For example, using language that identifies learners as people rather than language that identifies them by one of their characteristics conveys that the person is more important than the characteristic, such as the difference between a ‘person who has an intellectual disability’ and an ‘intellectually disabled person’. A person who has an intellectual disability could also be identified by a range of equally important characteristics – height, age, sporting interests, etc. However, the term ‘intellectually disabled person’ refers to the disability as the major, and often only, defining characteristic.

Preparation

© Commonwealth of Australia, 2025 Future Skills Organisation

It is important to identify any functional issues arising from the nature and extent of a person's disability. This can usually be done by discussing such issues with the individual. In most cases, this consultation will identify reasonable adjustment needs which can be put into place. There are many simple things that teachers/trainers can do to make reasonable adjustments to enable individuals who have a disability to succeed in training and assessment. In some cases, professional support may be required.

Application

Once reasonable adjustments have been implemented it is important to monitor and evaluate what has been done to ensure the best environment for continuous learning because:

- adjustments may only need to be temporary – i.e. mechanisms may only need to be in place during an induction period or due to a temporary disability, in which case evaluation will ensure appropriateness without the need for ongoing monitoring
- adjustments may need reinforcing – when adjustments need to be ongoing, monitoring may reinforce patterns of behaviour in order for them to become 'natural'
- adjustments may need improving – where adjustments are ongoing or substantial, a commitment to continuous improvement is recommended through monitoring.
-

In most cases an informal discussion with the person concerned may be all that is necessary. However, should adjustments be substantial, or a learner not be acquiring competence at a reasonable rate, a more formal process may be required. This may include:

- performance indicators – training providers, learners and employers should have agreed indicators of performance which can be measured and monitored
- independent support – a third party, independent of the training and/or assessment environment, may need to be involved
- experimentation – if existing adjustments are not proving satisfactory, creative solutions may be needed
- continuing review – formal monitoring is encouraged if adjustments are changed or if substantial adjustments are necessary.
-

For further information on training and assessment for people with specific needs, the DEEWR website has information about the National Disability Coordination Officer Programme, which 'provides information, co ordination and referral services for people with a disability interested in or enrolled in post school education and training' (www.deewr.gov.au).

Reasonable adjustment

© Commonwealth of Australia, 2025 Future Skills Organisation

Below are some of the practical things that can be done as part of providing reasonable adjustment to learners with specific support needs to enable them to undertake training and assessment. Clearly, each case will be different and will need to be discussed with the person and in some cases expert help will be needed, at least in the initial stages.

Type of disability	**Reasonable adjustment**
Acquired brain injury	• Memory aids (posters, notes, etc.) • Reflective listening skills • Stress minimisation • Time and patience
Hearing impairment	• Audio loops for people using hearing aids • Plain English documents • Fire and alarm systems with flashing lights • Sign language interpreters • Telephone typewriters
Intellectual disability	• Additional time • Assessment which is appropriate to the skill (i.e. avoiding written assessment for practical tasks) • Mentors • Plain English documents • Practical learning sessions • Repetition of learning exercises
Mobility impairment	• Access to aids, such as for holding documents • Adjustable tables • Lifting limits • Note-taking support • Verbal rather than written presentations • Personal computers • Wheelchair access
Psychiatric disability	• Identification and avoidance of stresses • Ongoing rather than formal assessments • Reflective listening skills • ‘Time-out’ breaks in assessment
Speech impairment	• Information summaries • Stress minimisation • Time and patience • Written rather than verbal opportunities
Vision impairment	• Additional writing time for assignments and tests • Audiotapes

© Commonwealth of Australia, 2025 Future Skills Organisation

Type of disability	Reasonable adjustment
	• Braille translations • Enlarged computer screen images • Enlarged text and images • Good lighting or reading lamps • Guide dog provision • Informing the person before moving furniture • Voice synthesisers on computers

Industry Assessment Contextualisation 2

Assessment for Indigenous organisations

Aboriginal and Torres Strait Islander people have expressed concern about the importance of developing appropriate assessment processes.

There are four main areas of concern:

- diversity
- cultural appropriateness
- community control
- accreditation.
-

Diversity

The word 'diversity' is used to emphasise the wide range of opinions, aspirations, community circumstances, cultural practices, geographic locations, and social, economic and political conditions that exist throughout Australia and the need to guard against assumptions that all communities are the same.

One approach is to distinguish between remote, rural and urban settings. These settings suggest differences that may be relevant to Aboriginal and Torres Strait Islander organisations, including:

- culture
- language
- history
- social make-up

© Commonwealth of Australia, 2025 Future Skills Organisation

- geography
- social and economic infrastructure
- economy
- political structure.
-

These factors suggest that training and assessment, in order to be relevant to the needs of a particular Aboriginal and Torres Strait Islander organisation, should address each situation as unique.

Cultural appropriateness

The word 'culture' is used in a broad sense, it refers to:

- values, social beliefs and customs, such as Aboriginal and Torres Strait Islander law, land, and family and kinship systems
- protocols of behaviour and interaction, such as cultural authority, gender and kinship
- ways of thinking, including preferred learning styles
- language, both English and Aboriginal English
- lifestyles
- local history
- location, including region and place.
-

A particularly important aspect of cultural appropriateness is that of learning styles. There is evidence that Aboriginal and Torres Strait Islander people, both traditional and contemporary, approach learning differently from the Western intellectual tradition, which is relevant to effective training and assessment.

It is understood that Aboriginal and Torres Strait Islander people may:

- learn better in groups than individually
- learn better in the surroundings of their community than in an institutional environment
- prefer oral communication to written forms
- learn on the basis of trial and error in the presence of an experienced person in preference to concept building approaches
- have a highly-developed sense of spatial relations by which they learn; hence stories, maps and pictures would be preferable to oral explanations.
-

To be effective, it is necessary that training and assessment recognise, adopt and practise appropriate delivery and assessment approaches.

© Commonwealth of Australia, 2025 Future Skills Organisation

Trainers and assessors who are not Aboriginal or Torres Strait Islanders need information on aspects of Aboriginal and Torres Strait Islander culture. They need to work closely with Aboriginal and Torres Strait Islander people to adopt practices that reflect Aboriginal and Torres Strait Islander approaches. The community should be asked to identify experts to provide information and to assist with assessment of relevant protocols, for example, where required.

There are a number of ways an RTO can establish and maintain culturally appropriate training and assessment practices, including:

- ensuring a high proportion of Aboriginal and Torres Strait Islander participation in all aspects of planning, development, delivery and evaluation
- establishing and maintaining a collaborative relationship with local Aboriginal and Torres Strait Islander communities
- as a mainstream (non-Indigenous) RTO, establishing auspice relationships with Aboriginal and Torres Strait Islander organisations and individuals, including direct and indirect involvement of persons identified as appropriate by the local community
- ensuring ongoing training of non-Aboriginal and Torres Strait Islander staff at all levels of the RTO, delivered by Aboriginal and Torres Strait Islander personnel.

Community control

The term community control is synonymous with such things as self determination and self management, and underpins most community aspirations. It is of fundamental concern to people who see themselves as having been dispossessed by colonisation.

The essence of control is control of decision-making. In order to be able to do this, people need all relevant information, relevant competencies, and recognition of their own structures and processes.

Among other things, Aboriginal and Torres Strait Islander people seek control over their training. It is necessary, therefore, that they participate in meaningful ways in all stages of planning, development, delivery and evaluation. One way to achieve this is for communities to have control of the contract for training initiatives.

It is important that training providers and assessors respect and conform to the practice of community control which underpins this field within the ICA11 Information and Communications Technology Training Package.

Accreditation

© Commonwealth of Australia, 2025 Future Skills Organisation

Aboriginal and Torres Strait Islander people have said for a long time that their involvement in training has not been formally recognised and that many of the skills they use in managing their organisations and delivering services to their communities have not been valued.

The first issue may have arisen because much of the training that has been delivered to communities has been customised to particular situations, has not been assessed on an individual basis if at all, and has been delivered by unregistered personnel. Secondly, until this time, recognition of current competencies (RCC) has been under-utilised.

Individuals may demonstrate competence in complete units of competency through formal training, informal training or the recognition of current competencies and skills, resulting in qualifications or statements of attainment being awarded.

In the community group setting, an important feature of likely relevance for assessment is that participants may vary with respect to previous education and training experience, which may result in diverse literacy and numeracy issues. However, literacy and numeracy skills are not a barrier to sophisticated thought, and care must be taken not to use assessment strategies that rely on a person having numeracy and literacy skills that are not intrinsically required by the unit of competency being assessed.

A flexible approach to assessment will be required by RTOs in order to meet the requirements of Aboriginal and Torres Strait Islander organisations and individuals under this domain within the ICA11 Information and Communications Technology Training Package.

Assessment in Aboriginal and Torres Strait Islander communities

The guiding principles that underpin assessment include:

- assessment should be transparent, i.e. clearly seen and understood by the candidate and others
- assessment should empower the candidate on the basis of consent, self-assessment and responsibility for the process
- members or prospective members of community management committees should have opportunities to demonstrate their competencies and skills
- activities undertaken by the candidate in a community management role may be used as the context for assessment where possible (known as on-the-job assessment or workplace assessment); there may also be opportunities to include evidence from other relevant situations
- assessment should involve designated community experts working in collaboration with RTO assessors in order to provide appropriate recognition of cultural and community skills and knowledge
- assessments must provide constructive feedback to candidates and support for further competency development

© Commonwealth of Australia, 2025 Future Skills Organisation

- assessments must provide a statement of attainment or qualification, listing the units of competency achieved
- records of candidate achievement maintained by the RTO must include the statement of attainment, listing the units of competency or qualifications achieved as required by the AQTF 2007
- a record of demonstrated competencies will assist in role clarification and performance appraisals in the workplace.
-

Given the importance of the assessment to the candidate and community management committees, the assessor must make every effort to ensure that assessment is conducted with the highest level of professionalism and integrity.

Units of competency with cultural content, including the following of local protocols, will require the assessor to have knowledge of these cultural matters. As these matters are often governed by local rules regarding access to such knowledge, only those people with the knowledge can genuinely assess these aspects of the competency or provide guidance on their assessment.

Discussion must take place with the community and agreement must be reached on how these matters are assessed. For non-Aboriginal and Torres Strait Islander RTOs, this will usually mean the use of auspice arrangements with appropriate people or knowledge experts, identified by the community.

It should be noted that for Aboriginal and Torres Strait Islander people being assessed in aspects of competency, they will almost invariably have been attained through life experience. This must also be taken into account in the assessment procedures relating to cultural matters.

Assessors may exercise limited discretion in response to organisational or individual requirements, but any changes must not alter the meaning of the unit of competency or the elements of competency.

Candidates must be informed of the right to access grievance procedures.

Designing Assessment Tools

This section provides an overview on the use and development of assessment tools.

Use of Assessment Tools

© Commonwealth of Australia, 2025 Future Skills Organisation

Assessment tools provide a means of collecting the evidence that assessors use in making judgements about whether candidates have achieved competency.

There is no set format or process for the design, production or development of assessment tools. Assessors may use prepared assessment tools, such as those specifically developed to support this Training Package, or they may develop their own.

Using Prepared Assessment Tools

If using prepared assessment tools, assessors should ensure these relate to the current version of the relevant unit of competency. The current unit of competency can be checked on the National Register <www.ntis.gov.au>.

Developing Assessment Tools

When developing their own assessment tools, assessors must ensure that the tools:

- are benchmarked against the relevant unit or units of competency;
- are reviewed as part of the validation of assessment strategies required under the AQTF; and
- meet the assessment requirements expressed in the AQTF 2010 Essential Standards for Initial and Continuing Registration.

A key reference for assessors developing assessment tools is TAE10 Training and Education Training Package.

Language, Literacy and Numeracy

The design of assessment tools must reflect the language, literacy and numeracy competencies required for the performance of a task in the workplace and not exceed these expectations.

Conducting Assessment

This section details the mandatory assessment requirements and provides information on equity in assessment including reasonable adjustment.

Mandatory Assessment Requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

Assessments must meet the criteria set out in the AQTF 2010 *Essential Standards for Initial and Continuing Registration.* For information, the mandatory assessment requirements from Standard 1 from the AQTF 2010 *Essential Standards for Initial and Continuing Registration* are as follows:

1.5 Assessment, including Recognition of Prior Learning (RPL):

a. meets the requirements of the relevant Training Package or accredited course

b. is conducted in accordance with the principles of assessment and the rules of evidence

c. meets workplace and, where relevant, regulatory requirements

d. is systematically validated.

Assessment of Employability Skills

Employability Skills are integral to workplace competency. As such, they must be considered in the design, customisation, delivery and assessment of vocational education and training programs in an integrated and holistic way, as represented diagrammatically below.

Employability Skills are embedded within each unit of competency, and an Employability Skills Summary is available for each qualification. Training providers must use Employability Skills information in order to design valid and reliable training and assessment strategies. This analysis could include:

- reviewing units of competency to locate relevant Employability Skills and determine how they are applied within the unit
- analysing the Employability Skills Summary for the qualification in which the unit or units are packaged to help clarify relevant industry and workplace contexts and the application of Employability Skills at that qualification outcome
- designing training and assessment to address Employability Skills requirements.
-

The National Quality Council has endorsed a model for assessing and reporting Employability Skills, which contains further suggestions about good practice strategies in teaching, assessing, learning and reporting Employability Skills. The model is available from <http://www.training.com.au/>.

© Commonwealth of Australia, 2025 Future Skills Organisation

The endorsed approach includes learners downloading qualification specific Employability Skills Summaries for Training Package qualifications from an online repository at <http://employabilityskills.training.com.au>

For more information on Employability Skills in Innovation and Business Skills Australia's Training Packages go to the Innovation and Business Skills Australia website at <http://www.ibsa.org.au>

Employability Skills are reported on each qualification using the following statement on the qualification testamur: "A summary of the Employability Skills developed through this qualification can be downloaded from http://employabilityskills.training.com.au "

Access and Equity

An individual's access to the assessment process should not be adversely affected by restrictions placed on the location or context of assessment beyond the requirements specified in this Training Package: training and assessment must be bias-free.

Under the rules for their development, Training Packages must reflect and cater for the increasing diversity of Australia's VET clients and Australia's current and future workforce. The flexibilities offered by Training Packages should enhance opportunities and potential outcomes for all people so that we can all benefit from a wider national skills base and a shared contribution to Australia's economic development and social and cultural life.

Reasonable Adjustments

It is important that education providers take meaningful, transparent and reasonable steps to consult, consider and implement reasonable adjustments for students with disability.

Under the Disability Standards for Education 2005, education providers must make reasonable adjustments for people with disability to the maximum extent that those adjustments do not cause that provider unjustifiable hardship. While 'reasonable adjustment' and 'unjustifiable hardship' are different concepts and involve different considerations, they both seek to strike a balance between the interests of education providers and the interests of students with and without disability.

© Commonwealth of Australia, 2025 Future Skills Organisation

An adjustment is any measure or action that a student requires because of their disability, and which has the effect of assisting the student to access and participate in education and training on the same basis as students without a disability. An adjustment is reasonable if it achieves this purpose while taking into account factors such as the nature of the student's disability, the views of the student, the potential effect of the adjustment on the student and others who might be affected, and the costs and benefits of making the adjustment.

An education provider is also entitled to maintain the academic integrity of a course or program and to consider the requirements or components that are inherent or essential to its nature when assessing whether an adjustment is reasonable. There may be more than one adjustment that is reasonable in a given set of circumstances; education providers are required to make adjustments that are reasonable and that do not cause them unjustifiable hardship.

The Training Package Guidelines provides more information on reasonable adjustment, including examples of adjustments. Go to <http://www.deewr.gov.au/tpdh/Pages/home.aspx >.

Further Sources of Information

The section provides a listing of useful contacts and resources to assist assessors in planning, designing, conducting and reviewing of assessments against this Training Package.

Contacts

Innovation and Business Skills Australia
Level 11
176 Wellington Parade
East Melbourne VIC 3002
Tel: 03 9815 7000
Fax: 03 9815 7001
Web: www.ibsa.org.au
Email: reception@ibsa.org.au

Technical and Vocational Education and Training (TVET) Australia Limited
Level 21, 390 St Kilda Road, Melbourne
VIC 3150
PO Box 12211, A'Beckett Street Post Office, Melbourne, Victoria, 8006
Ph: +61 3 9832 8100
Fax: +61 3 9832 8198
Email: sales@tvetaustralia.com.au
Web: www.tvetaustralia.com.au

For information on the TAE10 Training and Education Training Package contact:

Innovation & Business Skills Australia

Telephone: (03) 9815 7000

© Commonwealth of Australia, 2025 Future Skills Organisation

Facsimile: (03) 9815 7001
Email: virtual@ibsa.org.au

Web: www.ibsa.org.au

General Resources

Refer to http://antapubs.dest.gov.au/publications/search.asp to locate the following publications.

AQF Implementation Handbook, fourth edition. Australian Qualifications Framework Advisory Board www.aqf.edu.au.

Australian Quality Training Framework (AQTF) - for information and resources go to www.training.com.au.

AQTF Essential Conditions and Standards. Training organisations must meet these standards in order to deliver and assess nationally recognised training and issue nationally recognised qualifications.

AQTF User's Guide to the Essential Standards for Registration. A Users' Guide for training organisations who must meet these standards in order to deliver and assess nationally recognised training and issue nationally recognised qualifications.

AQTF Standards for Accredited Courses. State and territory accrediting bodies are responsible for accrediting courses. This standard provides a national operating framework and template for the accreditation of courses.

TAE10 Training and Education Training Package. This is available from Innovation and Business Skills Australia (IBSA), the Innovation and Business Industry Skills Council, and can be viewed and components downloaded, from the National Training Information Service (NTIS).

National Training Information Service, an electronic database providing comprehensive information about RTOs, Training Packages and accredited courses (www.ntis.gov.au).

Training Package Development Handbook can be downloaded from www.deewr.gov.au.

© Commonwealth of Australia, 2025 Future Skills Organisation

Assessment Resources

Training Package Assessment Guides – a range of resources to assist RTOs in developing Training Package assessment materials (originally developed by ANTA with funding from the Department of Education, Training and Youth Affairs) and made up of 10 separate titles, as described at the publications page of www.deewr.gov.au. Go to www.resourcegenerator.gov.au.

Printed and/or CD versions of the guides can be purchased from Technical and Vocational Education and Training (TVET) Australia Limited. The resource includes the following guides:

- Training Package Assessment Materials Kit
- Assessing Competencies in Higher Qualifications
- Recognition Resource
- Kit to Support Assessor Training
- Candidates Kit: Guide to Assessment in New Apprenticeships
- Assessment Approaches for Small Workplaces
- Assessment Using Partnership Arrangements
- Strategies for ensuring Consistency in Assessment
- Networking for Assessors
- Quality Assurance Guide for Assessment.
-

An additional guide ‘Delivery and Assessment Strategies’ has been developed to complement these resources.

Assessment tool design and conducting assessment

VETASSESS and Western Australian Department of Training and Employment 2000, Designing Tests – Guidelines for designing knowledge based tests for Training Packages.

Vocational Education and Assessment Centre 1997, Designing Workplace Assessment Tools, A self-directed learning program, NSW TAFE.

Manufacturing Learning Australia 2000, Assessment Solutions, Australian Training Products, Melbourne.

Rumsey, David 1994, Assessment practical guide, Australian Government Publishing Service, Canberra.

© Commonwealth of Australia, 2025 Future Skills Organisation

Assessor training

Australian Committee on Training Curriculum (ACTRAC) 1994, Assessor training program – learning materials, Australian Training Products, Melbourne.

Australian National Training Authority, A Guide for Professional Development, ANTA, Brisbane.

Australian Training Products Ltd Assessment and Workplace Training, Training Package - Toolbox, ATPL Melbourne (available from TVET).

Green, M, et al. 1997, Key competencies professional development package, Department for Education and Children's Services, South Australia.

Victorian TAFE Association 2000, The professional development CD: A learning tool, VTA, Melbourne.

Assessment system design and management

Office of Training and Further Education 1998, Demonstrating best practice in VET project - assessment systems and processes, OTFE Victoria (now ‘Skills Victoria’).

Toop, L., Gibb, J. & Worsnop, P. Assessment system designs, Australian Government Publishing Service, Canberra.

Support for employment, training and assessment of people with specific needs

Association of Competitive Employment (ACE) National Network

ACE represents agencies that deliver open employment services for people with a disability.

PO Box 5198

Alphington VIC 3078

Tel: 03 9411 4033

Fax: 03 9411 4053

Email: info@acenational.org.au

Website: www.acenational.org.au

© Commonwealth of Australia, 2025 Future Skills Organisation

Australian Disability Clearinghouse on Education and Training (ADCET)

ADECT provides information about inclusive post-secondary education and training teaching, learning and assessment strategies and support services for people who have a disability.

ADCET

Locked Bag 1335

Launceston TAS 7250

Tel: 03 6324 3787

Fax: 03 6324 3788

Website: www.adcet.edu.au

Australian Association of the Deaf

PO Box 1083

Stafford QLD 4053

Tel: 07 3357 8266

Fax: 07 3357 8377

TTY: 07 3357 8277

Email: aad@aad.org.au

Website: www.aad.org.au

Australian Federation of Deaf Societies

PO Box 1060

Parramatta NSW 2124

Tel: 02 8833 3615

Fax: 02 9893 8333

TTY: 02 9893 8858

Australian Federation of Disability Organisations

247 Flinders lane

Melbourne VIC 3000

Tel: 03 9662 3324

Fax: 03 9662 3325

Email: office@afdo.org.au

Website: www.afdo.org.au

© Commonwealth of Australia, 2025 Future Skills Organisation

Blind Citizens Australia

PO Box 24

Sunshine VIC 3020

Tel: 03 9372 6400

Fax: 03 9372 6466

TTY: 03 9372 9275

Freecall: 1800 033 660

Email: bca@bca.org.au

Website: www.bca.org.au

Brain Injury Australia

PO Box 82

Mawson ACT 2607

Tel: 02 6290 2253

Fax: 02 6290 2252

Email: bianational@apex.net.au

Carers Australia

PO Box 73

Deakin West ACT 2600

Tel: 02 6122 9900

Fax: 02 6122 9999

Email: caa@carersaustralia.com.au

Website: www.carersaustralia.com.au

Commonwealth Disability Services Program Contacts

www.facs.gov.au or by telephone:

New South Wales/Australian Capital Territory: 1300 653 227

Northern Territory: 08 8936 6366

Queensland: 07 3004 4712

South Australia: 08 8400 2100

Tasmania: 03 6211 9300

Victoria: 03 8626 1109

© Commonwealth of Australia, 2025 Future Skills Organisation

Western Australia: 08 9229 1500

Deafness Forum of Australia

The forum coordinates the annual National Hearing Awareness Week, held in the last complete week of August.

218 Northbourne Avenue

Braddon ACT 2612

Tel: 02 6262 7808

Fax: 02 6262 7810

TTY: 02 6262 7809

Email: info@deafnessforum.org.au

Website: www.deafnessforum.org.au

Website: www.hearingawareness.org.au

Mental Health Foundation Australia

270 Church St

Richmond VIC 3121

Tel: 03 9427 0407

Fax: 03 9427 1294

Email: admin@mhfa.org.au

Website: www.mhfa.org.au

National Council on Intellectual Disability

PO Box 771

Mawson ACT 2607

Tel: 02 6296 4400

Fax: 02 6296 4488

Email: ncid@dice.org.au

Website: www.dice.org.au

National Ethnic Disability Alliance

PO Box 381

Harris Park NSW 2150

Tel: 02 9687 8933

© Commonwealth of Australia, 2025 Future Skills Organisation

Fax: 02 9635 5355
TTY: 02 9687 6325
Website: www.neda.org.au

Physical Disability Council of Australia Ltd
PO Box 77
Northgate QLD 4013
Tel: 07 3267 1057
Fax: 07 3267 1733
Email: pdca@pdca.org.au
Website: www.pdca.org.au

SANE Australia
PO Box 226
South Melbourne VIC 3205
Tel: 03 9682 5933
Fax: 03 9682 5944
Freecall: 1800 18 SANE
Email: info@sane.org
Email: helpline@sane.org
Website: www.sane.org

SAI Global
Standards Australia publications distributor.
Tel: 131 242
Fax: 1300 65 49 49
Email: sales@sai-global.com
Website: www.saiglobal.com

Standards Australia
Standards Australia develops standards and codes for building access.
Standards Australia Limited
Level 10, The Exchange Centre
20 Bridge Street

© Commonwealth of Australia, 2025 Future Skills Organisation

Sydney NSW 2000

Tel: 1800 035 822

Email: mail@standards.org.au

Women with Disabilities Australia WWDA
PO Box 605
Rosny Park TAS 7018
Tel: 03 6244 8288
Fax: 03 6244 8255
Email: wwda@ozemail.com.au
Website: www.wwda.org.au

Competency Standards

What is Competency?

The broad concept of industry competency concerns the ability to perform particular tasks and duties to the standard of performance expected in the workplace. Competency requires the application of specified skills, knowledge and attitudes relevant to effective participation in an industry, industry sector or enterprise.

Competency covers all aspects of workplace performance and involves performing individual tasks; managing a range of different tasks; responding to contingencies or breakdowns; and, dealing with the responsibilities of the workplace, including working with others. Workplace competency requires the ability to apply relevant skills, knowledge and attitudes consistently over time and in the required workplace situations and environments. In line with this concept of competency Training Packages focus on what is expected of a competent individual in the workplace as an outcome of learning, rather than focussing on the learning process itself.

Competency standards in Training Packages are determined by industry to meet identified industry skill needs. Competency standards are made up of a number of units of competency each of which describes a key function or role in a particular job function or occupation. Each unit of competency within a Training Package is linked to one or more AQF qualifications.

Contextualisation of Units of Competency by RTOs

© Commonwealth of Australia, 2025 Future Skills Organisation

Registered Training Organisations (RTOs) may contextualise units of competency in this endorsed Training Package to reflect required local outcomes. Contextualisation could involve additions or amendments to the unit of competency to suit particular delivery methods, learner profiles, specific enterprise equipment requirements, or to otherwise meet local needs. However, the integrity of the overall intended outcome of the unit of competency must be maintained.

Any contextualisation of units of competency in this Training Package must be within the bounds of the following advice:

- RTOs must not remove or add to the number and content of elements and performance criteria.
- RTOs can include specific industry terminology in the range statement.
- Any amendments and additions to the range statement made by RTOs must not diminish the breadth of application of the competency, or reduce its portability.
- RTOs may add detail to the evidence guide in areas such as the critical aspects of evidence or required resources and infrastructure—but only where these expand the breadth of the competency and do not limit its use.

Components of Units of Competency

The components of units of competency are summarised below, in the order in which they appear in each unit of competency.

Unit Title

The unit title is a succinct statement of the outcome of the unit of competency. Each unit of competency title is unique, both within and across Training Packages.

Unit Descriptor

The unit descriptor broadly communicates the content of the unit of competency and the skill area it addresses. Where units of competency have been contextualised from units of competency from other endorsed Training Packages, summary information is provided. There may also be a brief second paragraph that describes its relationship with other units of competency, and any licensing requirements.

Employability Skills

© Commonwealth of Australia, 2025 Future Skills Organisation

This sub-section contains a statement that the unit contains Employability skills.

Pre-requisite Units (optional)

If there are any units of competency that must be completed before the unit, these will be listed.

Application of the Unit

This sub-section fleshes out the unit of competency's scope, purpose and operation in different contexts, for example, by showing how it applies in the workplace.

Competency Field (Optional)

The competency field either reflects the way the units of competency are categorised in the Training Package or denotes the industry sector, specialisation or function. It is an optional component of the unit of competency.

Sector (optional)

The industry sector is a further categorisation of the competency field and identifies the next classification, for example an elective or supervision field.

Elements of Competency

The elements of competency are the basic building blocks of the unit of competency. They describe in terms of outcomes the significant functions and tasks that make up the competency.

Performance Criteria

The performance criteria specify the required performance in relevant tasks, roles, skills and in the applied knowledge that enables competent performance. They are usually written in passive voice. Critical terms or phrases may be written in bold italics and then defined in range statement, in the order of their appearance in the performance criteria.

Required Skills and Knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

The essential skills and knowledge are either identified separately or combined. Knowledge identifies what a person needs to know to perform the work in an informed and effective manner. Skills describe the application of knowledge to situations where understanding is converted into a workplace outcome.

Range Statement

The range statement provides a context for the unit of competency, describing essential operating conditions that may be present with training and assessment, depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts. As applicable, the meanings of key terms used in the performance criteria will also be explained in the range statement.

Evidence Guide

The evidence guide is critical in assessment as it provides information to the Registered Training Organisation (RTO) and assessor about how the described competency may be demonstrated. The evidence guide does this by providing a range of evidence for the assessor to make determinations, and by providing the assessment context. The evidence guide describes:

- conditions under which competency must be assessed including variables such as the assessment environment or necessary equipment;
- relationships with the assessment of any other units of competency;
- suitable methodologies for conducting assessment including the potential for workplace simulation;
- resource implications, for example access to particular equipment, infrastructure or situations;
- how consistency in performance can be assessed over time, various contexts and with a range of evidence; and
- the required underpinning knowledge and skills

Employability Skills in Units of Competency

The detail and application of Employability Skills facets will vary according to the job-role requirements of each industry. In developing Training Packages, industry stakeholders are consulted to identify appropriate facets of Employability Skills which are incorporated into the relevant units of competency and qualifications.

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills are not a discrete requirement contained in units of competency (as was the case with Key Competencies). Employability Skills are specifically expressed in the context of the work outcomes described in units of competency and will appear in elements, performance criteria, range statements and evidence guides. As a result, users of Training Packages are required to review the entire unit of competency in order to accurately determine Employability Skills requirements.

How Employability Skills relate to the Key Competencies

The eight nationally agreed Employability Skills now replace the seven Key Competencies in Training Packages. Trainers and assessors who have used Training Packages prior to the introduction of Employability Skills may find the following comparison useful.

Employability Skills	**Mayer Key Competencies**
Communication	Communicating ideas and information
Teamwork	Working with others and in teams
Problem solving	Solving problems Using mathematical ideas and techniques
Initiative and enterprise	
Planning and organising	Collecting, analysing and organising information Planning and organising activities
Self-management	
Learning	
Technology	Using technology

When analysing the above table it is important to consider the relationship and natural overlap of Employability Skills. For example, using technology may involve communication skills and combine the understanding of mathematical concepts.

Explicitly embedding Employability Skills in units of competency

© Commonwealth of Australia, 2025 Future Skills Organisation

This Training Package seeks to ensure that industry-endorsed Employability Skills are explicitly embedded in units of competency. The application of each skill and the level of detail included in each part of the unit will vary according to industry requirements and the nature of the unit of competency.

Employability Skills must be both explicit and embedded within units of competency. This means that Employability Skills will be:

- embedded in units of competency as part of the other performance requirements that make up the competency as a whole
- explicitly described within units of competency to enable Training Packages users to identify accurately the performance requirements of each unit with regards to Employability Skills.

This Training Package also seeks to ensure that Employability Skills are well-defined and written into units of competency so that they are apparent, clear and can be delivered and assessed as an essential component of unit work outcomes.

Examples from this Training Package of employability skills embedded within unit components

Unit component	**Example of embedded employability skill**
Unit title	Work and communicate effectively in an IT environment
Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to work and communicate effectively within organisational policies and governance arrangements using information technology (IT) systems, equipment and software.
Element	Use positive and varied communication strategies with ICT clients
Performance criteria	***Respond appropriately*** to ***client*** and colleague requirements and identify options
Range Statement	• ***Respond appropriately*** may include: • answering enquiries promptly and appropriately • discussing, agreeing and recording supply arrangements with client • recording details in enterprise system • using appropriate questioning and active listening techniques to understand client needs and determine

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit component	Example of embedded employability skill
	support requirements • using clear, simple and easy to understand language • ensuring responses are comprehensive.
Required Skills and Knowledge	• communication skills to: • clarify the needs of customers • deliver required level and quality of customer service • relate to people from diverse backgrounds and people with diverse abilities • request advice, receive feedback and work with a team • knowledge: • current industry-accepted hardware and software products, with broad knowledge of features and capabilities
Evidence Guide	Evidence of the ability to: • process internal and external requests according to organisational policies and requirements • respond promptly to client enquiries and requests from colleagues.

Employability Skills Summaries and units of competency

An Employability Skills Summary exists for each qualification. Summaries include broad advice on industry expectations with regard to Employability Skills at the qualification level. Summaries should be used by trainers and assessors to assist in identifying the Employability Skills requirements contained within units of competency.

Competency Standards - Industry Contextualisation

As indicated elsewhere, RTOs may contextualise units of competency imported from other Training Packages to reflect outcomes relevant to the ICA11 Information and Communications Technology Training Package industry.

The units from the Training Packages detailed above have been imported into these qualifications to support those units which address specific aspects of the ICT industry, such as computer networking and security, project management, small business needs and customer service.

© Commonwealth of Australia, 2025 Future Skills Organisation

Using ‘BSBSUS501A Develop workplace policy and procedures for sustainability' as an example, RTOs could add the development of policies and procedures in sustainability while formulating planning and design specifications to ICT projects.

Appendices

Appendix A: VET in Schools

What is VET in schools?

Vocational education and training in schools (VETiS) provides for nationally recognised vocational education and training undertaken as part of a senior secondary certificate and based on industry standards.

Successful completion of a VETiS program enables students to gain a nationally-recognised Australian Qualifications Framework (AQF) qualification, usually at the same time as their school-based qualification.

How are VET in schools programs structured?

VETiS programs are packaged and delivered in a variety of ways across Australia. There are three main types of delivery arrangements for VETiS programs:

- schools can be a registered training organisation (RTO) in their own right
- school sectoral bodies (such as Boards of Studies or regional offices) can hold RTO status on behalf of a group of schools
- schools can work together in a partnership with an RTO.

Appropriate qualifications for VET in schools

IBSA encourages links between schools, businesses and the community, and strongly supports young people combining schooling with VET and workplace learning.

It is essential that all VET qualifications gained through a VETiS program are consistent with the outcomes detailed in the Training Package.

The following qualifications are recommended as most suitable for a VETiS program:

© Commonwealth of Australia, 2025 Future Skills Organisation

- Certificate II in Information, Digital Media and Technology
- Certificate III in Information, Digital Media and Technology

The AQTF Standards for Registered Training Organisations set out minimum competency standards for staff responsible for the delivery of training and the conducting of assessments; and they ensure that VET specialists have skills and competencies consistent with Training Package requirements. All schools using their own teachers for VET delivery must also be aware of the AQTF requirement for assessors to hold relevant vocational competencies, at least equal to that being delivered and assessed, in addition to teaching and assessment competence.

Schools are encouraged to establish partnerships with industry and effective work placement arrangements to maximise the quality of outcomes for students and industry alike. Recognition of competence gained through voluntary, part-time or vacation work not directly related to the industry focus of the qualification should also be considered.

Work placement

Work placement usually involves students spending an extended period of time in a workplace gaining experience and skills, and undergoing an assessment process related to the attainment of a qualification in a specific occupational field.

An essential feature of school-industry programs is that they involve students spending some time learning in a workplace. In recent years an increasing number of effective structured workplace learning programs have made significant progress towards greater workplace integrity for those industry training programs that are delivered predominantly off-the-job. The implementation of Training Packages means that structured workplace learning must be a consideration for all RTOs, not only schools, in the delivery of training programs.

Principles for quality workplace learning

The Ministerial Council for Education, Early Childhood Development and Youth Affairs (MCEEDYA) endorsed the Principles for Quality Workplace Learning for school students engaged in VET programs throughout Australia. All states and territories apply the principles to their work placement programs, although the nature and extent of work placement programs vary across states and territories.

The broad MCEEDYA principles are documented below.

Quality workplace learning is integrated into a program

© Commonwealth of Australia, 2025 Future Skills Organisation

- It operates within a framework which provides the opportunity for all students to access it, though not all students may choose to do so; and
- It operates within the context of vocational courses, which are recognised by industry, are responsive to industry needs and form part of a student's exit credential.

Quality workplace learning is structured

- It has a clearly articulated and documented purpose;
- There are clearly identified and documented learning outcomes for students within accredited programs, which are linked to post-school qualifications;
- They are of sufficient duration and depth to enable students to acquire a reasonable understanding of the enterprise/industry to demonstrate competence according to industry standards of at least level 1 of the AQF;
- There is a matching between the students' skills and interests and the work placements; and
- Students, teachers and employers are thoroughly prepared beforehand so that the expectations and outcomes of the work placement are clearly understood by all parties.

Quality workplace learning is monitored

- The learning is coordinated by personnel with appropriate expertise and adequate resources; and
- Support should be made available to students and employers throughout the course of the work placement.

Quality workplace learning is regulated

- There are clearly stated procedures designed to ensure that:
- Students are protected from moral and physical danger;
- Students work in a non-discriminatory and harassment-free environment;
- Students receive appropriate training and instruction in occupational health and safety;
- Students are not exploited by being continuously engaged in a production or service capacity or used to substitute for the employment of employees and payment of appropriate wages; and
- Students are required to understand the roles and responsibilities of employees in the workplace and are expected to follow the directions of the workplace supervisors and other employees.

Quality workplace learning is assessed

© Commonwealth of Australia, 2025 Future Skills Organisation

- The assessment, according to industry standards, is of students' competencies achieved in the workplace which contributes to the overall assessment of the program; and
- There are mechanisms for the recording and reporting of students' competencies.

There is a strong correlation between these MCEEDYA quality principles and the OECD characteristics of high quality learning programs detailed below.

The major 14-country study entitled From Initial Education to Working Life: Making Transitions Work by the OECD identified 10 characteristics of high quality workplace learning programs. These are:

1. Work placements that are long enough for real learning to take place.
2. Systematic analysis of the training capacity of the workplace, to see what it can realistically supply.
3. A formal training plan, setting out what has to be taught and learned, and clarifying the work-based and school-based parts of a student's program.
4. Employer involvement in student selection for work placements.
5. The presence of a trained program coordinator, able to liaise between the school and the firm and troubleshoot when problems occur.
6. The use of qualified, highly competent workers as workplace trainers or mentors.
7. Regular face-to-face contact between the coordinators and employers and in-firm supervisors.
8. Monitoring of the students on the job by the program coordinator.
9. The evaluation of student performance against the training plan at the end of the placement, with the evaluation carried out by the job supervisor and coordinator jointly.
10. Deliberate efforts by schools to relate what has been learned at work to students' school-based learning.[1]

Effective work placement is characterised by:

- activities that complement off-the-job learning programs
- clearly articulated and documented purpose
- development of appropriate attitudes towards work
- development of competence in designated industry skills and employability skills
- facility for on-the-job practice of skills acquired in a classroom
- flexibility
- learning in a range of behaviours appropriate to the relevant industry
- opportunities for work-based assessment

© Commonwealth of Australia, 2025 Future Skills Organisation

- regular and frequent use of current technology and equipment
- relevance to the VET qualification being undertaken
- recognition of student readiness
- support of industry partners.

Beyond the above, a number of other provisions are necessary for a successful work placement program. The credibility of work placements and any resultant recognition of competence requires a degree of ‘seriousness’ if the outcomes are to be valued by individuals and industry clients of the VET system.

It is suggested that stakeholders involved in the planning and management of work placements carefully consider and implement the following general principles.

1. That the RTO assumes responsibility for finding placements and validating the arrangements.
2. That the workplace has the appropriate resources, tools and staff to conduct the placement, with compliance with any legislative requirements.
3. That there be regular validation by the RTO that the student and assessor, where relevant, are operating according to RTO AQTF standards.
4. That a student on work placement must be covered by injury insurance.
5. That there is a formal contract setting out each party’s responsibilities and obligations.
6. That, where possible, the workplace has on site a qualified workplace trainer and assessor in ‘direct line’ control of the student (to avoid training and assessment by ‘proxy’).
7. That if the placement is for assessment only then there must be clearly documented assessment tasks specifically related to the unit being assessed and evidence retained to support achievement of competence (for both best practice recording purposes and audit/appeal).
8. That if the placement also includes training, then any ‘academic pass’ cannot be bestowed prior to the placement as clearly all of the learning components have not been undertaken nor can they be assessed in advance if they have not been learned.
9. That the training be directly related to achievement of competence while recognising the likely acquisition of other skills and knowledge.
10. That where assessment occurs it be clearly related to a unit of competency relevant to the work placement.
11. That where more than one performance criterion (possibly over more than one unit) is being assessed there must be a clearly linked and documented relationship between the assessment and the performance criterion.
12. That the qualifications level be appropriate in context, i.e. if it is advanced programming there must be an advanced programming task observed and assessed.
13. That the actual variables of the performance criterion be documented for audit purposes and for verification of appropriateness of the range of activities in the work placement.

© Commonwealth of Australia, 2025 Future Skills Organisation

In some state and territory school systems, part-time student work in an appropriate workplace may be used to fulfil work placement requirements and virtual or simulated work placements may also be legitimate.

Appendices - ICA11 Acronyms

There are a significant number of acronyms in ICA11.

The list below details those where the full term has been provided and others where it has not. IBSA's usual approach is to write the term out in full in first mention in a unit with acronym following. Next mentions in unit are then by acronym only.

ICA11 Acronyms	
AutoVirt	automated virtualisation
AutoMove	Windows service application
AAA	authentication, authorisation and accounting
ACL	access control list
ACSCE	Australian Computer Society Code of Ethics
ADSL	asymmetric digital subscriber line
AES	advanced encryption standard
API	application programming interface
APIPA	automatic private IP addressing
ARIS	architecture of integrated information systems
AS	active server
ASP	active server pages application service providers
AV	audiovisual
AVG	product name

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA11 Acronyms	
BEA	building environmental assessment
BSD	Berkeley Software Distribution
BSI	business systems integration
CASE	computer-aided software engineering
CGI	common gateway interface
CHAP	challenge handshake authentication protocol
CLI	calling line identification
CMOS	complementary metal oxide semiconductor
COBOL	Common Business-Oriented Language
COM	component object model
CORBA	common object request broker architecture
CPU	central processing unit
CRM	customer relationship management
CSS	cascading style sheet
DAL	data-access layer
DAO	data-access object
DAS	direct attached storage
DBMS	database management system
DCOM	distributed component object model
DES	data encryption standard
DHCP	dynamic host configuration protocol
DHTML	dynamic hypertext markup language
DMZ	demilitarised zone
DNS	domain name system

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA11 Acronyms	
DOM	document object model
DSL	digital subscriber line
DSMS	data stream management system
DSN	data source name
DTD	document type definition
DXdiag	DirectX Diagnostic Tool
EAN.UCC	European Article Numbering Uniform Code Council
EAP	extensible authentication protocol
EEO	equal employment opportunity
EICAR	European Institute for Computer Antivirus Research
ER	entity relationship
ERP	enterprise resource planning
ext	extended file system
FAT	file allocation table
FDD	floppy disk drive
FTP	file transfer protocol
FTTX	fibre to the ‘x’
GNU	GNUs Not Unix
GnuPG	GNU Privacy Guard
GPO	group policy object (Windows)
GPRS	general packet radio service
GSSAPI	Generic Security Services Application Program Interface
GUI	graphical user interface
HDD	hard disk drive

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA11 Acronyms	
HDLC	high level data link control
HDMI	high **definition** multimedia interface
HFS+	hierarchical file system +
HSDPA	high-speed downlink packet access
HSDSL	high-speed digital subscriber line
HTML	hypertext markup language
HTTP	hypertext transfer protocol
HTTPS	hypertext transfer protocol secure
IaaS	infrastructure as a service
IDE	integrated development environment
IDS	intrusion detection system
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
IEF	imaging energy filter
IETF	Internet Engineering Task Force
IM	information management
IMAP	internet message access protocol
IOS	internetwork operating system
IP	internet protocol
IPS	intrusion prevention system
IPSec	internet protocol security
ISDN	integrated services digital network
IRM	Institute of Risk Management
ISDN	integrated services digital network

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA11 Acronyms	
Isee	integrated software engineering environment
ISA	internet security and acceleration
ISO	International Organization for Standardization
ISP	internet service provider
ITIL	information technology infrastructure library
ITU	International Telecommunications Union
iSCSI	internet small computer systems interface
JSP	Java server pages
KVM	Kernel Virtual Machine
LAN	local area network
LEAP	lightweight extensible authentication protocol
LDAP	lightweight directory access protocol
L2TP	layer 2 tunnelling protocol
MD5	Message Digest Algorithm 5
MIME	multipurpose internet mail extensions
MPLS	multi-protocol label switching
msconfig	Microsoft Configuration Utility
MSIA	Microsoft Software Inventory Analyzer
mSQL	Mini SQL (mSQL)
MS SQL	Microsoft Structured Query Language
MySQL	Proprietary name
NAS	network-attached storage
NetBIOS	networked basic input/output system
NAT	network address translation

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA11 Acronyms	
NDS	Novell Directory Services
NetBIOS	network basic input/output system
NIC	network interface card
NIS	network information system
NFA	non-deterministic finite automaton
NFS	network file system
NIC	network interface card
NOS	network operating system
NTFD	NTF-based data
NTFS	new technology file system
NTLM	NT LAN Manager
NTP	network time protocol
NTU	network terminating unit
ODBC	open database connection
ODC	open database connection
ODP	open directory project
OECD	Organisation for Economic Cooperation and Development
OIKOS	Organisation name, upper case
OLE	object linking and embedding
OS	operating system
OSI	open system interconnection
PAM	pluggable authentication modules
PAP	password authentication protocol
PATA	parallel advanced technology attachment

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA11 Acronyms	
PC	personal computer
PCI	peripheral component interconnect
PCMCIA	Personal Computer Memory Card International Association
PDA	personal digital assistant
PGP	pretty good privacy
PHP	Perl hypertext pre-processor
PKI	public key infrastructure
PKM	personal knowledge management
PMBOK	Project Management Body of Knowledge
POP	post office protocol
POSIX NFA	portable operating system interface for Unix NFA
POST	power on self test
PPP	point-to-point protocol
PPPoE	point-to-point protocol over ethernet
PPTP	point-to-point tunnelling protocol
PRINCE2	Projects IN Controlled Environments
PROTOS	Process and Tools (Team)
PWB	ProcessWise Workbench
PSTN	public switched telephone network
QOS	quality of service
RADIUS	***remote authentication dial-in user service***
RAID	redundant array of inexpensive/independent disks
RAM	random access memory
RDBMS	relational database management system

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA11 Acronyms	
RFID	radio frequency identification
RHDS	Red Hat Directory Services
RHN	red hat network
RIPv1	routing information protocol
RIS	remote installation services
RRAS	routing and remote access services
RSA	Rivest, Shamir and Adelman
RSTP	rapid spanning tree protocol
SAN	storage area network
SATA	serial advanced technology attachment
SCSI	small computer system interface
SDLC	system development life cycle
SDM	security device manager
SGML	standard generalised markup language
SHTTP	secure hypertext transfer protocol
SE Linux	security enhanced Linux
SEM	search engine marketing
SEO	search engine optimisation
SHA	secure hash algorithm
SIP	session initiation protocol
SLA	service level agreement
SMB	server messages block
SME	small or medium enterprise
SMIME	secure or multipurpose internet mail extensions

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA11 Acronyms	
SMTP	simple mail transfer protocol
SNMP	simple network management protocol
SOA	service-oriented architecture
SOAP	simple object access protocol
SOCCA	Specification of Coordinated and Cooperative Activities
SOHO	small office home office
SPNEGO	simple and protected GSSAPI negotiation
SQL	structured query language
SQLS	structured query language server
SSH	secure shell
SSID	service set identifier
SSL	secure socket layer
SSPI	Security Support Provider Interface
SSTP	secure socket tunnelling protocol
STP	spanning tree protocol
sxw (lower case)	Sun Xml Writer
TCP	transmission control protocol
TCP/IP	transmission control protocol or internet protocol
TLS	transport layer security
TSIG	Transaction Signature
UAC	User Account Control
UDDI	universal description, discovery and integration
UML	unified modelling language
UPS	uninterruptible power supply

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA11 Acronyms	
Unix OS	Unix operating system
UN/CEFACT	United Nations Centre for Trade Facilitation and Electronic Business
UPS	uninterruptible power supply
URL	uniform resource locator
USB	universal serial bus
VB	Visual Basic
VBScript	Visual Basic Script (proprietary name)
VLAN	virtual local area network
VLAN SPAN	virtual local area network switched port analyser
VoIP	voice over internet protocol
VPN	virtual private network
VRML	virtual reality modelling language
VSFTP	very secure FTP
VSPAN	VLAN SPAN
W3C	World Wide Web Consortium
WAI	web accessibility initiative
WAN	wide area network
WDS	wireless distribution system
WEP	wired equivalent privacy
wi-fi	wireless system
Wi-Fi Alliance	nonprofit international association
WINS	Windows Internet Naming Service
WiMAX	worldwide interoperability for microwave access
WLANs	wireless local area networks

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA11 Acronyms	
WPA	wi-fi protected access
WPA2	wi-fi protected access 2
WSUS	windows server update services
WWAN	wireless wide area network
XHTML	eXtensible hypertext markup language
XLT	XMl representation of lexicons and terminologies
XML	eXtensible markup language
XSLT	eXtensible stylesheet language transformations
YUM	Yellow Dog Update Manager

[1] OECD, 2000, *From Initial Education to Working Life: Making Transitions Work*. Organisation for Economic Cooperation and Development, Paris.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA10111 Certificate I in Information, Digital Media and Technology

Modification History

Release	Comments
Release 2	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 2.0* Updated elective unit to most current version.
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides the skills and knowledge for individuals to safely perform foundation digital literacy tasks using a personal computer and a range of software applications and digital devices.

Job roles

This qualification provides foundation digital literacy skills to support a wide range of varying industry occupations.

Pathways Information

Pathways into the qualification

This is an entry level qualification.

Pathways from the qualification

ICA20111 Certificate II in Information, Digital Media and Technology, or a range of other qualifications.

© Commonwealth of Australia, 2025 Future Skills Organisation

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	Industry/enterprise requirements for this qualification
Communication	• communicating with peers and supervisors • reading and interpreting basic workplace documents
Teamwork	• submitting draft work to appropriate people for approval or feedback • following peer and supervisor advice and instructions
Problem-solving	• using user manuals and help functions to solve problems when using computer applications and digital devices
Initiative and enterprise	• customising basic computer settings and digital devices to meet special needs
Planning and organising	• organising digital files • planning the format of documents and tables
Self-management	• adjusting the display of internet browsers to suit personal occupational health and safety requirements • observing and applying internet protocols
Learning	• seeking assistance from people when using a personal computer and digital devices
Technology	• using digital devices, including personal computers and applications

Packaging Rules

Total number of units = 6

© Commonwealth of Australia, 2025 Future Skills Organisation

4 core units plus

2 elective units

The elective units consist of:

- up to 2 from the elective units listed below
- up to 1 from elsewhere in ICA11 or any other Training Package or accredited course at Certificate I or II level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

Core units

ICAICT101A Operate a personal computer

ICAICT102A Operate word-processing applications

ICAICT103A Use, communicate and search securely on the internet

ICAICT104A Use digital devices

Elective units

BSBWHS201A Contribute to health and safety of self and others

BSBSUS201A Participate in environmentally sustainable work practices

BSBCMM101A Apply basic communication skills

ICAICT105A Operate spreadsheet applications

ICAICT106A Operate presentation packages

ICAICT107A Use personal productivity tools

ICAICT108A Use digital literacy skills to access the internet

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA20111 Certificate II in Information, Digital Media and Technology

Modification History

Release	Comments
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This entry level qualification provides the foundation skills and knowledge to use information and communications technology (ICT) in any industry.

Job roles

Possible job titles relevant to this qualification include:

- office assistant
- records assistant
- junior office support.

This qualification provides basic digital literacy skills to support a wide range of varying industry occupations.

Pathways Information

Pathways into the qualification

This is an entry level qualification.

Pathways from the qualification

ICA30111 Certificate III in Information, Digital Media and Technology, or a range of other Certificate III qualifications.

© Commonwealth of Australia, 2025 Future Skills Organisation

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	**Industry/enterprise requirements for this qualification**
Communication	• providing client support using verbal and non-verbal communication • reading and writing basic workplace documents and technical manuals
Teamwork	• reporting identified software faults to appropriate persons • accepting directions and following instructions from supervisor or team leader
Problem-solving	• configuring operating systems to suit the work environment • solving organisational problems by applying technology
Initiative and enterprise	• seeking feedback from users of new or upgraded technology • selecting appropriate software and file formats for an activity
Planning and organising	• identifying work to be completed and then prioritising tasks • planning and organising the selection, manufacture and location of hardware
Self-management	• establishing own work schedule and taking responsibility for own outputs in work and learning • following occupational health and safety standards and organisational policies to avoid injury or illness • observing environmentally sustainable work practices
Learning	• acquiring and using new or upgraded technology skills to enhance own learning • keeping up-to-date with current industry-accepted hardware and software products

© Commonwealth of Australia, 2025 Future Skills Organisation

Technology	• selecting, installing and using computer software and hardware products

Packaging Rules

Total number of units = 14

7 core units *plus*

7 elective units

The elective units consist of:

- up to 7 from the elective units listed below
- up to 3 from elsewhere in ICA11 or any other Training Package or accredited course at Certificate II or III level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

Core units

BSBOHS201A Participate in OHS processes

BSBSUS201A Participate in environmentally sustainable work practices

ICAICT201A Use computer operating systems and hardware

ICAICT202A Work and communicate effectively in an IT environment

ICAICT203A Operate application software packages

ICAICT204A Operate a digital media technology package

ICAWEB201A Use social media tools for collaboration and engagement

Elective units

CUFCAM201A Assist with a basic camera shoot

CUFDIG201A Maintain interactive content

CUFDIG303A Produce and prepare photo images

CUFPOS201A Perform basic vision and sound editing

CUFSOU204A Perform basic sound editing

ICAICT205A Design basic organisational documents using computing packages

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT206A Install software applications

ICAICT207A Integrate commercial computing packages

ICAICT208A Operate accounting applications

ICAICT209A Interact with ICT clients

ICAICT210A Operate database applications

ICAICT211A Identify and use basic current industry-specific technologies

ICAICT212A Incorporate Indigenous needs and perspectives into IT environment

ICASAS201A Maintain inventories for equipment, software and documentation

ICASAS202A Apply problem-solving techniques to routine IT malfunctions

ICASAS203A Connect hardware peripherals

ICASAS204A Record client support requirements

ICASAS205A Maintain IT system integrity

ICASAS206A Detect and protect from spam and destructive software

ICASAS207A Protect and secure information assets

ICASAS208A Maintain IT equipment and consumables

ICASAS209A Connect and use a home-based local wireless network

ICPMM321C Capture a digital image

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA30111 Certificate III in Information, Digital Media and Technology

Modification History

Release	Comments
Release 2	*This version first released with ICA11 Information and Communications Technology Training Package Version 2*. Addition of two new units of competency to Elective Group F.
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides the skills and knowledge for an individual to be competent in a wide range of general information and communications technology (ICT) technical functions and to achieve a degree of self-sufficiency as an advanced ICT user.

Persons working at this level will support information technology activities in the workplace across a wide range of ICT areas, including technical support, network administration, web technologies, software applications and digital media technologies.

Job roles

Possible job titles relevant to this qualification include:

- help desk officer
- help desk assistant
- ICT operations support
- ICT user support
- PC support
- technical support.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification may include:

© Commonwealth of Australia, 2025 Future Skills Organisation

- after achieving ICA20111 Certificate II in Information, Digital Media and Technology, or other relevant qualifications or units equivalent to the core of ICA20111

OR

- with demonstrated vocational experience in a range of work environments using basic information technologies.

Pathways from the qualification

ICA40111 Certificate IV in Information Technology, or a range of other Certificate IV qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements, except for three elective units ICTCBL2136A, ICTCBL2137A and ICTCBL2139A, which must be undertaken with reference to the regulatory regime of the prevailing statutory authority (currently ACMA). There may be some alignment with industry-standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	**Industry/enterprise requirements for this qualification**
Communication	• liaising with clients to determine requirements and ensure that they are met • interpreting software manual instructions • producing user documents
Teamwork	• contacting operating system vendors to obtain technical specifications and system requirements • submitting developed user documentation to the target audience for review
Problem-solving	• determining the uses and audience of a simple markup language document • troubleshooting and running diagnostic tests and providing solutions to hardware or software faults

© Commonwealth of Australia, 2025 Future Skills Organisation

Initiative and enterprise	• assessing and recording information from various sources • identifying and applying skills and knowledge to a wide variety of contexts • investigating and documenting solutions to client problems • customising packaged application software to client requirements
Planning and organising	• planning for the implementation of software changes by seeking technical and client information and organising the process
Self-management	• prioritising and taking responsibility for own outputs in working and learning • implementing safe and sustainable work practices
Learning	• adopting and transferring skills and knowledge to new environments • keeping up-to-date with current industry-accepted hardware and software products and services • providing one-to-one instruction for clients about operating system software • reviewing client feedback and identifying areas for improvement
Technology	• selecting, installing and using computer software and hardware products • configuring, optimising and testing system software for a small home office or a small to medium business network

Packaging Rules

Total number of units = 17

6 core units plus

11 elective units, of which:

- 5 units must be from one of the following specialist elective groups:
  - Group A Applications
  - Group B Network administration
  - Group C Support
  - Group D Web technologies
  - Group E Multimedia
- up to 6 units may be from any of the specialist elective groups below or from Group F general elective units
- up to 3 units may be from elsewhere in ICA11 or any other Training Package or accredited course at Certificate II, III or IV level.

© Commonwealth of Australia, 2025 Future Skills Organisation

The elective units chosen must be relevant to the work outcome and meet local industry needs.

Core units

BSBSUS301A Implement and monitor environmentally sustainable work practices

BSBWHS304A Participate effectively in WHS communication and consultative processes

ICAICT202A Work and communicate effectively in an IT environment

ICAICT301A Create user documentation

ICAICT302A Install and optimise operating system software

ICASAS301A Run standard diagnostic tests

Elective units

Specialist elective units

Group A Applications

ICAICT203A Operate application software packages

ICAICT304A Implement system software changes

ICAICT307A Customise packaged software applications for clients

ICAICT308A Use advanced features of computer applications

ICAICT409A Develop macros and templates for clients using standard products

Group B Network administration

ICANWK301A Provide network systems administration

ICANWK302A Determine and action network problems

ICANWK304A Administer network peripherals

ICANWK305A Install and manage network protocols

ICASAS307A Install, configure and secure a small office home office network

Group C Support

ICAICT303A Connect internal hardware components

ICASAS303A Care for computer hardware

ICASAS304A Provide basic system administration

ICASAS305A Provide IT advice to clients

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS306A Maintain equipment and software

Group D Web technologies

BSBEBU401A Review and maintain a website

ICAWEB201A Use social media tools for collaboration and engagement

ICAWEB301A Create a simple markup language document

ICAWEB302A Build simple websites using commercial programs

ICAWEB303A Produce digital images for the web

Group E Multimedia

CUFANM301A Create 2D digital animations

CUFANM302A Create 3D digital animations

ICAGAM301A Apply simple modelling techniques

ICAGAM302A Design and apply simple textures to digital art

ICAGAM303A Review and apply the principles of animation

General elective units

Group F

BSBIPR301A Comply with organisational requirements for protection and use of intellectual property

CUFDIG301A Prepare video assets

CUFDIG302A Author interactive sequences

CUFDIG304A Create visual design components

ICAICT305A Identify and use current industry-specific technologies

ICAICT306A Migrate to new technology

ICANWK303A Configure and administer a network operating system

ICANWK306A Evaluate characteristics of cloud computing solutions and services

ICANWK419A Identify and use current virtualisation technologies

ICPMM346C Incorporate video into multimedia presentations

ICAPRG301A Apply introductory programming techniques

ICTCBL2065A Splice and terminate optical fibre cable for carriers and service providers

ICTCBL2136A Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule

ICTCBL2137A Install, maintain and modify customer premises communications cabling: ACMA Open Rule

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTCBL2139A Apply safe technical work practices for cabling registration

ICTBWN3082A Perform tests on optical communication system and components

ICTBWN3088A Install optical fibre splitters in fibre distribution hubs

ICTBWN3090A Install lead-in module and cable for fibre to the premises

ICTBWN3100A Work safely with live fibre to test and commission a fibre to the x installation

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA40111 Certificate IV in Information Technology

Modification History

Release	Comments
Release 2	*This version first released with ICA11 Information and Communications Technology Training Package Version 2*. Addition of two new units of competency to Elective Group A.
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides the skills and knowledge for an individual to be competent in a wide range of general information and communications technology (ICT) technologies and to support small to medium enterprises (SMEs) that require broader rather than more specialised ICT support.

Persons working at this level apply a wide range of knowledge and skills in basic networking, IT support, database development, programming and web development support; working safely and ethically in a sustainable work environment.

Job roles

Possible job titles relevant to this qualification include:

- computer technician
- customer support
- customer support professional
- information systems operator
- PC support
- systems administrator
- systems support
- technical support
- user support technician
- network operations technician.

© Commonwealth of Australia, 2025 Future Skills Organisation

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification may include:

- after achieving ICA30111 Certificate III in Information, Digital Media and Technology, or other relevant qualifications or units equivalent to the core of ICA30111

OR

- with demonstrated vocational experience in a range of work environments using a range of information technologies.

Pathways from the qualification

ICA50111 Diploma of Information Technology, or a range of other Diploma qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	**Industry/enterprise requirements for this qualification**
Communication	• liaising with clients to determine requirements and ensure that they are met • interpreting software manual instructions • writing reports and documents • consulting with end users to determine requirement sign-off
Teamwork	• consulting with work team to review proposed changes against current and future business requirements • establishing and improving work teams in an IT environment
Problem-solving	• determining the uses and audience of a simple markup language document • troubleshooting and running diagnostic tests and providing

© Commonwealth of Australia, 2025 Future Skills Organisation

	solutions to hardware or software faults • debugging and writing scripts to solve problems
Initiative and enterprise	• assessing and recording information from various sources • identifying and applying skills and knowledge to a wide variety of contexts • investigating and documenting solutions to client problems • developing new criteria and procedures for performing current practices • identifying, analysing and evaluating information from a variety of sources
Planning and organising	• creating project plans to guide the development of systems methodologies • developing installation plans • preparing feasibility reports that take into account project scope, time, cost, quality, communications and risk management
Self-management	• prioritising and taking responsibility for own outputs in working and learning • implementing safe and sustainable work practices • taking responsibility for own output in relation to specified quality standards • incorporating into the work environment suitable ethics regarding security, legal, moral and ethical issues
Learning	• adopting and transferring skills and knowledge to new environments • keeping up-to-date with current industry-accepted hardware and software products and services • reviewing client feedback and identifying areas for improvement • gathering and organising feedback on draft documentation and client satisfaction • maintaining knowledge of tools and software applications and the goods and services provided
Technology	• selecting, installing and using computer software and hardware products • configuring, optimising and testing system software for a small home office or a small to medium business network • selecting, sourcing and using appropriate software and tools based on analysis of technical needs

© Commonwealth of Australia, 2025 Future Skills Organisation

Packaging Rules

Total number of units = 20

5 core units plus

15 elective units, of which:

- a minimum of 10 units must be from the specialist elective groups below, with a maximum of 5 units from any one group:
  - Group A Networking
  - Group B Programming
  - Group C IT support
  - Group D Web design and development
  - Group E Digital games
  - Group F Digital media technologies
  - Group G Project management
- up to 5 units may be from the elective units below or elsewhere in ICA11 or any other Training Package or accredited course at Certificate III, IV or Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

Core units

BSBSUS301A Implement and monitor environmentally sustainable work practices

BSBWHS304A Participate effectively in WHS communication and consultative processes

ICAICT202A Work and communicate effectively in an IT environment

ICAICT401A Determine and confirm client business requirements

ICAICT418A Contribute to copyright, ethics and privacy in an IT environment

Elective units

Specialist elective units

Group A Networking

ICAICT423A Select cloud storage strategies

ICANWK401A Install and manage a server

ICANWK402A Install and configure virtual machines for sustainable ICT

ICANWK403A Manage network and data integrity

ICANWK404A Install, operate and troubleshoot a small enterprise branch network

ICANWK405A Build a small wireless local area network

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK406A Install, configure and test network security

ICANWK407A Install and configure client-server applications and services

ICANWK408A Configure a desktop environment

ICANWK409A Create scripts for networking

ICANWK410A Install hardware to a network

ICANWK411A Deploy software to networked computers

ICANWK412A Create network documentation

ICANWK414A Create a common gateway interface script

ICANWK416A Build security into virtual private networks

ICANWK417A Build an enterprise wireless network

ICANWK418A Implement backbone technologies in a local area network

ICANWK419A Identify and use current virtualisation technologies

ICASAS307A Install, configure and secure a small office home office network

Group B Programming

ICAICT410A Conduct post-implementation IT system reviews

ICAICT420A Develop client user interface

ICAPRG401A Maintain open-source code programs

ICAPRG402A Apply query language

ICAPRG403A Develop data-driven applications

ICAPRG404A Test applications

ICAPRG405A Automate processes

ICAPRG406A Apply introductory object-oriented language skills

ICAPRG407A Write script for software applications

ICAPRG409A Develop mobile applications

ICAPRG410A Build a user interface

ICAPRG412A Configure and maintain databases

ICAPRG413A Use a library or pre-existing components

ICAPRG414A Apply introductory programming skills in another language

ICAPRG415A Apply skills in object-oriented design

ICAPRG416A Manage a software component reuse library

ICAPRG417A Apply mathematical techniques for software development

ICAPRG418A Apply intermediate programming skills in another language

ICAPRG419A Analyse software requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG425A Use structured query language

ICAPRG426A Prepare software development review

ICAPRG427A Use XML effectively

ICAPRG428A Use regular expressions in programming languages

Group C IT support

ICADBS403A Create basic databases

ICADBS407A Monitor physical database implementation

ICADBS408A Link an RFID system to a database

ICADBS503B Create a data warehouse

ICAICT402A Determine project specifications and secure client agreement

ICAICT403A Apply software development methodologies

ICAICT404A Use online learning tools

ICAICT405A Develop detailed technical design

ICAICT406A Build a graphical user interface

ICAICT408A Create technical documentation

ICAICT411A Select and employ software and hardware testing tools

ICAICT412A Coordinate and maintain IT work teams

ICAICT413A Relate to clients on a business level

ICAICT415A Provide one-to-one instruction

ICAICT416A Contribute to the development of strategic plans

ICAICT417A Identify, evaluate and apply current industry-specific technologies to meet industry standards

ICASAD401A Develop and present feasibility reports

ICASAS402A Implement configuration management strategies

ICASAS403A Review site environmental factors prior to IT system implementation

ICASAS404A Acquire IT system components

ICASAS405A Identify and evaluate IT industry vendor technologies

ICASAS407A Conduct pre-installation audit for software installation

ICASAS408A Complete data transition in data migration process

ICASAS409A Manage risks involving ICT systems and technology

ICASAS410A Identify and resolve client IT problems

ICASAS411A Assist with policy development for client support procedures

ICASAS412A Action change requests

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS413A Manage resolution of system faults on a live system

ICASAS414A Evaluate system status

ICASAS415A Optimise IT system performance

ICASAS416A Implement maintenance procedures

ICASAS417A Undertake IT system capacity planning

ICASAS418A Monitor and administer security of an IT system

ICASAS419A Support system software

ICASAS420A Provide first-level remote help-desk support

ICASAS421A Support users and troubleshoot desktop applications

ICASAS424A Support different operating systems

Group D Web design and development

ICAICT407A Maintain website information standards

ICAWEB401A Design a website to meet technical requirements

ICAWEB402A Confirm accessibility of websites for people with special needs

ICAWEB403A Transfer content to a website using commercial packages

ICAWEB404A Maintain website performance

ICAWEB405A Monitor traffic and compile website traffic reports

ICAWEB406A Create website testing procedures

ICAWEB407A Conduct operational acceptance tests of websites

ICAWEB408A Ensure basic website security

ICAWEB409A Develop cascading style sheets

ICAWEB410A Apply web authoring tool to convert client data for websites

ICAWEB411A Produce basic client-side script for dynamic web pages

ICAWEB412A Produce interactive web animation

ICAWEB413A Optimise search engines

ICAWEB414A Design simple web page layouts

ICAWEB415A Produce server-side script for dynamic web pages

ICAWEB416A Customise content management system

ICAWEB417A Integrate social web technologies

ICAWEB418A Use development software and IT tools to build a basic website

ICAWEB419A Develop guidelines for uploading information to a website

ICAWEB420A Write content for web pages

ICAWEB421A Ensure website content meets technical protocols and standards

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB422A Ensure website access and useability
ICAWEB423A Ensure dynamic website security
ICAWEB424A Evaluate and select a web hosting service
ICAWEB425A Apply structured query language to extract and manipulate data
ICAWEB429A Create a markup language document to specification

Group E Digital games

ICAGAM401A Produce an interactive game
ICAGAM402A Identify and apply principles of games design and game playing
ICAGAM403A Create design documents for interactive games
ICAGAM404A Apply artificial intelligence in game development
ICAGAM405A Write story and content for digital games
ICAGAM406A Create visual design components for interactive games
ICAGAM407A Write scripts for interactive games
ICAGAM408A Use 3-D animation interface and toolsets
ICAGAM409A Create 3-D characters for interactive games
ICAGAM410A Develop 3-D components for interactive games
ICAGAM412A Design interactive media
ICAGAM413A Design and create 3-D digital models
ICAGAM414A Create audio for digital games
ICAGAM415A Develop simple environments for 3-D games
ICAGAM416A Prepare and complete image rendering processes
ICAGAM417A Apply digital effects to interactive products
ICAICT419A Work effectively in the digital media industry

Group F Digital media technologies

BSBCRT401A Articulate, present and debate ideas
CUFANM301A Create 2D digital animations
CUFANM302A Create 3D digital animations
CUFANM402A Create digital visual effects
CUFDIG401A Author interactive media
CUFPPM404A Create storyboards
CUFSOU204A Perform basic sound editing
CUFSOU301A Prepare audio assets

© Commonwealth of Australia, 2025 Future Skills Organisation

ICADMT401A Create visual design components for digital media

ICADMT402A Produce interactive animation

ICADMT403A Produce and edit digital images

Group G Project management

ICAPMG401A Support small scale IT projects

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA40211 Certificate IV in Information Technology Support

Modification History

Release	Comments
Release 2	*This version first released with ICA11 Information and Communications Technology Training Package Version 2*. Addition of two new units of competency to Elective Group E.
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides the skills and knowledge for an individual to be competent in supporting clients in a range of technical areas. The qualification has a strong information technology base of core units with the potential for inclusion of a range of broader industry-specific units in the areas of service desk, database, sustainability and network support to suit particular needs.

Job roles

Possible job titles relevant to this qualification include:

- customer support
- database support
- help desk specialist
- network support technician
- PC support technician
- technical support - sustainability
- user support technician.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

- after achieving ICA30111 Certificate III in Information, Digital Media and Technology, or other relevant qualifications or units equivalent to the core of ICA30111

OR

© Commonwealth of Australia, 2025 Future Skills Organisation

- with demonstrated vocational experience in a range of support-related work environments in service desk support, database support, networking support or similar.

Pathways from the qualification

ICA50311 Diploma of Information Technology Systems Administration, ICA50511 Diploma of Database Design and Development, or a range of other ICA11 Diploma qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	**Industry/enterprise requirements for this qualification**
Communication	• analysing, evaluating and presenting information from a variety of sources • documenting technical work in plain English • writing and presenting material (briefs, reports, procedures and documents) to meet system, organisational and client business requirements
Teamwork	• working collaboratively with team members on small scale IT projects • implementing safe and environmentally sustainable work practices
Problem-solving	• locating and troubleshooting equipment, system and software faults • identifying, testing and resolving system and software faults
Initiative and enterprise	• recognising problems and responding to clients in a timely manner

© Commonwealth of Australia, 2025 Future Skills Organisation

Planning and organising	• preparing feasibility reports that take into account project scope, time, cost, quality, communications and risk management
Self-management	• taking responsibility for own outputs in relation to specified quality standards • working according to the Australian Computer Society Code of Ethics regarding security, legal, moral and ethical issues
Learning	• maintaining knowledge of tools and software applications and the goods and services provided • actively seeking client evaluation and feedback and making improvements • providing one-to-one instruction to clients and users
Technology	• selecting and using software and hardware diagnostic tools, including for multimedia contexts and automated testing environments • installing and configuring a small office or home office (SOHO) network • building a database or a small wireless local area network

Packaging Rules

Total number of units = 22

8 core units plus

14 elective units, of which:

- 5 units must be from one of the following specialist elective groups:
  - Group A Database support
  - Group B Network communications
  - Group C Service desk
  - Group D Sustainability
- of the remaining units:
  - up to 9 units may be from the specialist elective groups below or from Group E general elective units
  - up to 4 units may be from elsewhere in ICA11 or any other Training Package or accredited course at Certificate III, IV or Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

Core units

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBSUS301A Implement and monitor environmentally sustainable work practices

BSBWHS403A Contribute to implementing and maintaining WHS consultation and participation process

ICAICT401A Determine and confirm client business requirements

ICAICT408A Create technical documentation

ICAICT418A Contribute to copyright, ethics and privacy in an IT environment

ICASAS307A Install, configure and secure a small office home office network

ICASAS410A Identify and resolve client IT problems

ICASAS412A Action change requests

Elective units

Specialist elective units

Group A Database support

ICADBS402A Complete database backup and restore

ICADBS404A Identify and resolve common database performance problems

ICADBS409A Monitor and administer a database

ICADBS412A Build a database

ICAPRG425A Use structured query language

Group B Network communications

ICANWK401A Install and manage a server

ICANWK404A Install, operate and troubleshoot a small enterprise branch network

ICANWK405A Build a small wireless local area network

ICANWK406A Install, configure and test network security

ICANWK408A Configure a desktop environment

Group C Service desk

ICAICT421A Connect, maintain and configure hardware components

ICASAS414A Evaluate system status

ICASAS421A Support users and troubleshoot desktop applications

ICASAS425A Configure and troubleshoot operating system software

ICASAS426A Locate and troubleshoot IT equipment, system and software faults

© Commonwealth of Australia, 2025 Future Skills Organisation

Group D Sustainability

BSBSUS501A Develop workplace policy and procedures for sustainability

ICTSUS4183A Install and test renewable energy system for ICT networks

ICTSUS4184A Install and test power saving hardware

ICTSUS4185A Install and test power management software

ICTSUS4186A Install thin client applications for power over ethernet

General elective units

Group E

BSBCRT401A Articulate, present and debate ideas

ICADBS401A Identify physical database requirements

ICADBS403A Create basic databases

ICAICT413A Relate to clients on a business level

ICAICT415A Provide one-to-one instruction

ICAICT417A Identify, evaluate and apply current industry-specific technologies to meet industry standards

ICAICT422A Participate in IT services

ICAICT423A Select cloud storage strategies

ICANWK409A Create scripts for networking

ICANWK410A Install hardware to a network

ICANWK411A Deploy software to networked computers

ICANWK419A Identify and use current virtualisation technologies

ICAPMG401A Support small scale IT projects

ICAPRG405A Automate processes

ICASAD401A Develop and present feasibility reports

ICASAS411A Assist with policy development for client support procedures

ICASAS413A Manage resolution of system faults on a live system

ICASAS416A Implement maintenance procedures

ICASAS420A Provide first-level remote help-desk support

ICASAS424A Support different operating systems

ICASAS518A Install and upgrade operating systems

ICAWEB415A Produce server-side script for dynamic web pages

ICTCBL2136A Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTCBL2137A Install, maintain and modify customer premises communications cabling: ACMA Open Rule

ICTCBL2139A Apply safe technical work practices for cabling registration

ICTOPN4116A Use advanced optical test equipment

ICTTEN4199A Install, configure and test a router

Selecting elective units for different outcomes

The following examples are designed to assist in the selection of appropriate electives for particular outcomes at this level, but are in no way prescriptive.

Practical application plus technician

Core units plus:

BSBSUS301A Implement and monitor environmentally sustainable work practices

ICASAS307A Install, configure and secure a small office home office network

ICAICT421A Connect, maintain and configure hardware components

ICASAS425A Configure and troubleshoot operating system software

ICASAS426A Locate and troubleshoot IT equipment, system and software faults

ICAICT401A Determine and confirm client business requirements

Practical networking plus technician

Core units plus:

ICASAS307A Install, configure and secure a small office home office network

ICANWK401A Install and manage a server

ICANWK404A Install, operate and troubleshoot a small enterprise branch network

ICANWK406A Install, configure and test network security

Certified networking technician

Core units plus:

ICANWK404A Install, operate and troubleshoot a small enterprise branch network

ICANWK405A Build a small wireless local area network

ICTTEN4199A Install, configure and test a router

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA40311 Certificate IV in Web-Based Technologies

Modification History

Release	Comments
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides an individual with the skills and knowledge to design, develop, build and administer websites using a range of website technologies.

Job roles

Possible job titles relevant to this include:

- web developer or technical writer
- webmaster assistant
- website coordinator
- website or web support administrator
- assistant web designer.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

- after achieving ICA30111 Certificate III in Information, Digital Media and Technology, or other relevant qualifications or units equivalent to the core of ICA30111

OR

© Commonwealth of Australia, 2025 Future Skills Organisation

- with demonstrated vocational experience in a range of web-related work environments in website development, administration or management.

Pathways from the qualification

ICA50611 Diploma of Website Development, or a range of other Diploma qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	Industry/enterprise requirements for this qualification
Communication	• consulting with end users and clients before, during and after development of websites to determine their issues and ensure that their needs are met • interpreting technical manuals • documenting and presenting information in a variety of formats and media
Teamwork	• consulting with work team to review proposed changes against current and future business requirements • establishing and improving work teams in an IT environment
Problem-solving	• determining criteria for writing script for web pages, for example, dynamic functionality and appropriate language
Initiative and enterprise	• developing new criteria and procedures for performing current practices • identifying, analysing and evaluating information from a variety of sources

© Commonwealth of Australia, 2025 Future Skills Organisation

Planning and organising	• creating project plans to guide the development of systems methodologies
Self-management	• taking responsibility for own output in relation to specified quality standards • meeting ethical standards in the areas of security, legal, moral and ethical practice
Learning	• gathering and organising feedback on draft documentation and client satisfaction • maintaining knowledge of tools and software applications and the goods and services provided
Technology	• selecting and using software and hardware tools in a variety of web, database, scripting and multimedia contexts

Packaging Rules

Total number of units = 22

8 core units *plus*

14 elective units

The elective units consist of:

- 5 from one of the following specialist groups:
  - Group A Administration
  - Group B Design and development
- of the remaining units:
  - up to 9 may be from the specialist elective groups below or from Group C general elective units below
  - up to 4 may be from elsewhere in ICA11 or any other Training Package or accredited course at Certificate IV or Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

Core units

BSBOHS302B Participate effectively in OHS communication and consultative processes

ICAICT401A Determine and confirm client business requirements

ICAICT418A Contribute to copyright, ethics and privacy in an IT environment

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB401A Design a website to meet technical requirements

ICAWEB402A Confirm accessibility of websites for people with special needs

ICAWEB403A Transfer content to a website using commercial packages

ICAWEB424A Evaluate and select a web hosting service

ICAWEB429A Create a markup language document to specification

Elective units

Specialist elective units

Group A Administration

ICAWEB404A Maintain website performance

ICAWEB405A Monitor traffic and compile website traffic reports

ICAWEB406A Create website testing procedures

ICAWEB407A Conduct operational acceptance tests of websites

ICAWEB408A Ensure basic website security

Group B Design and development

ICADBS403A Create basic databases

ICAWEB409A Develop cascading style sheets

ICAWEB411A Produce basic client-side script for dynamic web pages

ICAWEB415A Produce server-side script for dynamic web pages

ICAWEB425A Apply structured query language to extract and manipulate data

General elective units

Group C

BSBCRT401A Articulate, present and debate ideas

BSBSUS301A Implement and monitor environmentally sustainable work practices

CUFPPM404A Create storyboards

ICAICT403A Apply software development methodologies

ICAICT407A Maintain website information standards

ICAICT408A Create technical documentation

ICAICT417A Identify, evaluate and apply current industry-specific technologies to meet industry standards

ICAICT420A Develop client user interface

ICANWK409A Create scripts for networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPMG401A Support small scale IT projects

ICAPRG405A Automate processes

ICAWEB410A Apply web authoring tool to convert client data for websites

ICAWEB412A Produce interactive web animation

ICAWEB413A Optimise search engines

ICAWEB414A Design simple web page layouts

ICAWEB416A Customise content management system

ICAWEB417A Integrate social web technologies

ICAWEB421A Ensure website content meets technical protocols and standards

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA40411 Certificate IV in Information Technology Networking

Modification History

Release	Comments
Release 2	*This version first released with ICA11 Information and Communications Technology Training Package Version 2*. Addition of two new units of competency to electives.
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides the skills and knowledge for an individual to install and manage small scale networks, either as an independent network support technician or as part of a team.

Job roles

Possible job titles relevant to this qualification include:

- network support
- network operations support
- network operations technician
- network technician
- network support technician.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

- after achieving ICA30111 Certificate III in Information, Digital Media and Technology, or other relevant qualifications or units equivalent to the core of ICA30111

OR

- with demonstrated vocational experience in a range of work environments in a network support role, including administrator, manager, operations analyst, operations engineer/technician, or technician.

© Commonwealth of Australia, 2025 Future Skills Organisation

Pathways from the qualification

ICA50411 Diploma of Information Technology Networking, or a range of other ICA Diploma qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	Industry/enterprise requirements for this qualification
Communication	• writing for business, requiring depth in some areas and analysis and evaluation of information in a defined range of areas • presenting to teams and conducting meetings with clients
Teamwork	• consulting with work team to review proposed changes against current and future business requirements • establishing and improving work teams in an IT environment
Problem-solving	• debugging code • solving network problems related to the installation of hardware, software and networks
Initiative and enterprise	• developing new criteria and procedures for performing current practices • identifying, analysing and evaluating information from a variety of sources
Planning and organising	• creating project plans to guide the development of systems methodologies • planning and designing different networking configurations
Self-management	• taking responsibility for own output in relation to specified quality standards

© Commonwealth of Australia, 2025 Future Skills Organisation

	• meeting ethical standards in the areas of security, legal, moral and ethical practice
Learning	• maintaining knowledge of tools and software applications and the goods and services provided • obtaining client evaluation and feedback • providing instruction to clients and users
Technology	• selecting and using software, hardware and networking components and diagnostic tools in a wide range of different environments

Packaging Rules

Total number of units = 17

8 core units plus

9 elective units, of which:

- 6 units must be from the elective units listed below
- the remaining units may be from the elective units below or from elsewhere in ICA11 or any other Training Package or accredited course at Certificate III, IV or Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

Core units

BSBWHS304A Participate effectively in WHS communication and consultative processes

ICAICT401A Determine and confirm client business requirements

ICAICT418A Contribute to copyright, ethics and privacy in an IT environment

ICANWK401A Install and manage a server

ICANWK402A Install and configure virtual machines for sustainable ICT

ICANWK403A Manage network and data integrity

ICANWK404A Install, operate and troubleshoot a small enterprise branch network

ICTTEN4198A Install, configure and test an internet protocol network

Elective units

BSBCRT401A Articulate, present and debate ideas

BSBWOR404B Develop work priorities

ICAICT403A Apply software development methodologies

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT408A Create technical documentation

ICAICT417A Identify, evaluate and apply current industry-specific technologies to meet industry standards

ICAICT423A Select cloud storage strategies

ICANWK405A Build a small wireless local area network

ICANWK406A Install, configure and test network security

ICANWK407A Install and configure client-server applications and services

ICANWK408A Configure a desktop environment

ICANWK409A Create scripts for networking

ICANWK410A Install hardware to a network

ICANWK411A Deploy software to networked computers

ICANWK412A Create network documentation

ICANWK419A Identify and use current virtualisation technologies

ICAPMG401A Support small scale IT projects

ICAPRG425A Use structured query language

ICASAS426A Locate and troubleshoot IT equipment, system and software faults

ICTOPN4116A Use advanced optical test equipment

ICTSUS4183A Install and test renewable energy system for ICT networks

ICTSUS4184A Install and test power saving hardware

ICTSUS4185A Install and test power management software

ICTSUS4186A Install thin client applications for power over ethernet

ICTTEN4199A Install, configure and test a router

ICTTEN4202A Install and test a radio frequency identification system

ICTTEN4210A Implement and troubleshoot enterprise routers and switches

ICTTEN4211A Design, install and configure an internetwork

ICTTEN5200A Install, configure and test a local area network switch

Selecting elective units for different outcomes

The following examples are designed to assist in the selection of appropriate electives for particular outcomes at this level, but are in no way prescriptive.

Certified networking technician

Core units plus:

ICANWK404A Install, operate and troubleshoot a small enterprise branch network

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK405A Build a small wireless local area network

ICTTEN4199A Install, configure and test a router

Certified technology specialist – graphical user interfaces (GUI)

Core units plus:

ICANWK403A Manage network and data integrity

ICANWK408A Configure a desktop environment

Certified technician or technology specialist – small server configuration

Core units plus:

ICANWK401A Install and manage a server

Certified IT enterprise, security or server administrator

Core units plus:

ICANWK406A Install, configure and test network security

ICANWK403A Manage network and data integrity

Certified SQL associate or specialist

Core units plus:

ICAPRG425A Use structured query language

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA40511 Certificate IV in Programming

Modification History

Release	Comments
Release 2	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 2.0* Updated elective unit to most current version.
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides the skills and knowledge for an individual to develop basic programming skills in the most commonly used programming languages.

A person with this qualification could work as an assistant programmer in a team of software developers or as a support programmer to more senior programmers or systems analysts.

Job roles

Possible job titles relevant to this qualification include:

- assistant applications programmer
- assistant programmer
- assistant software developer
- assistant web application programmer
- assistant web developer.

Pathways Information

Pathways into the qualification

© Commonwealth of Australia, 2025 Future Skills Organisation

Preferred pathways for candidates considering this qualification include:

- after achieving ICA30111 Certificate III in Information, Digital Media and Technology, or other relevant qualifications or units equivalent to the core of ICA30111

OR

- with demonstrated vocational experience in a range of programming-related work environments in software programming, application programming, web development or similar.

Pathways from the qualification

ICA50711 Diploma of Software Development, or a range of other Diploma qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	Industry/enterprise requirements for this qualification
Communication	• documenting technical work in plain English • writing and presenting reports
Teamwork	• working collaboratively with project team members
Problem-solving	• using an integrated development environment, in particular language debugging facilities, to debug code

© Commonwealth of Australia, 2025 Future Skills Organisation

	• analysing software requirements
Initiative and enterprise	• responding to clients in a timely manner • identifying, analysing and evaluating information from a variety of sources
Planning and organising	• preparing feasibility reports that take into account project scope, time, cost, quality, communications and risk management
Self-management	• taking responsibility for own outputs in relation to specified quality standards • working according to the Australian Computer Society Code of Ethics regarding security, legal, moral and ethical issues
Learning	• maintaining knowledge of tools and software applications and the goods and services provided • obtaining client evaluation and feedback • providing one-to-one instruction for clients and users
Technology	• selecting and using compilers, interpreters and other programming tools to produce program code that meets user requirements

Packaging Rules

Total number of units = 18

10 core units plus

8 elective units

The elective units consist of:

- up to **8** from the elective units listed below
- up to **3** from **elsewhere in** ICA11 or any other Training Package **or accredited course** at **Certificate IV or Diploma level**.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

Core units

ICAICT418A Contribute to copyright, ethics and privacy in an IT environment

ICAPRG402A Apply query language

ICAPRG403A Develop data-driven applications

ICAPRG404A Test applications

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG405A Automate processes

ICAPRG406A Apply introductory object-oriented language skills

ICAPRG410A Build a user interface

ICAPRG414A Apply introductory programming skills in another language

ICAPRG415A Apply skills in object-oriented design

ICAPRG419A Analyse software requirements

Elective units

BSBCRT401A Articulate, present and debate ideas

BSBWHS302A Participate effectively in OHS communication and consultative processes

ICADBS403A Create basic databases

ICAICT404A Use online learning tools

ICAICT408A Create technical documentation

ICAICT417A Identify, evaluate and apply current industry-specific technologies to meet industry standards

ICAICT420A Develop client user interface

ICAPMG401A Support small scale IT projects

ICAPRG401A Maintain open-source code programs

ICAPRG407A Write script for software applications

ICAPRG409A Develop mobile applications

ICAPRG412A Configure and maintain databases

ICAPRG413A Use a library or pre-existing components

ICAPRG418A Apply intermediate programming skills in another language

ICAPRG427A Use XML effectively

ICAPRG428A Use regular expressions in programming languages

ICAPRG527A Apply intermediate object-oriented language skills

ICASAD401A Develop and present feasibility reports

ICASAD501A Model data objects

ICASAD502A Model data processes

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA40611 Certificate IV in Information Technology Testing

Modification History

Release	Comments
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides the skills and knowledge for an individual to be competent in a range of ICT positions directly related to testing, either as an assistant tester working mostly independently or as part of a team.

Job roles

Possible job titles relevant to this qualification include:

- assistant ICT tester
- assistant software or systems tester
- assistant web tester.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

- after achieving ICA30111 Certificate III in Information, Digital Media and Technology, or other relevant qualifications or units equivalent to the core of ICA30111

OR

- with demonstrated vocational experience in a range of testing environments or similar.

© Commonwealth of Australia, 2025 Future Skills Organisation

Pathways from the qualification

ICA50111 Diploma of Information Technology, or a range of other Diploma qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	Industry/enterprise requirements for this qualification
Communication	• preparing briefs on client business requirements • creating technical documentation in plain English • writing and presenting reports on the results of standard diagnostic and troubleshooting tests
Teamwork	• working collaboratively with team members
Problem-solving	• analysing project design • solving technical hardware, software, web and network problems
Initiative and enterprise	• responding to clients in a timely manner • identifying, analysing and evaluating information from a variety of sources
Planning and organising	• preparing feasibility reports that take into account project scope, time, cost, quality, communications and risk management
Self-management	• taking responsibility for own outputs in relation to specified quality standards • working according to the Australian Computer Society Code of Ethics regarding security, legal, moral and ethical issues

© Commonwealth of Australia, 2025 Future Skills Organisation

Learning	• maintaining knowledge of tools and software applications and the goods and services provided • obtaining client evaluation and feedback • providing one-to-one instruction for clients and users
Technology	• selecting and using software and hardware diagnostic tools, including for multimedia contexts and automated testing environments

Packaging Rules

Total number of units = 20

8 core units *plus*

12 elective units

The elective units consist of:

- up to 12 from the elective units listed below
- up to 4 from elsewhere in ICA11 or any other Training Package or accredited course at Certificate IV or Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

Core units

BSBSUS301A Implement and monitor environmentally sustainable work practices

ICAICT401A Determine and confirm client business requirements

ICAICT408A Create technical documentation

ICAICT411A Select and employ software and hardware testing tools

ICAICT418A Contribute to copyright, ethics and privacy in an IT environment

ICAPMG401A Support small scale IT projects

ICAPRG405A Automate processes

ICASAS301A Run standard diagnostic tests

Elective units

BSBCRT401A Articulate, present and debate ideas

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT417A Identify, evaluate and apply current industry-specific technologies to meet industry standards

ICANWK403A Manage network and data integrity

ICANWK404A Install, operate and troubleshoot a small enterprise branch network

ICANWK501A Plan, implement and test enterprise communication solutions

ICAPRG404A Test applications

ICASAS401A Perform unit test for a class

ICASAS503A Perform systems tests

ICASAS504A Develop and conduct client acceptance test

ICASAS513A Develop detailed test plans

ICASAS514A Perform integration tests

ICASAS515A Manage the testing process

ICASAS516A Perform stress and load tests on integrated platforms

ICAWEB406A Create website testing procedures

ICAWEB407A Conduct operational acceptance tests of websites

ICAWEB423A Ensure dynamic website security

ICTSUS4183A Install and test renewable energy system for ICT networks

ICTTEN4198A Install, configure and test an internet protocol network

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA40711 Certificate IV in Systems Analysis and Design

Modification History

Release	Comments
Release 2	This Qualification released with *ICA11 Information and Communications Technology Training Package version 2.0* Updated elective unit to most current version.
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides the skills and knowledge for an individual to work as part of a project team to analyse and redesign existing systems to meet client business requirements.

Job roles

Possible job titles relevant to this qualification include:

- information technology support analyst
- information technology designer
- systems support analyst
- system designer
- operational support analyst
- technical support analyst.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

- after achieving ICA30111 Certificate III in Information, Digital Media and Technology, or other relevant qualifications or units equivalent to the core of ICA30111

© Commonwealth of Australia, 2025 Future Skills Organisation

OR

- with demonstrated vocational experience in a range of work environments in an information technology support role.

Pathways from the qualification

ICA50811 Diploma of Systems Analysis and Design, or a range of other Diploma qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	Industry/enterprise requirements for this qualification
Communication	• determining and confirming client business expectations and needs • documenting system requirements and problems in plain English • writing and presenting detailed technical reports
Teamwork	• organising own work priorities • supporting team members with and coordinating project activities • scheduling feedback meetings to discuss reports and possible next actions with stakeholders
Problem-solving	• using project planning methodologies to set benchmarks and scope

© Commonwealth of Australia, 2025 Future Skills Organisation

	• locating, analysing, testing and rectifying faults • contributing to the identification of business strategy, vision, goals and objectives • confirming that the proposed project will come in on time and within budget
Initiative and enterprise	• responding to clients in a timely manner • transferring and applying theoretical concepts and/or technical or creative skills to a range of situations
Planning and organising	• planning and organising project and team meetings • contributing to the development of a strategic plan
Self-management	• taking responsibility for own outputs in relation to specified quality standards • working according to the Australian Computer Society Code of Ethics regarding security, legal, moral and ethical issues
Learning	• maintaining knowledge of tools and software applications and the goods and services provided • obtaining client evaluation and feedback
Technology	• selecting and using software and hardware diagnostic tools, including for multimedia contexts and automated testing environments

Packaging Rules

Total number of units = 22

7 core units plus

15 elective units

The elective units consist of:

- **up to 15 from the elective units listed below**
- **up to 4 from elsewhere in ICA11 or any other Training Package or** accredited course **at Certificate IV or Diploma level.**

The elective units chosen must be relevant to the work outcome and meet local industry needs.

Core units

BSBSUS301A Implement and monitor environmentally sustainable work practices

ICAICT401A Determine and confirm client business requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT403A Apply software development methodologies

ICAICT405A Develop detailed technical design

ICAICT418A Contribute to copyright, ethics and privacy in an IT environment

ICAPRG405A Automate processes

ICASAD401A Develop and present feasibility reports

Elective units

BSBCRT401A Articulate, present and debate ideas

BSBWOR301B Organise personal work priorities and development

ICADBS401A Identify physical database requirements

ICADBS412A Build a database

ICAICT402A Determine project specifications and secure client agreement

ICAICT408A Create technical documentation

ICAICT411A Select and employ software and hardware testing tools

ICAICT412A Coordinate and maintain IT work teams

ICAICT413A Relate to clients on a business level

ICAICT416A Contribute to the development of strategic plans

ICAICT417A Identify, evaluate and apply current industry-specific technologies to meet industry standards

ICAPMG401A Support small scale IT projects

ICAPRG404A Test applications

ICAPRG406A Apply introductory object-oriented language skills

ICAPRG414A Apply introductory programming skills in another language

ICAPRG415A Apply skills in object-oriented design

ICAPRG419A Analyse software requirements

ICAPRG425A Use structured query language

ICTTEN4081A Locate, diagnose and rectify faults

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA40811 Certificate IV in Digital Media Technologies

Modification History

Release	Comments
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides the skills and knowledge for an individual to be competent to design, develop and use digital media technologies as an assistant information and communications technology (ICT) specialist working independently or as part of a larger development team.

Job roles

Possible job titles relevant to this qualification include:

- assistant animator
- assistant designer
- assistant digital media author
- assistant digital media designer
- assistant digital media developer
- assistant digital media programmer
- assistant web designer
- interaction media developer
- support digital media developer
- support digital media development technician.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

© Commonwealth of Australia, 2025 Future Skills Organisation

- after achieving ICA30111 Certificate III in Information, Digital Media and Technology, or other relevant qualifications or units equivalent to the core of ICA30111

OR

- with demonstrated vocational experience in a range of digital media work environments in digital media development, administration or management.

Pathways from the qualification

ICA50911 Diploma of Digital Media Technologies, or a range of other Diploma qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	Industry/enterprise requirements for this qualification
Communication	• using plain English communication and literacy skills in relation to analysis, evaluation and presentation of information • documenting work and producing technical reports
Teamwork	• consulting with work team to review proposed changes against current and future business requirements • working collaboratively with team members in an IT environment
Problem-solving	• analysing digital media technology and software requirements • diagnosing application and software problems and identifying

© Commonwealth of Australia, 2025 Future Skills Organisation

	solutions
Initiative and enterprise	• transferring and applying theoretical concepts and/or technical or creative skills to a range of digital media situations
Planning and organising	• planning and developing a digital media design that meets project specific actions
Self-management	• taking responsibility for own output in relation to specified quality standards • applying environmentally sustainable work practices • meeting copyright, ethical and privacy standards in the areas of security, legal, moral and ethical practice
Learning	• maintaining knowledge of digital media tools and software applications • obtaining client evaluation and feedback • keeping up-to-date and maintaining own competence
Technology	• selecting and using software and hardware diagnostic tools for digital media contexts and environments • using digital media tools to design and develop website, online, interactive tools and applications

Packaging Rules

Total number of units = 17

7 core units *plus*

10 elective units

The elective units consist of:

- 5 units from one of the following specialist groups:
  - Group A Web development
  - Group B Programming
  - Group C Interactive media
- of the remaining units:
  - up to 5 may be from the specialist elective groups below or from Group D general elective units below or elsewhere in ICA11
  - up to 3 may be from elsewhere in ICA11 or any other Training Package or accredited course at Certificate IV or Diploma level.

© Commonwealth of Australia, 2025 Future Skills Organisation

The elective units chosen must be relevant to the work outcome and meet local industry needs.

Core units

BSBCRT401A Articulate, present and debate ideas

BSBOHS302B Participate effectively in OHS communication and consultative processes

CUFDIG401A Author interactive media

ICAICT404A Use online learning tools

ICAICT418A Contribute to copyright, ethics and privacy in an IT environment

ICAICT419A Work effectively in the digital media industry

ICAPMG401A Support small scale IT projects

Specialist elective units

Group A Web development

ICAWEB301A Create a simple markup language document

ICAWEB402A Confirm accessibility of websites for people with special needs

ICAWEB406A Create website testing procedures

ICAWEB407A Conduct operational acceptance tests of websites

ICAWEB409A Develop cascading style sheets

ICAWEB411A Produce basic client-side script for dynamic web pages

ICAWEB412A Produce interactive web animation

ICAWEB414A Design simple web page layouts

ICAWEB415A Produce server-side script for dynamic web pages

ICAWEB421A Ensure website content meets technical protocols and standards

ICAWEB425A Apply structured query language to extract and manipulate data

Group B Programming

ICAPRG301A Apply introductory programming techniques

ICAPRG402A Apply query language

ICAPRG405A Automate processes

ICAPRG406A Apply introductory object-oriented language skills

ICAPRG407A Write script for software applications

ICAPRG412A Configure and maintain databases

ICAPRG414A Apply introductory programming skills in another language

© Commonwealth of Australia, 2025 Future Skills Organisation

Group C Interactive media

CUFANM301A Create 2D digital animations

CUFANM302A Create 3D digital animations

CUFANM402A Create digital visual effects

CUFCAM301A Shoot material for screen productions

CUFPOS401A Edit screen content for fast turnaround

CUFPOS402A Manage media assets

CUFPPM404A Create storyboards

CUFSOU204A Perform basic sound editing

CUFSOU301A Prepare audio assets

ICADMT401A Create visual design components for digital media

ICADMT402A Produce interactive animation

ICADMT403A Produce and edit digital images

ICAGAM401A Produce an interactive game

ICAGAM403A Create design documents for interactive games

ICAGAM405A Write story and content for digital games

ICAGAM413A Design and create 3-D digital models

General elective units

Group D

ICAICT408A Create technical documentation

ICAICT417A Identify, evaluate and apply current industry-specific technologies to meet industry standards

BSBSUS301A Implement and monitor environmentally sustainable work practices

ICADBS412A Build a database

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA40911 Certificate IV in Digital and Interactive Games

Modification History

Release	Comments
Release 2	This Qualification released with *ICA11 Information and Communications Technology Training Package version 2.0* Updated elective unit to most current version.
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides the skills and knowledge for an individual to be competent in supporting the design, development and programming of basic digital games briefs as part of a larger development team. The qualification has a small suite of core units with an opportunity to select units from specialist groups of electives across the different artistic or programming fields of the industry.

Job roles

Possible job titles relevant to this qualification include:

- support 2-D/3-D artist
- assistant animator
- assistant designer
- support games developer
- assistant graphic/media designer
- interaction media developer
- support digital media developer
- assistant PC games programmer
- support web designer.

Pathways Information

Pathways into the qualification

© Commonwealth of Australia, 2025 Future Skills Organisation

Preferred pathways for candidates considering this qualification include:

- after achieving ICA30111 Certificate III in Information, Digital Media and Technology, or other relevant qualifications or units equivalent to the core of ICA30111

OR

- after achieving a Year 12 certificate and relevant ICT experience equivalent to the following units of competency:
  - ICAICT201A Use computer operating systems and hardware
  - ICAICT202A Work and communicate effectively in an IT environment
  - ICAICT203A Operate application software packages
  - ICAWEB201A Use social media tools for collaboration and engagement

OR

- with demonstrated vocational experience in a range of ICT and games development environments.

Pathways from the qualification

ICA50211 Diploma of Digital and Interactive Games, or a range of other Diploma qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	Industry/enterprise requirements for this qualification
Communication	• researching and gathering information on the games industry • documenting work and producing technical reports for games design and development • articulating, presenting and debating ideas for games development • writing scripts, storyboards, content and stories for games
Teamwork	• working collaboratively with team members • supporting team members and project leader to meet deadlines
Initiative and enterprise	• generating solutions in response to individual and collaborative project tasks
Planning and organising	• producing concept design and documentation/storyboarding • meeting resource implications and requirements
Problem-solving	• developing creative and technical solutions or outcomes in response to presented design briefs and exercises
Self-management	• applying safe and sustainable work practices • meeting copyright, ethical and privacy standards in the areas of security, legal, moral and ethical practice
Learning	• maintaining knowledge of digital media tools and software applications • keeping up-to-date and maintaining own competence
Technology	• using a range of 2-D and 3-D games development software and tools to design and produce an interactive game

Packaging Rules

Total number of units = 16

4 core units plus

12 elective units

The elective units consist of:

- 5 units from one of the following specialist elective groups:
- **Group A Design**

© Commonwealth of Australia, 2025 Future Skills Organisation

- **Group B Programming**
- **Group C Art**
- **of the remaining units:**
- **up to 7 may be from the specialist elective groups below or from Group D general elective units below or elsewhere in ICA11**
- up to 3 may be from **elsewhere in** ICA11 or from any other Training Package or accredited course at **Certificate IV or Diploma level**.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

Core units

BSBOHS302B Participate effectively in OHS communication and consultative processes

ICAGAM401A Produce an interactive game

ICAICT418A Contribute to copyright, ethics and privacy in an IT environment

ICAICT419A Work effectively in the digital media industry

Elective units

Specialist elective units

Group A Design

CUFPPM404A Create storyboards

ICAGAM402A Identify and apply principles of games design and game playing

ICAGAM403A Create design documents for interactive games

ICAGAM405A Write story and content for digital games

ICAGAM406A Create visual design components for interactive games

ICAGAM407A Write scripts for interactive games

Group B Programming

ICAGAM404A Apply artificial intelligence in game development

ICAICT406A Build a graphical user interface

ICAPRG301A Apply introductory programming techniques

ICAPRG405A Automate processes

ICAPRG406A Apply introductory object-oriented language skills

ICAPRG413A Use a library or pre-existing components

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG415A Apply skills in object-oriented design

ICAPRG417A Apply mathematical techniques for software development

ICAPRG527A Apply intermediate object-oriented language skills

Group C Art

CUFANM301A Create 2D digital animations

CUFANM302A Create 3D digital animations

CUFANM303A Create 3D digital models

CUFANM402A Create digital visual effects

CUVDRA201A Develop drawing skills

ICADMT402A Produce interactive animation

ICADMT403A Produce and edit digital images

ICAGAM301A Apply simple modelling techniques

ICAGAM302A Design and apply simple textures to digital art

ICAGAM303A Review and apply the principles of animation

ICAGAM408A Use 3-D animation interface and toolsets

ICAGAM409A Create 3-D characters for interactive games

ICAGAM410A Develop 3-D components for interactive games

ICAGAM412A Design interactive media

ICAGAM413A Design and create 3-D digital models

ICAGAM414A Create audio for digital games

ICAGAM416A Prepare and complete image rendering processes

ICAGAM417A Apply digital effects to interactive products

ICAGAM418A Use simple modelling for animation

General elective units

Group D

BSBCRT401A Articulate, present and debate ideas

ICAICT408A Create technical documentation

ICAICT417A Identify, evaluate and apply current industry-specific technologies to meet industry standards

ICAICT420A Develop client user interface

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA41011 Certificate IV in Computer Systems Technology

Modification History

Release	Comments
Release 2	*This version first released with ICA11 Information and Communications Technology Training Package Version 2*. Addition of two new units of competency to electives.
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides the skills and knowledge for an individual to install and administer simple networks, servers, and client desktop deployments either as an independent information and communications technology (ICT) specialist or as part of a team.

Job roles

Possible job titles relevant to this qualification include:

- network support administrator
- network operations support
- network operations technician
- network technician
- network support technician
- level 1 help desk support
- desktop deployment technician.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

- after achieving ICA30111 Certificate III in Information, Digital Media and Technology, or other relevant qualifications or units equivalent to the core of ICA30111

OR

- after achieving a Year 12 certificate and relevant ICT experience equivalent to the following units of competency:

© Commonwealth of Australia, 2025 Future Skills Organisation

- ICAICT201A Use computer operating systems and hardware
- ICAICT202A Work and communicate effectively in an IT environment
- ICAICT203A Operate application software packages
- ICAWEB201A Use social media tools for collaboration and engagement

OR

- with demonstrated vocational experience in a range of IT work environments in a network support role, including administrator, manager, operations analyst, operations engineer/technician, or technician.

Pathways from the qualification

ICA60511 Advanced Diploma of Computer Systems Technology or a range of Diploma or Advanced Diploma qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	**Industry/enterprise requirements for this qualification**
Communication	• preparing briefs on client business requirements • creating technical documentation in plain English • writing and presenting reports on the results of standard diagnostic and troubleshooting tests on equipment, system and software faults
Teamwork	• consulting with work team to review proposed changes against current and future business requirements • establishing and improving work teams in an IT environment
Problem-solving	• applying safe and sustainable work practices • debugging code • solving network problems related to the installation of

© Commonwealth of Australia, 2025 Future Skills Organisation

	hardware, software and networks
Initiative and enterprise	• responding to clients in a timely manner on business requirements • developing new criteria and procedures for performing current practices • identifying, analysing and evaluating information from a variety of sources
Planning and organising	• creating project plans to guide the development of systems methodologies • preparing feasibility reports that take into account project scope, time, cost, quality, communications and risk management • planning and designing an intranet
Self-management	• taking responsibility for own output in relation to specified quality standards • meeting copyright, ethical and privacy standards in the areas of security, legal, moral and ethical practice
Learning	• maintaining knowledge of tools and software applications and the goods and services provided • obtaining client evaluation and feedback • providing one-to-one instruction for clients and users
Technology	• selecting and using software and hardware diagnostic tools, including multimedia contexts and automated testing environments

Packaging Rules

Total number of units = 20

12 core units plus

8 elective units, of which:

- 4 units must be from the elective units listed below
- the remaining units may be from the elective units below or from elsewhere in ICA11 or any other Training Package or accredited course at Certificate III, IV or Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

Core units

BSBSUS301A Implement and monitor environmentally sustainable work practices

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBWHS304A Participate effectively in WHS communication and consultative processes

ICAICT401A Determine and confirm client business requirements

ICAICT418A Contribute to copyright, ethics and privacy in an IT environment

ICAICT421A Connect, maintain and configure hardware components

ICANWK404A Install, operate and troubleshoot a small enterprise branch network

ICANWK405A Build a small wireless local area network

ICAPRG414A Apply introductory programming skills in another language

ICASAS425A Configure and troubleshoot operating system software

ICASAS426A Locate and troubleshoot IT equipment, system and software faults

ICAWEB411A Produce basic client-side script for dynamic web pages

ICTTEN4199A Install, configure and test a router

Elective units

BSBCRT401A Articulate, present and debate ideas

ICAICT405A Develop detailed technical design

ICAICT408A Create technical documentation

ICAICT412A Coordinate and maintain IT work teams

ICAICT415A Provide one-to-one instruction

ICAICT417A Identify, evaluate and apply current industry-specific technologies to meet industry standards

ICAICT423A Select cloud storage strategies

ICANWK401A Install and manage a server

ICANWK402A Install and configure virtual machines for sustainable ICT

ICANWK403A Manage network and data integrity

ICANWK407A Install and configure client-server applications and services

ICANWK408A Configure a desktop environment

ICANWK419A Identify and use current virtualisation technologies

ICANWK507A Install, operate and troubleshoot medium enterprise routers

ICAPMG401A Support small scale IT projects

ICAPRG406A Apply introductory object-oriented language skills

ICAPRG409A Develop mobile applications

ICASAS307A Install, configure and secure a small office home office network

ICASAS420A Provide first-level remote help-desk support

ICAWEB414A Design simple web page layouts

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB415A Produce server-side script for dynamic web pages

ICAWEB425A Apply structured query language to extract and manipulate data

ICAWEB429A Create a markup language document to specification

ICTTEN2140A Use hand and power tools

ICTTEN4198A Install, configure and test an internet protocol network

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA50111 Diploma of Information Technology

Modification History

Release	Comments
Release 2	*This version first released with ICA11 Information and Communications Technology Training Package Version 2*. Addition of three new units of competency to Elective Group A.
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides the skills and knowledge for an individual to administer and manage information and communications technology (ICT) support in small-to-medium enterprises (SMEs) using a wide range of general ICT technologies.

Persons working at this level provide a broader rather than specialised ICT support function, applying a wide range of higher level technical skills in ICT areas such as networking, IT support, database development, programming and web development.

Job roles

Possible job titles relevant to this qualification include:

- information systems office manager
- office systems administrator
- IT office manager
- IT systems administrator
- systems manager.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification may include:

- after achieving ICA40111 Certificate IV in Information Technology, or other relevant qualifications or units equivalent to the core of ICA40111

© Commonwealth of Australia, 2025 Future Skills Organisation

OR

- with demonstrated vocational experience in a range of work environments using a wide range of information technologies.

Pathways from the qualification

ICA60111 Advanced Diploma of Information Technology or other ICA11 Advanced Diploma qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	**Industry/enterprise requirements for this qualification**
Communication	• liaising with clients to determine requirements and ensure that they are met • analysing, evaluating and presenting information about computer systems and information technology in conjunction with stakeholders • negotiating the provision of goods and services with service and product suppliers
Teamwork	• establishing and improving work teams in an IT environment • working with a project team to identify business critical functions and the security environment • working with key stakeholders to gather, analyse and report on information
Problem-solving	• determining the uses and audience of a simple markup language document • troubleshooting and running diagnostic tests and providing solutions to hardware or software faults

© Commonwealth of Australia, 2025 Future Skills Organisation

	• debugging and writing scripts to solve problems • solving a range of unpredictable problems, for example when validating system design specifications or preparing a disaster recovery plan
Initiative and enterprise	• identifying and applying skills and knowledge to a wide variety of contexts • investigating and documenting solutions to client problems • identifying, analysing and evaluating information from a variety of sources • initiating alternative approaches to problem solving • participating in the development of strategic initiatives
Planning and organising	• creating project plans to guide the development of systems methodologies • identifying problems, planning solutions and validating results using project planning skills to take into account project scope, time, cost, quality, communications, and risk analysis and management
Self-management	• prioritising and taking responsibility for own outputs in working and learning • implementing safe and sustainable work practices • using personal responsibility and autonomy in performing complex technical operations and organising others
Learning	• keeping up-to-date with current industry-accepted hardware and software products and services • reviewing client feedback and identifying areas for improvement • gathering and organising feedback on draft documentation and client satisfaction • transferring and applying theoretical concepts, technical information and creative skills in a range of situations
Technology	• identifying technology needs • sourcing, purchasing, using and testing system components • applying understanding of conflicts and integration capabilities between diverse pieces of equipment

Packaging Rules

Total number of units = 20

4 core units plus

16 elective units, of which:

© Commonwealth of Australia, 2025 Future Skills Organisation

- 11 units must be from the specialist elective groups below, with a maximum of 5 units from any one group:
  - Group A Networking
  - Group B Programming
  - Group C IT support
  - Group D Web design and development
  - Group E Digital games
  - Group F Digital media technologies
  - Group G Project management
- the remaining units may be from the elective units below or from elsewhere in ICA11 or any other Training Package or accredited course at Certificate IV, Diploma or Advanced Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

Core units

BSBSUS501A Develop workplace policy and procedures for sustainability

BSBWHS501A Ensure a safe workplace

ICAICT509A Gather data to identify business requirements

ICAICT511A Match IT needs with the strategic direction of the enterprise

Specialist elective units

Group A Networking

ICANWK501A Plan, implement and test enterprise communication solutions

ICANWK502A Implement secure encryption technologies

ICANWK503A Install and maintain valid authentication processes

ICANWK504A Design and implement an integrated server solution

ICANWK505A Design, build and test a network server

ICANWK506A Configure, verify and troubleshoot WAN links and IP services in a medium enterprise network

ICANWK507A Install, operate and troubleshoot medium enterprise routers

ICANWK508A Install, operate and troubleshoot medium enterprise switches

ICANWK509A Design and implement a security perimeter for ICT networks

ICANWK510A Develop, implement and evaluate system and application security

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK511A Manage network security
ICANWK513A Manage system security
ICANWK514A Model preferred system solutions
ICANWK515A Develop configuration management protocols
ICANWK516A Determine best-fit topology for a local network
ICANWK517A Determine best-fit topology for a wide area network
ICANWK518A Design an enterprise wireless local area network
ICANWK519A Design an IT security framework
ICANWK520A Design IT system security controls
ICANWK521A Install, configure and test a payment gateway
ICANWK522A Build decks using wireless markup language
ICANWK524A Install and configure network access storage devices
ICANWK525B Configure an enterprise virtual computing environment
ICANWK527B Manage an enterprise virtual computing environment
ICANWK529A Install and manage complex ICT networks
ICANWK531A Configure an internet gateway
ICANWK532A Identify and resolve network problems
ICANWK533A Configure and manage advanced virtual computing environments
ICANWK534A Monitor and troubleshoot virtual computing environments
ICANWK535A Install an enterprise virtual computing environment
ICANWK614A Manage IT security
ICANWK615A Design and configure desktop virtualisation

Group B Programming

ICAPRG501A Apply advanced object-oriented language skills
ICAPRG502A Manage a project using software management tools
ICAPRG503A Debug and monitor applications
ICAPRG504A Deploy an application to a production environment
ICAPRG505A Build advanced user interface
ICAPRG506A Design application architecture
ICAPRG507A Implement security for applications
ICAPRG508A Create mashups
ICAPRG509A Build using rapid application development
ICAPRG510A Maintain custom software

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG511A Monitor and support data conversion to new IT system

ICAPRG512A Prepare for the build phase of an IT system

ICAPRG513A Coordinate the build phase of an IT system

ICAPRG514A Prepare for software development using rapid application development

ICAPRG515A Review developed software

ICAPRG516A Develop integration blueprint for IT systems

ICAPRG517A Install, test and evaluate pilot version of IT system

ICAPRG518A Monitor the system pilot

ICAPRG523A Apply advanced programming skills in another language

ICAPRG524A Develop high-level object-oriented class specifications

ICAPRG525A Build Java applets

ICAPRG526A Maintain functionality of legacy code programs

ICAPRG527A Apply intermediate object-oriented language skills

ICAPRG528A Perform IT data conversion

ICAPRG601A Develop advanced mobile multi-touch applications

ICASAD501A Model data objects

ICASAD502A Model data processes

ICASAD503A Minimise risk of new technologies to business solutions

Group C IT support

ICAICT501A Research and review hardware technology options for organisations

ICAICT502A Develop detailed component specifications from project specifications

ICAICT503A Validate quality and completeness of system design specifications

ICAICT504A Confirm transition strategy for a new system

ICAICT506A Implement process re-engineering strategies

ICAICT507A Select new technology models for business

ICAICT510A Determine appropriate IT strategies and solutions

ICAICT512A Plan process re-engineering strategies for business

ICAICT514A Identify and manage the implementation of current industry-specific technologies

ICAICT515A Verify client business requirements

ICASAD506A Produce a feasibility report

ICASAS501A Develop, implement and evaluate an incident response plan

ICASAS502A Establish and maintain client user liaison

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS503A Perform systems tests

ICASAS504A Develop and conduct client acceptance test

ICASAS505A Review and update disaster recovery and contingency plans

ICASAS506A Update IT system operational procedures

ICASAS507A Implement and evaluate systems for regulatory and standards compliance

ICASAS509A Provide client IT support services

ICASAS510A Review and develop IT maintenance strategy

ICASAS511A Prioritise IT change requests

ICASAS512A Review and manage delivery of maintenance services

ICASAS513A Develop detailed test plans

ICASAS515A Manage the testing process

ICASAS517A Use network tools

ICASAS518A Install and upgrade operating systems

Group D Web design and development

ICAWEB411A Produce basic client-side script for dynamic web pages

ICAWEB429A Create a markup language document to specification

ICAWEB501A Build a dynamic website

ICAWEB502A Create dynamic web pages

ICAWEB503A Create web-based programs

ICAWEB504A Build a document using eXtensible markup language

ICAWEB505A Develop complex web page layouts

ICAWEB506A Develop complex cascading style sheets

ICAWEB507A Customise a complex IT content management system

ICAWEB508A Develop website information architecture

ICAWEB509A Use site server tools for transaction management

ICAWEB510A Analyse information and assign meta-tags

ICAWEB511A Implement quality assurance process for websites

ICAWEB512A Administer business websites and servers

ICAWEB515A Implement and use web services

ICAWEB516A Research and apply emerging web technology trends

Group E Digital games

ICAGAM501A Create design concepts for digital games and 3-D media

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM503A Create a complex 3-D interactive computer game
ICAGAM504A Manage interactive media production
ICAGAM506A Create complex code for mobile game devices
ICAGAM507A Develop intermediate 3-D software for games and interactive media
ICAGAM508A Develop complex 3-D software for games and interactive media
ICAGAM509A Design interactive 3-D applications for scientific and mathematical modelling
ICAGAM510A Prepare games for different platforms and delivery modes
ICAGAM511A Manage testing of games and interactive media
ICAGAM512A Create and implement designs for a 3-D games environment
ICAGAM514A Design and create models for a 3-D and digital effects environment
ICAGAM515A Design and create advanced particles, fluids and bodies for 3-D digital effects
ICAGAM516A Animate a 3-D character for digital games
ICAGAM517A Produce a digital animation sequence
ICAGAM518A Animate physical attributes of models and elements
ICAGAM519A Manage technical art and rigging in 3-D animation
ICAGAM520A Create and combine 3-D digital games and components
ICAGAM521A Create interactive 3-D environments for digital games
ICAGAM522A Complete digital editing for the 3-D and digital effects environment
ICAGAM523A Collaborate in the design of 3-D game levels and environments
ICAGAM524A Integrate multiple data sources into interactive 3-D environments
ICAGAM525A Apply digital texturing for the 3-D environment in digital games
ICAGAM526A Create complex 3-D characters for games
ICAGAM527A Integrate database with online game
ICAGAM529A Analyse business opportunities in the digital games environment

Group F Digital media technologies

BSBCRT501A Originate and develop concepts
CUFDIG502A Design web environments
CUFDIG503A Design e-learning resources
CUFDIG507A Design digital simulations
CUFPOS201A Perform basic vision and sound editing
CUFPOS401A Edit screen content for fast turnaround
CUSSOU302A Record and mix a basic music demo
CUSSOU502A Produce sound recordings

© Commonwealth of Australia, 2025 Future Skills Organisation

CUVPHI519A Investigate and exploit innovative imaging options

ICADMT501A Incorporate and edit digital video

ICAICT406A Build a graphical user interface

ICAICT419A Work effectively in the digital media industry

Group G Project management

ICAPMG501A Manage IT projects

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA50211 Diploma of Digital and Interactive Games

Modification History

Release	Comments
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides the skills and knowledge for an individual to be competent in a variety of skill areas within the digital and interactive games industry. It provides an opportunity to develop the design, graphic/digital media and programming skills required in the development of digital games briefs, either as a small independent specialist or as part of a larger team. The qualification also provides opportunities to work in new and emerging games genres, such as online game development, mobile device gaming, interactive internet and TV game development.

Job roles

Possible job titles relevant to this qualification include:

- 2-D/3-D artist
- animator
- designer
- games developer
- graphic/media designer
- interactive digital media developer
- PC games programmer
- mobile games programmer
- web designer.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

© Commonwealth of Australia, 2025 Future Skills Organisation

- after achieving ICA40911 Certificate IV in Digital and Interactive Games, or other relevant qualifications or units equivalent to the core of ICA40911

OR

- with demonstrated vocational experience in a range of work environments, such as digital media, games development, animation, graphics design or similar roles.

Pathways from the qualification

ICA11 Advanced Diploma or Vocational Graduate Certificate qualifications or other higher education sector qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	Industry/enterprise requirements for this qualification
Communication	• communicating with work team members and clients using a variety of media and techniques • communicating central ideas of a message, such as a game concept presentation, in an informative and engaging manner • establishing rapport with clients • interpreting and clarifying game design documents and creative briefs • writing complex technical briefs and reports

© Commonwealth of Australia, 2025 Future Skills Organisation

	• interpreting and applying information in user manuals for software applications
Teamwork	• managing project team members and activities • working with team members in an open and collaborative manner • collaborating with colleagues to develop products or services • seeking feedback from team members and clients on work in progress
Initiative and enterprise	• contributing creative ideas to projects • suggesting ways to improve products • ensuring there is an intuitive and logical flow to the navigation of game interfaces • generating a range of ideas for game products that meet the needs of target users and audiences • thinking laterally when developing ideas • maintaining design integrity • visualising and interpreting creative concepts
Planning and organising	• undertaking background research • preparing and making presentations • managing budgets and projects • planning the development process for and managing the testing of games
Problem-solving	• finding solutions to interactivity challenges • finding solutions to game design problems, such as balancing a game • finding ways to minimise the effect of technical constraints • troubleshooting and solving problems as they arise during the development of products
Self-management	• working to deadlines • providing appropriate and timely documentation • managing and marketing oneself as a freelancer • ensuring that workplace practices comply with OHS requirements • managing own finances
Learning	• developing and participating in industry or community networks • extending own knowledge and skills through experimentation and practice • improving performance/product through self-reflection and revision to incorporate feedback from colleagues or clients • keeping up-to-date with industry developments and trends • seeking expert advice as required

© Commonwealth of Australia, 2025 Future Skills Organisation

Technology	• creating complex games from game design documents and specifications • using a range of software applications

Packaging Rules

Total number of units = 16

5 core units *plus*

11 elective units

The elective units consist of:

- 5 from one of the following specialist groups
  - Group A Programming
  - Group B Art
  - Group C Digital media
- of the remaining units:
  - up to 6 may be from the specialist elective groups below or from Group D general elective units below
  - up to 3 may be from elsewhere in ICA11 or any other Training Package or accredited course at Diploma or Advanced Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

Core units

BSBOHS402B Contribute to the implementation of the OHS consultation process

ICAGAM501A Create design concepts for digital games and 3-D media

ICAGAM503A Create a complex 3-D interactive computer game

ICAGAM523A Collaborate in the design of 3-D game levels and environments

ICAICT419A Work effectively in the digital media industry

Elective units

Specialist elective units

Group A Programming

ICAGAM419A Build a database to support a computer game

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM506A Create complex code for mobile game devices
ICAGAM507A Develop intermediate 3-D software for games and interactive media
ICAGAM508A Develop complex 3-D software for games and interactive media
ICAGAM509A Design interactive 3-D applications for scientific and mathematical modelling
ICAGAM510A Prepare games for different platforms and delivery modes
ICAGAM511A Manage testing of games and interactive media
ICAGAM527A Integrate database with online game
ICAPRG425A Use structured query language
ICAPRG501A Apply advanced object-oriented language skills
ICAPRG515A Review developed software
ICAPRG523A Apply advanced programming skills in another language
ICAWEB508A Develop website information architecture

Group B Art

ICAGAM512A Create and implement designs for a 3-D games environment
ICAGAM514A Design and create models for a 3-D and digital effects environment
ICAGAM515A Design and create advanced particles, fluids and bodies for 3-D digital effects
ICAGAM516A Animate a 3-D character for digital games
ICAGAM517A Produce a digital animation sequence
ICAGAM518A Animate physical attributes of models and elements
ICAGAM519A Manage technical art and rigging in 3-D animation
ICAGAM520A Create and combine 3-D digital games and components
ICAGAM526A Create complex 3-D characters for games

Group C Digital media

CUFDIG502A Design web environments
CUFDIG503A Design e-learning resources
CUFDIG507A Design digital simulations
CUSSOU403A Perform advanced sound editing
ICAGAM521A Create interactive 3-D environments for digital games
ICAGAM522A Complete digital editing for the 3-D and digital effects environment
ICAGAM524A Integrate multiple data sources into interactive 3-D environments
ICAGAM525A Apply digital texturing for the 3-D environment in digital games

© Commonwealth of Australia, 2025 Future Skills Organisation

General elective units

Group D

BSBCRT501A Originate and develop concepts

BSBSUS501A Develop workplace policy and procedures for sustainability

ICAGAM504A Manage interactive media production

ICAGAM528A Create games for mobile devices

ICAGAM529A Analyse business opportunities in the digital games environment

ICAGAM530A Develop and implement physics in a 3-D digital game

ICAGAM531A Complete compositing to create elements for the 3-D and digital effects environment

ICAICT408A Create technical documentation

ICAICT511A Match IT needs with the strategic direction of the enterprise

ICAICT514A Identify and manage the implementation of current industry-specific technologies

ICAPMG501A Manage IT projects

ICAWEB411A Produce basic client-side script for dynamic web pages

ICAWEB429A Create a markup language document to specification

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA50311 Diploma of Information Technology Systems Administration

Modification History

Release	Comments
Release 2	*This version first released with ICA11 Information and Communications Technology Training Package Version 2*. Addition of two new units of competency to electives.
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides the skills and knowledge for an individual to be competent in administering a variety of networked computer systems. The qualification has a strong information technology base of core units with the potential for inclusion of a range of broader industry-specific units in the areas of virtualisation, sustainability and project management to suit particular needs.

Job roles

Possible job titles relevant to this qualification include:

- assistant IT manager
- assistant system manager
- internet/intranet administrator
- internet/intranet systems administrator
- systems administrator.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

- after achieving ICA40211 Certificate IV in Information Technology Support, or other relevant qualifications or units equivalent to the core of ICA40211

OR

© Commonwealth of Australia, 2025 Future Skills Organisation

- with demonstrated vocational experience in a range of systems administration areas, including systems, internet and intranet support or similar.

Pathways from the qualification

ICA11 Advanced Diploma or Vocational Graduate Certificate qualifications or other higher education sector qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	**Industry/enterprise requirements for this qualification**
Communication	• identifying, analysing and evaluating information from a variety of sources • using plain English, literacy and communication skills in relation to analysis, evaluation and presentation of information • writing complex technical briefs and reports
Teamwork	• managing project team members and activities • working collaboratively with team members
Problem-solving	• analysing project design • solving technical hardware, software and network problems • analysing business specifications and administering technical solutions
Initiative and enterprise	• initiating and maintaining client user liaison • involving clients in the development of feasibility studies and strategic business initiatives • anticipating possible disasters and responding with appropriate contingency recovery plans

© Commonwealth of Australia, 2025 Future Skills Organisation

Planning and organising	• developing plans for sustainability and competitive advantage • preparing feasibility reports that take into account project scope, time, cost, quality, communications and risk management • developing workplace policy for sustainability
Self-management	• managing own time and work priorities to plan project and schedule • taking responsibility for own and others' outputs in relation to specified quality standards • managing systems security and testing processes • meeting the Australian Computer Society Code of Ethics regarding security, legal, moral and ethical issues
Learning	• extending own knowledge of tools and software applications and the goods and services provided • devising and implementing client evaluation and feedback methodologies • providing one-to-one liaison for clients and users
Technology	• selecting and administering software and hardware diagnostic tools

Packaging Rules

Total number of units = 19

10 core units plus

9 elective units, of which:

- 5 units must be from the elective units listed below
- the remaining units may be from the elective units below or from elsewhere in ICA11 or any other Training Package or accredited course at Certificate IV, Diploma or Advanced Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

Core units

BSBSUS501A Develop workplace policy and procedures for sustainability

ICAICT418A Contribute to copyright, ethics and privacy in an IT environment

ICAICT509A Gather data to identify business requirements

ICANWK513A Manage system security

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS406A Implement and hand over system components

ICASAS502A Establish and maintain client user liaison

ICASAS505A Review and update disaster recovery and contingency plans

ICASAS512A Review and manage delivery of maintenance services

ICASAS515A Manage the testing process

ICTTEN5204A Produce technical solutions from business specifications

Elective units

ICAICT501A Research and review hardware technology options for organisations

ICAICT511A Match IT needs with the strategic direction of the enterprise

ICAICT514A Identify and manage the implementation of current industry-specific technologies

ICAICT515A Verify client business requirements

ICANWK501A Plan, implement and test enterprise communication solutions

ICANWK502A Implement secure encryption technologies

ICANWK504A Design and implement an integrated server solution

ICANWK505A Design, build and test a network server

ICANWK506A Configure, verify and troubleshoot WAN links and IP services in a medium enterprise network

ICANWK509A Design and implement a security perimeter for ICT networks

ICANWK525B Configure an enterprise virtual computing environment

ICANWK527B Manage an enterprise virtual computing environment

ICANWK529A Install and manage complex ICT networks

ICANWK531A Configure an internet gateway

ICANWK533A Configure and manage advanced virtual computing environments

ICANWK534A Monitor and troubleshoot virtual computing environments

ICANWK535A Install an enterprise virtual computing environment

ICANWK615A Design and configure desktop virtualisation

ICAPMG501A Manage IT projects

ICASAD506A Produce a feasibility report

ICASAS503A Perform systems tests

ICASAS513A Develop detailed test plans

ICASAS517A Use network tools

ICASAS518A Install and upgrade operating systems

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTSUS5187A Implement server virtualisation for a sustainable ICT system

ICTSUS6233A Integrate sustainability in ICT planning and design projects

ICTSUS6234A Establish a business case for sustainability and competitive advantage in ICT projects

ICTTEN6206A Produce an ICT network architecture design

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA50411 Diploma of Information Technology Networking

Modification History

Release	Comments
Release 2	*This version first released with ICA11 Information and Communications Technology Training Package Version 2.* Addition of three new units of competency to electives.
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides the skills and knowledge for an individual to manage, as an independent ICT specialist or as part of a team, the installation of a range of networks, including internetworking, security and e-business integration.

Job roles

Possible job titles relevant to this qualification include:

- network administrator
- IT administrator
- IT operations administrator
- network services administrator
- network support coordinator
- network operations analyst
- network security coordinator
- network e-business coordinator.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

- after achieving ICA40411 Certificate IV in Information Technology Networking, or other relevant qualifications or units equivalent to the core of ICA40411

OR

© Commonwealth of Australia, 2025 Future Skills Organisation

- with demonstrated vocational experience in a range of work environments in senior network support roles, including administrator, operations analyst, technician, operations or support coordinator/technician.

Pathways from the qualification

ICA60211 Advanced Diploma of Network Security, or a range of other ICA11 Advanced Diploma or Vocational Graduate Certificate qualifications, or other relevant higher education sector qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	**Industry/enterprise requirements for this qualification**
Communication	• applying plain English to written documents and reports • writing complex briefs and reports for businesses, requiring depth of analysis and evaluation of information • conducting meetings and briefing sessions for team members
Teamwork	• consulting with work team and providing directions to review proposed changes against current and future business requirements • establishing and improving work teams in an IT environment
Problem-solving	• debugging code • solving network problems related to the installation of hardware, software and networks
Initiative and enterprise	• developing new criteria and procedures for performing current practices • identifying, analysing and evaluating information from a variety of sources

© Commonwealth of Australia, 2025 Future Skills Organisation

Planning and organising	• creating project plans to guide the development of systems methodologies • planning and designing networking structures
Self-management	• taking responsibility for own and others' output in relation to specified quality standards • meeting ethical standards in the areas of security, legal, moral and ethical practice
Learning	• maintaining knowledge of diagnostic tools and software applications and the goods and services provided • obtaining client evaluation and feedback • providing instructions to clients and users
Technology	• selecting and using software, hardware and networking components and diagnostic tools in a wide range of different environments

Packaging Rules

Total number of units = 16

5 core units plus

11 elective units, of which:

- 8 units must be from the elective units listed below
- the remaining units may be from the elective units below or from elsewhere in ICA11 or any other Training Package or accredited course at Certificate IV, Diploma or Advanced Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

Core units

ICAICT418A Contribute to copyright, ethics and privacy in an IT environment

ICAICT511A Match IT needs with the strategic direction of the enterprise

ICANWK529A Install and manage complex ICT networks

ICTSUS5187A Implement server virtualisation for a sustainable ICT system

ICTTEN6206A Produce an ICT network architecture design

Elective units

BSBSUS501A Develop workplace policy and procedures for sustainability

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT501A Research and review hardware technology options for organisations

ICAICT509A Gather data to identify business requirements

ICAICT514A Identify and manage the implementation of current industry-specific technologies

ICAICT603A Manage the use of appropriate development methodologies

ICANWK501A Plan, implement and test enterprise communication solutions

ICANWK502A Implement secure encryption technologies

ICANWK503A Install and maintain valid authentication processes

ICANWK504A Design and implement an integrated server solution

ICANWK505A Design, build and test a network server

ICANWK506A Configure, verify and troubleshoot WAN links and IP services in a medium enterprise network

ICANWK507A Install, operate and troubleshoot medium enterprise routers

ICANWK508A Install, operate and troubleshoot medium enterprise switches

ICANWK509A Design and implement a security perimeter for ICT networks

ICANWK510A Develop, implement and evaluate system and application security

ICANWK511A Manage network security

ICANWK513A Manage system security

ICANWK524A Install and configure network access storage devices

ICANWK525B Configure an enterprise virtual computing environment

ICANWK527B Manage an enterprise virtual computing environment

ICANWK531A Configure an internet gateway

ICANWK533A Configure and manage advanced virtual computing environments

ICANWK534A Monitor and troubleshoot virtual computing environments

ICANWK535A Install an enterprise virtual computing environment

ICANWK615A Design and configure desktop virtualisation

ICAPMG501A Manage IT projects

ICASAD506A Produce a feasibility report

ICASAS406A Implement and hand over system components

ICASAS501A Develop, implement and evaluate an incident response plan

ICASAS502A Establish and maintain client user liaison

ICASAS503A Perform systems test

ICASAS505A Review and update disaster recovery and contingency plans

ICASAS512A Review and manage delivery of maintenance services

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS515A Manage the testing process

ICTOPN5119A Perform acceptance and commissioning tests on optical network

ICTOPN5120A Plan for an optical system upgrade and cut over

ICTOPN5122A Test the performance of specialised optical devices

ICTOPN5123A Analyse and integrate specialised optical devices in the network

ICTSUS6233A Integrate sustainability in ICT planning and design projects

ICTSUS6234A Establish a business case for sustainability and competitive advantage in ICT projects

ICTTEN4213A Configure and troubleshoot advanced network switching

ICTTEN5168A Design and implement an enterprise voice over internet protocol and a unified communications network

ICTTEN5201A Install, configure and test a server

ICTTEN5203A Dimension and design a radio frequency identification system

ICTTEN5204A Produce technical solutions from business specifications

ICTTEN5217A Plan a wireless mesh network

ICTTEN6172A Design and configure an IP-MPLS network with virtual private network tunnelling

Selecting elective units for different outcomes

The following examples are designed to assist in the selection of appropriate electives for particular outcomes at this level, but are in no way prescriptive.

Certified technology specialist – communications technologies

Core units plus:

ICANWK501A Plan, implement and test enterprise communication solutions

Certified technology specialist – network and applications infrastructure

Core units plus:

ICANWK505A Design, build and test a network server

Certified technician or technology specialist – infrastructure configuration

Core units plus:

ICANWK505A Design, build and test a network server

ICANWK503A Install and maintain valid authentication processes

© Commonwealth of Australia, 2025 Future Skills Organisation

Certified network associate specialist

Core units plus:

ICANWK529A Install and manage complex ICT networks

ICANWK506A Configure, verify and troubleshoot WAN links and IP services in a medium enterprise network

ICANWK507A Install, operate and troubleshoot medium enterprise routers

ICANWK508A Install, operate and troubleshoot medium enterprise switches

Certified security and architect specialist

Core units plus:

ICANWK529A Install and manage complex ICT networks

ICANWK503A Install and maintain valid authentication processes

ICANWK511A Manage network security

Certified technology specialist – internet security

Core units plus:

ICANWK509A Design and implement a security perimeter for ICT networks

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA50511 Diploma of Database Design and Development

Modification History

Release	Comments
Release 2	*This version first released with ICA11 Information and Communications Technology Training Package Version 2*. Addition of new unit of competency to electives.
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides skills and knowledge for an individual to be effective in the design and development of ICT database systems. The qualification builds on a base core of design and development competencies with elective choices covering business needs analysis, quality assurance and project management.

Job roles

Possible job titles relevant to this qualification include:

- assistant database designer
- assistant database developer
- assistant database specialist.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

- after achieving ICA40211 Certificate IV in Information Technology Support, or other relevant qualifications or units equivalent to the core of ICA40211

OR

- with demonstrated vocational experience in a range of database design and development areas.

Pathways from the qualification

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA11 Advanced Diploma or Vocational Graduate Certificate qualifications or other higher education sector qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	**Industry/enterprise requirements for this qualification**
Communication	• articulating complex scenarios in a clear and concise manner relevant to all levels of the organisation • documenting information related to database requirements and solutions • writing and presenting complex technical reports, with supporting documentation
Teamwork	• coordinating group and presenting on key project activities • reviewing the database with team members and key stakeholders
Problem-solving	• developing controls and contingencies to alleviate security threats • taking corrective action on system implementation breakdowns
Initiative and enterprise	• anticipating potential problems and devising solutions • conducting research to determine client business requirements • integrating sustainability in ICT planning and design projects • matching client IT requirements with the strategic direction of the enterprise
Planning and organising	• developing project plans • planning for quality controls and contingencies when designing database system

© Commonwealth of Australia, 2025 Future Skills Organisation

Self-management	• managing own time and work priorities against project plan and schedule • taking accountability and responsibility for self and others in achieving work outcomes
Learning	• keeping up-to-date with current industry-accepted database, web and programming products • participating in learning and development opportunities
Technology	• coordinating implementation of technology needs • assessing the technological capability of various products against architecture requirements and making recommendations on the best IT solution • examining current and future ICT capability against a client's future requirements and modelling preferred systems solutions

Packaging Rules

Total number of units = 20

9 core units plus

11 elective units, of which:

- **7 units must be** from the elective units listed below
- the remaining units may be from the elective units below or from elsewhere in ICA11 or any other Training Package or accredited course at Certificate IV, **Diploma or Advanced Diploma level**.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

Core units

ICADBS502A Design a database

ICAICT418A Contribute to copyright, ethics and privacy in an IT environment

ICAICT502A Develop detailed component specifications from project specifications

ICANWK514A Model preferred system solutions

ICAPRG425A Use structured query language

ICAPRG509A Build using rapid application development

ICASAD501A Model data objects

ICASAD502A Model data processes

ICTSUS6233A Integrate sustainability in ICT planning and design projects

© Commonwealth of Australia, 2025 Future Skills Organisation

Elective units

ICADBS504A Integrate database with a website

ICAICT423A Select cloud storage strategies

ICAICT509A Gather data to identify business requirements

ICAICT511A Match IT needs with the strategic direction of the enterprise

ICAICT514A Identify and manage the implementation of current industry-specific technologies

ICAPMG501A Manage IT projects

ICAPMG606A Manage IT project quality

ICAPRG501A Apply advanced object-oriented language skills

ICAPRG503A Debug and monitor applications

ICAPRG504A Deploy an application to a production environment

ICAPRG505A Build advanced user interface

ICAPRG507A Implement security for applications

ICAPRG511A Monitor and support data conversion to new IT system

ICAPRG514A Prepare for software development using rapid application development

ICAPRG515A Review developed software

ICAPRG523A Apply advanced programming skills in another language

ICASAD506A Produce a feasibility report

ICASAS502A Establish and maintain client user liaison

ICASAS505A Review and update disaster recovery and contingency plans

ICAWEB502A Create dynamic web pages

ICTTEN5204A Produce technical solutions from business specifications

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA50611 Diploma of Website Development

Modification History

Release	Comments
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides the skills and knowledge for an individual to design, build and manage websites as an independent web developer or as part of a team.

Job roles

Possible job titles relevant to this qualification include:

- web developer
- web development manager
- web programmer
- website manager
- webmaster
- web administrator
- internet developer.

Pathways Information

Pathways into the qualification

- after achieving ICA40311 Certificate IV in Web-Based Technologies, or other relevant qualifications or units equivalent to the core of ICA40311.

OR

© Commonwealth of Australia, 2025 Future Skills Organisation

- with demonstrated vocational experience in a range of work environments in a website development or management role, such as web developer, web programmer, web manager or equivalent.

Pathways from the qualification

ICA11 Advanced Diploma or Vocational Graduate Certificate qualifications or other higher education sector qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	Industry/enterprise requirements for this qualification
Communication	• communicating concepts and solutions for complex issues to colleagues and clients • applying plain English to written documents and reports • writing complex reports for business requiring depth of analysis and evaluation of information
Teamwork	• coordinating groups and teams • participating in teams concerned with planning and evaluation functions
Problem-solving	• analysing and planning approaches to technical problems or management requirements • developing and implementing risk management plans
Initiative and enterprise	• transferring and applying theoretical concepts and technical or creative skills to a range of situations

© Commonwealth of Australia, 2025 Future Skills Organisation

Planning and organising	• planning and documenting a process to design, build and test a dynamic website so that it meets technical requirements and web development standards • using project planning skills in relation to project scope, time, cost, quality, communications and risk management
Self-management	• taking personal responsibility and demonstrating autonomy in performing complex technical operations or organising others
Learning	• undertaking awareness training to inform relevant stakeholders
Technology	• identifying technology needs • sourcing, purchasing, installing, configuring and testing system components, including software and hardware

Packaging Rules

Total number of units = 20

8 core units *plus*

12 elective units

The elective units consist of:

- up to 12 from the elective units listed below
- up to 4 from elsewhere in ICA11 or any other Training Package or accredited course at Diploma or Advanced Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

Core units

BSBOHS509A Ensure a safe workplace

ICADBS504A Integrate database with a website

ICAICT418A Contribute to copyright, ethics and privacy in an IT environment

ICAICT515A Verify client business requirements

ICAWEB501A Build a dynamic website

ICAWEB502A Create dynamic web pages

ICAWEB503A Create web-based programs

ICAWEB516A Research and apply emerging web technology trends

© Commonwealth of Australia, 2025 Future Skills Organisation

Elective units

BSBEBU501A Investigate and design e-business solutions

BSBSUS301A Implement and monitor environmentally sustainable work practices

ICADBS412A Build a database

ICADBS502A Design a database

ICAICT406A Build a graphical user interface

ICAICT503A Validate quality and completeness of system design specifications

ICAICT509A Gather data to identify business requirements

ICAICT511A Match IT needs with the strategic direction of the enterprise

ICAICT514A Identify and manage the implementation of current industry-specific technologies

ICANWK406A Install, configure and test network security

ICANWK514A Model preferred system solutions

ICAPMG501A Manage IT projects

ICAPRG406A Apply introductory object-oriented language skills

ICAPRG413A Use a library or pre-existing components

ICAPRG415A Apply skills in object-oriented design

ICAPRG418A Apply intermediate programming skills in another language

ICAPRG425A Use structured query language

ICAPRG501A Apply advanced object-oriented language skills

ICAPRG503A Debug and monitor applications

ICAPRG504A Deploy an application to a production environment

ICAPRG505A Build advanced user interface

ICAPRG506A Design application architecture

ICAPRG507A Implement security for applications

ICAPRG509A Build using rapid application development

ICAPRG512A Prepare for the build phase of an IT system

ICAPRG513A Coordinate the build phase of an IT system

ICAPRG514A Prepare for software development using rapid application development

ICAPRG515A Review developed software

ICAPRG523A Apply advanced programming skills in another language

ICAPRG527A Apply intermediate object-oriented language skills

ICAPRG601A Develop advanced mobile multi-touch applications

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAD501A Model data objects

ICASAD502A Model data processes

ICASAD506A Produce a feasibility report

ICASAS503A Perform systems tests

ICASAS504A Develop and conduct client acceptance test

ICASAS505A Review and update disaster recovery and contingency plans

ICAWEB504A Build a document using eXtensible markup language

ICAWEB505A Develop complex web page layouts

ICAWEB506A Develop complex cascading style sheets

ICAWEB508A Develop website information architecture

ICAWEB509A Use site server tools for transaction management

ICTTEN5204A Produce technical solutions from business specifications

Selecting elective units for different outcomes

The following examples are designed to assist in the selection of appropriate electives for particular outcomes at this level, but are in no way prescriptive.

Web administration

Core units plus:

- ICASAS504A Develop and conduct client acceptance test
- ICAWEB508A Develop website information architecture
- ICASAS503A Perform systems tests
- ICASAS505A Review and update disaster recovery and contingency plans
- ICAWEB509A Use site server tools for transaction management
- ICAICT503A Validate quality and completeness of system design specifications

Web design

Core units plus:

- ICAWEB504A Build a document using eXtensible markup language
- ICAWEB506A Develop complex cascading style sheets

© Commonwealth of Australia, 2025 Future Skills Organisation

- ICAWEB505A Develop complex web page layouts

Web programming

Core units plus:

- ICAPRG501A Apply advanced object-oriented language skills
- ICAPRG523A Apply advanced programming skills in another language
- ICAPRG527A Apply intermediate object-oriented language skills
- ICAPRG418A Apply intermediate programming skills in another language
- ICAPRG406A Apply introductory object-oriented language skills
- ICAPRG415A Apply skills in object-oriented design
- ICAICT406A Build a graphical user interface

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA50711 Diploma of Software Development

Modification History

Release	Comments
Release 2	*This version first released with ICA11 Information and Communications Technology Training Package Version 2*. Elective unit ICAPRG603A replaced with ICAPRG604A.
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides the skills and knowledge for an individual to be competent in programming and software development.

A person with this qualification would create new software products to meet an initial project brief or customise existing software products to meet customer needs.

Job roles

Possible job titles relevant to this qualification include:

- analyst programmer support
- assistant programming developer
- assistant software applications programmer
- assistant software developer
- database support programmer
- web support programmer.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

- after achieving ICA40511 Certificate IV in Programming, or other relevant qualifications or units equivalent to the core of ICA40511

OR

© Commonwealth of Australia, 2025 Future Skills Organisation

- with demonstrated vocational experience in a range of programming-related work environments in software programming, application programming, web development or similar.

Pathways from the qualification

ICA11 Advanced Diploma or Vocational Graduate Certificate qualifications or other higher education sector qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	Industry/enterprise requirements for this qualification
Communication	• communicating clear concepts and solutions for complex issues to colleagues and clients • using plain English, literacy and communication skills in relation to analysis, evaluation and presentation of information • writing and presenting complex technical reports with supporting documentation for business • analysing and evaluating information
Teamwork	• coordinating groups and teams • delegating roles and responsibilities to team members for the implementation of project plans • participating in teams concerned with planning and evaluation functions
Problem solving	• analysing and planning approaches to technical problems or management requirements • determining the system design audit technique or methodology

© Commonwealth of Australia, 2025 Future Skills Organisation

	that will be followed • using a debugger to detect logical and coding errors
Initiative and enterprise	• transferring and applying theoretical concepts and technical or creative skills to a range of situations
Planning and organising	• using project planning skills in relation to project scope, time, cost, quality, communications and risk management
Self-management	• taking personal responsibility and autonomy in performing complex technical operations or organising others
Learning	• extending own skills and knowledge of software development tools and applications and the goods and services provided • providing learning and development opportunities for project team members
Technology	• identifying technology needs • sourcing, purchasing, installing, configuring and testing software components, including hardware

Packaging Rules

Total number of units = 16

10 core units plus

6 elective units, of which:

- 3 units must be from the elective units listed below
- the remaining units may be from the elective units below or from elsewhere in ICA11 or any other Training Package or accredited course at Certificate IV, Diploma or Advanced Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

Core units

ICAICT418A Contribute to copyright, ethics and privacy in an IT environment

ICAPRG418A Apply intermediate programming skills in another language

ICAPRG501A Apply advanced object-oriented language skills

ICAPRG502A Manage a project using software management tools

ICAPRG503A Debug and monitor applications

ICAPRG504A Deploy an application to a production environment

ICAPRG520A Validate an application design against specifications

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG523A Apply advanced programming skills in another language

ICAPRG527A Apply intermediate object-oriented language skills

ICAPRG529A Apply testing techniques for software development

Elective units

ICAICT403A Apply software development methodologies

ICAICT503A Validate quality and completeness of system design specifications

ICAICT509A Gather data to identify business requirements

ICAICT511A Match IT needs with the strategic direction of the enterprise

ICAICT514A Identify and manage the implementation of current industry-specific technologies

ICANWK514A Model preferred system solutions

ICAPMG501A Manage IT projects

ICAPRG505A Build advanced user interface

ICAPRG506A Design application architecture

ICAPRG507A Implement security for applications

ICAPRG508A Create mashups

ICAPRG509A Build using rapid application development

ICAPRG510A Maintain custom software

ICAPRG512A Prepare for the build phase of an IT system

ICAPRG513A Coordinate the build phase of an IT system

ICAPRG514A Prepare for software development using rapid application development

ICAPRG515A Review developed software

ICAPRG601A Develop advanced mobile multi-touch applications

ICAPRG604A Create cloud computing services

ICASAD501A Model data objects

ICASAD502A Model data processes

ICASAD506A Produce a feasibility report

ICASAS502A Establish and maintain client user liaison

Selecting elective units for different outcomes

The following examples are designed to assist in the selection of appropriate electives for particular outcomes at this level, but are in no way prescriptive.

© Commonwealth of Australia, 2025 Future Skills Organisation

Systems design

Core units plus:

ICAICT403A Apply software development methodologies

ICAICT509A Gather data to identify business requirements

ICAICT511A Match IT needs with the strategic direction of the enterprise

ICANWK514A Model preferred system solutions

Programming

Core units plus:

ICAPRG505A Build advanced user interface

ICAPRG506A Design application architecture

ICAPRG507A Implement security for applications

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA50811 Diploma of Systems Analysis and Design

Modification History

Release	Comments
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides the skills and knowledge for an individual to determine client business requirements and to support a project team in the analysis and redesign of systems to ensure they meet client needs.

Job roles

Possible job titles relevant to this qualification include:

- applications architect
- business analyst
- systems analyst
- systems architect
- information technology analyst.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

- after achieving ICA40711 Certificate IV in Systems Analysis and Design, or other relevant qualifications or units equivalent to the core of ICA40711.

OR

© Commonwealth of Australia, 2025 Future Skills Organisation

- with demonstrated vocational experience in a range of work environments in senior information technology and/or systems roles, including analyst or design roles.

Pathways from the qualification

ICA11 Advanced Diploma or Vocational Graduate Certificate qualifications or other higher education sector qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	Industry/enterprise requirements for this qualification
Communication	• communicating concepts and solutions for complex issues to colleagues and clients • using plain English skills in relation to analysis, evaluation and presentation of information • writing and presenting complex technical briefs and reports
Teamwork	• participating in teams concerned with planning and evaluation functions
Problem-solving	• analysing requirements and devising solutions to technical problems or management issues • holding discussions on quality issues with development staff and establishing agreed actions
Initiative and enterprise	• conducting research to determine client business requirements • integrating sustainability in ICT planning and design projects • matching client IT requirements with the strategic direction of the enterprise

© Commonwealth of Australia, 2025 Future Skills Organisation

	• anticipating potential problems and devising solutions
Planning and organising	• managing information technology projects in relation to project scope, time, cost, quality, communications and risk management
Self-management	• managing own time and work priorities against project plan and schedule • taking responsibility and exercising autonomy in performing complex technical operations or organising others
Learning	• extending own skills and knowledge of tools and software applications and the goods and services provided • devising and implementing client evaluation and feedback methodologies • providing learning and development opportunities for project team members
Technology	• determining and administering technology needs • sourcing, purchasing, installing, configuring and testing system components, including software and hardware

Packaging Rules

Total number of units = 21

9 core units *plus*

12 elective units

The elective units consist of:

- up to 12 from the elective units listed below
- up to 4 from elsewhere in ICA11 or any other Training Package or accredited course at Diploma or Advanced Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

Core units

ICADBS502A Design a database

ICAICT401A Determine and confirm client business requirements

ICAICT403A Apply software development methodologies

ICAICT418A Contribute to copyright, ethics and privacy in an IT environment

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT502A Develop detailed component specifications from project specifications

ICAICT509A Gather data to identify business requirements

ICAICT511A Match IT needs with the strategic direction of the enterprise

ICTSUS6233A Integrate sustainability in ICT planning and design projects

ICTTEN5204A Produce technical solutions from business specifications

Elective units

ICAICT510A Determine appropriate IT strategies and solutions

ICAICT512A Plan process re-engineering strategies for business

ICAICT514A Identify and manage the implementation of current industry-specific technologies

ICANWK514A Model preferred system solutions

ICAPMG501A Manage IT projects

ICAPRG418A Apply intermediate programming skills in another language

ICAPRG509A Build using rapid application development

ICAPRG514A Prepare for software development using rapid application development

ICAPRG515A Review developed software

ICAPRG518A Monitor the system pilot

ICAPRG524A Develop high-level object-oriented class specifications

ICAPRG527A Apply intermediate object-oriented language skills

ICASAD501A Model data objects

ICASAD502A Model data processes

ICASAS422A Scope implementation requirements

ICASAS502A Establish and maintain client user liaison

ICASAS505A Review and update disaster recovery and contingency plans

ICASAS506A Update IT system operational procedures

ICASAS507A Implement and evaluate systems for regulatory and standards compliance

ICASAS513A Develop detailed test plans

ICTTEN5024A Provide consultancy and technical support in the customer premises equipment sector

Selecting elective units for different outcomes

The following examples are designed to assist in the selection of appropriate electives for particular outcomes at this level, but are in no way prescriptive.

© Commonwealth of Australia, 2025 Future Skills Organisation

Analyst programmer

Core units plus:

- ICAPRG418A Apply intermediate programming skills in another language
- ICAPRG527A Apply intermediate object-oriented language skills
- ICAPRG509A Build using rapid application development
- ICAPRG514A Prepare for software development using rapid application development
- ICAPRG524A Develop high-level object-oriented class specifications

System designer

Core units plus:

- ICANWK514A Model preferred system solutions
- ICASAD501A Model data objects
- ICASAD502A Model data processes

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA50911 Diploma of Digital Media Technologies

Modification History

Release	Comments
Release 2	This Qualification released with *ICA11 Information and Communications Technology Training Package version 2.0* Updated elective unit to most current version.
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides the skills and knowledge for an individual to be competent in designing, developing and refining digital media technologies as an independent ICT specialist or as part of a team. It provides the opportunity to work in new and emerging digital media technology areas, such as online, and interactive design and development, and with tools and equipment, such as software, Web 2 tools, technologies and mobile devices.

Job roles

Possible job titles relevant to this qualification include:

- digital media designer
- digital media developer
- digital media developer/engineer
- digital media authoring specialist
- digital media producer.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

- after achieving ICA40811 Certificate IV in Digital Media Technologies, or other relevant qualifications or units equivalent to the core of ICA40811.

© Commonwealth of Australia, 2025 Future Skills Organisation

OR

- with demonstrated vocational experience in a range of work environments, such as digital media, games development, animation, graphics design or similar roles.

Pathways from the qualification

ICA60111 Advanced Diploma of Information Technology or other ICA11 Advanced Diploma or Vocational Graduate qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	Industry/enterprise requirements for this qualification
Communication	• communicating concepts and solutions for complex issues to colleagues and clients • using plain English, literacy and communication skills in relation to analysis, evaluation and presentation of information • researching emerging digital media technology trends • generating and presenting ideas and concepts • writing and presenting complex technical reports, with supporting documentation
Teamwork	• briefing design team members and allocating work roles to facilitate the orderliness and timeliness of the design process • participating in teams concerned with planning and evaluating

© Commonwealth of Australia, 2025 Future Skills Organisation

	the production of digital media products
Initiative and enterprise	• making adjustments or recommendations to enhance the design according to the brief and in consultation with the client • transferring and applying theoretical concepts and technical or creative skills to a range of situations
Planning and organising	• designing the production cycle and project plan for a digital media product • using project planning skills in relation to scope, time, cost, quality, communications and risk management
Problem-solving	• ensuring projects meet client specifications • resolving technical problems by re-designing or amending the brief in consultation with the client
Self-management	• taking personal responsibility and autonomy in performing complex technical operations or organising others
Learning	• investigating and becoming conversant with current privacy legislation • providing learning and development opportunities for the project team
Technology	• determining technology needs, including sourcing, purchasing, installing, configuring and testing digital media components of both software and hardware

Packaging Rules

Packaging Rules

Total number of units = 18

7 core units plus

11 elective units

The elective units consist of:

- **up to 11** from the elective units listed below
- up to **3** from elsewhere in ICA11 or any other Training Package or accredited course at **Diploma or Advanced Diploma level**.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Core units

BSBCRT501A Originate and develop concepts

BSBOHS509A Ensure a safe workplace

ICAGAM504A Manage interactive media production

ICAICT418A Contribute to copyright, ethics and privacy in an IT environment

ICAICT419A Work effectively in the digital media industry

ICAICT515A Verify client business requirements

ICAPMG501A Manage IT projects

Elective units

CUFDIG502A Design web environments

CUFDIG503A Design e-learning resources

CUFDIG504A Design games

CUFDIG507A Design digital simulations

CUFPOS201A Perform basic vision and sound editing

CUFPOS401A Edit screen content for fast turnaround

CUSSOU302A Record and mix a basic music demo

CUSSOU502A Produce sound recordings

CUVPHI519A Investigate and exploit innovative imaging options

ICADBS504A Integrate database with a website

ICADMT501A Incorporate and edit digital video

ICAGAM507A Develop intermediate 3-D software for games and interactive media

ICAGAM511A Manage testing of games and interactive media

ICAGAM512A Create and implement designs for a 3-D games environment

ICAGAM514A Design and create models for a 3-D and digital effects environment

ICAICT406A Build a graphical user interface

ICAICT511A Match IT needs with the strategic direction of the enterprise

ICAICT514A Identify and manage the implementation of current industry-specific technologies

ICAPRG409A Develop mobile applications

ICAPRG413A Use a library or pre-existing components

ICAPRG418A Apply intermediate programming skills in another language

ICAPRG425A Use structured query language

ICAPRG527A Apply intermediate object-oriented language skills

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS504A Develop and conduct client acceptance test

ICAWEB429A Create a markup language document to specification

ICAWEB501A Build a dynamic website

ICAWEB516A Research and apply emerging web technology trends

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA60111 Advanced Diploma of Information Technology

Modification History

Release	Comments
Release 2	*This version first released with ICA11 Information and Communications Technology Training Package Version 2*. Addition of new unit of competency to Elective Group C.
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides high level information and communications technology (ICT), process improvement and business skills and knowledge to enable an individual to be effective in senior ICT roles within organisations. The qualification builds on a base core of management competencies, with specialist and general elective choices to suit particular ICT and business needs, especially in the areas of knowledge management and systems development.

Job roles

Possible job titles relevant to this qualification include:

- knowledge management analyst
- knowledge manager
- manager, IT infrastructure solutions
- business development manager
- software manager.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

- after achieving any ICA11 Diploma qualification or other relevant Diploma

OR

- with demonstrated vocational experience in a range of work environments in senior information technology or systems roles, including analyst or designer.

© Commonwealth of Australia, 2025 Future Skills Organisation

Pathways from the qualification

ICA11 Vocational Graduate Certificate qualifications or other higher education sector qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	**Industry/enterprise requirements for this qualification**
Communication	• articulating complex scenarios in a clear, concise manner relevant to all levels of an organisation • researching, analysing and evaluating information from a range of sources • writing and presenting complex reports for specific business purposes using a range of methodologies and media
Teamwork	• managing group facilitation and presentation skills in relation to transferring and collecting information • reviewing strategy with key stakeholders
Problem-solving	• developing controls and contingencies to alleviate security threats • taking corrective action on system implementation breakdowns • implementing a change management strategy for an organisation • managing evolving complex scenarios of access and security
Initiative and enterprise	• developing new strategies, criteria, applications, knowledge and procedures • generating innovative ideas through the analysis of multiple

© Commonwealth of Australia, 2025 Future Skills Organisation

	sources of information and concepts • anticipating and responding to client business needs
Planning and organising	• managing the execution of complex project plans • planning for controls and contingencies when designing systems
Self-management	• taking accountability and responsibility for self and others in achieving work outcomes • taking responsibility for own outputs in relation to broad quantity and quality parameters
Learning	• keeping abreast of current industry-accepted practices, and hardware and software products, including broad knowledge of their security features and capabilities • engaging in peer professional development activities
Technology	• managing implementation of technology needs • assessing the technological capability of various products against architecture requirements and deciding on the best IT solution • estimating current and future capacity against a client's future requirements and devising and implementing a business strategy to suit

Packaging Rules

Total number of units = 16

5 core units plus

11 elective units, of which:

- 5 units must be from one of the following specialist elective groups:
  - Group A Knowledge management
  - Group B Systems development
- of the remaining units:
  - up to 6 units may be from the specialist elective groups below or from Group C general elective units
  - up to 3 units may be from elsewhere in ICA11 or any other Training Package or accredited course at Diploma level or above.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

Core units

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBWOR502B Ensure team effectiveness

ICAICT608A Interact with clients on a business level

ICAICT610A Manage copyright, ethics and privacy in an IT environment

ICAPMG609A Plan and direct complex IT projects

ICTSUS6233A Integrate sustainability in ICT planning and design projects

Elective units

Specialist elective units

Group A Knowledge management

ICADBS501A Monitor and improve knowledge management system

ICADBS601B Build a data warehouse

ICADBS602A Develop a knowledge management strategy

ICAICT604A Identify and implement business innovation

ICAICT605A Implement a knowledge management strategy

Group B Systems development

ICAICT508A Evaluate vendor products and equipment

ICAICT602A Develop contracts and manage contracted performance

ICAPRG604A Create cloud computing services

ICASAD504A Implement quality assurance processes for business solutions

ICASAD505A Develop technical requirements for business solutions

ICASAS601A Implement change-management processes

General elective units

Group C

BSBINN601B Manage organisational change

BSBMGT608C Manage innovation and continuous improvement

ICADBS603B Determine suitability of database functionality and scalability

ICAICT601A Develop IT strategic and action plans

ICAICT603A Manage the use of appropriate development methodologies

ICAICT606A Develop communities of practice

ICAICT609A Lead the evaluation and implementation of current industry-specific technologies

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK601A Design and implement a security system

ICANWK616A Manage security, privacy and compliance of cloud service deployment

ICAPMG606A Manage IT project quality

ICAPRG601A Develop advanced mobile multi-touch applications

ICAPRG602A Manage the development of technical solutions from business specifications

ICASAD602A Conduct knowledge audits

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA60211 Advanced Diploma of Network Security

Modification History

Release	Comments
Release 2	*This version first released with ICA11 Information and Communications Technology Training Package Version 2*. Addition of two new units of competency to electives.
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0.*

Description

This qualification provides the skills and knowledge for an individual to plan, design, manage and monitor an enterprise information and communications technology (ICT) network as an independent ICT specialist or as part of a team responsible for advanced ICT network security systems. The qualification has a high-level ICT technical base with appropriate security units and the ability to specialise in a number of areas, including voice, wireless, network infrastructure and sustainability.

Job roles

Possible job titles relevant to this qualification include:

- e-security specialist
- ICT security specialist
- IT security administrator
- IT security analyst
- IT security specialist
- systems/network administrator
- network security analyst
- network security specialist
- network security administrator
- senior network administrator
- systems security analyst.

Pathways Information

Pathways into the qualification

© Commonwealth of Australia, 2025 Future Skills Organisation

Preferred pathways for candidates considering this qualification include:

- after achieving ICA50411 Diploma of Information Technology Networking, or other relevant qualifications or units equivalent to the core of ICA50411

OR

- with documented vocational experience in a range of work environments in senior network support roles, including administrator, operations analyst, technician, operations or support coordinator/technician.

Pathways from the qualification

ICA11 Vocational Graduate Certificate qualifications or other higher education sector qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	**Industry/enterprise requirements for this qualification**
Communication	• articulating complex security scenarios in a clear and concise manner relevant to all levels of the organisation • documenting information related to attacks, threats, risks and controls in a security plan • writing complex briefs and reports for business, requiring depth of analysis and evaluation of information • documenting and presenting recommendations for improvement and referring them to appropriate technical specialists
Teamwork	• managing group facilitation and presentation skills in relation to transferring and collecting information • reviewing the security strategy, with security approved by key

© Commonwealth of Australia, 2025 Future Skills Organisation

	stakeholders
Problem-solving	• troubleshooting, developing controls and contingencies to alleviate security threats • taking corrective action on system implementation breakdowns • responding to evolving complex scenarios of security threats
Initiative and enterprise	• anticipating risks and devising contingencies to address them • actively pursuing and implementing new and emerging improvements in ICT sustainability • managing project risks proactively
Planning and organising	• developing security plans • planning for controls and contingencies when designing an IT security framework
Self-management	• having accountability and responsibility for self and others in achieving workplace outcomes • taking responsibility for own and others' outputs in relation to broad quantity and quality parameters
Learning	• keeping informed of current industry-accepted hardware and software products, including thorough knowledge of security features and capabilities
Technology	• identifying technology needs • sourcing, purchasing, installing, configuring and testing components, including software and hardware • using technological capability assessment skills involving analysis, diagnosis and evaluation in a range of areas • estimating current and future capacity requirements and evaluating against client's future requirements

Packaging Rules

Total number of units = 12

5 core units plus

7 elective units, of which:

- 5 units must be from the elective units listed below
- the remaining units may be from the elective units below or from elsewhere in ICA11 or any other Training Package or accredited course at Diploma level or above.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Core units

ICANWK502A Implement secure encryption technologies

ICANWK509A Design and implement a security perimeter for ICT networks

ICANWK601A Design and implement a security system

ICANWK602A Plan, configure and test advanced server based security

ICTSUS6233A Integrate sustainability in ICT planning and design projects

Elective units

BSBPMG517A Manage project risk

CPPSEC5003A Assess security risk management options

CPPSEC5004A Prepare security risk management plan

CPPSEC5005A Implement security risk management plan

CPPSEC5006A Determine strategy for the implementation of biometric technology

CPPSEC5007A Assess biometric system

CPPSEC3009A Prepare and present evidence in court

ICAICT609A Lead the evaluation and implementation of current industry-specific technologies

ICANWK603A Plan, configure and test advanced internetwork routing solutions

ICANWK604A Plan and configure advanced internetwork switching solutions

ICANWK605A Design and configure secure integrated wireless systems

ICANWK606A Implement voice applications over secure wireless networks

ICANWK607A Design and implement wireless network security

ICANWK608A Configure network devices for a secure network infrastructure

ICANWK609A Configure and manage intrusion prevention system on network sensors

ICANWK610A Design and build integrated VoIP networks

ICANWK611A Configure call processing network elements for secure VoIP networks

ICANWK612A Plan and manage troubleshooting advanced integrated IP networks

ICANWK613A Develop plans to manage structured troubleshooting process of enterprise networks

ICANWK615A Design and configure desktop virtualisation

ICANWK616A Manage security, privacy and compliance of cloud service deployment

ICTSUS6234A Establish a business case for sustainability and competitive advantage in ICT projects

ICTSUS7235A Use ICT to improve sustainability outcomes

ICTSUS7236A Manage improvements in ICT sustainability

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTTEN8195A Evaluate and apply network security

ICTPMG8149A Evaluate and use telecommunications management networks

ICTPMG8143A Manage a telecommunications project

Selecting elective units for different outcomes

The following examples are designed to assist in the selection of appropriate electives for particular outcomes at this level, but are in no way prescriptive.

Network security

Core units plus:

ICANWK608A Configure network devices for a secure network infrastructure

ICANWK609A Configure and manage intrusion prevention system on network sensors

ICANWK612A Plan and manage troubleshooting advanced integrated IP networks

Four additional units from elective units as appropriate to the specific job role.

Network infrastructure

Core units plus:

ICANWK603A Plan, configure and test advanced internetwork routing solutions

ICANWK604A Plan and configure advanced internetwork switching solutions

ICANWK612A Plan and manage troubleshooting advanced integrated IP networks

Four additional units from elective units as appropriate to the specific job role.

Wireless networks

Core units plus:

ICANWK605A Design and configure secure integrated wireless systems

ICANWK606A Implement voice applications over secure wireless networks

ICANWK607A Design and implement wireless network security

ICANWK612A Plan and manage troubleshooting advanced integrated IP networks

Three additional units from elective units as appropriate to the specific job role.

Voice networks

Core units plus:

ICANWK610A Design and build integrated VoIP networks

ICANWK611A Configure call processing network elements for secure VoIP networks

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK612A Plan and manage troubleshooting advanced integrated IP networks

Four additional units from elective units as appropriate to the specific job role.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA60311 Advanced Diploma of Information Technology Business Analysis

Modification History

Release	Comments
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides the skills and knowledge for an individual to be competent in business analysis in an information and communications technology (ICT) environment, either as an independent ICT specialist or as leader of a team. Individuals who complete this qualification will be competent to analyse, identify and coordinate relevant ICT business solutions to meet given organisational goals.

Job roles

Possible job titles relevant to this qualification include:

- business analyst
- business process analyst
- business systems analyst
- IT business manager
- IT manager
- project manager
- quality assurance manager, IT projects
- requirements analyst
- solution analyst.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

© Commonwealth of Australia, 2025 Future Skills Organisation

- after achieving any ICA11 Diploma qualification or other relevant Diploma.

OR

- with demonstrated vocational experience in a range of work environments in senior information technology or systems roles, including analyst or designer.

Pathways from the qualification

ICA11 Vocational Graduate Certificate qualifications or other higher education sector qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	Industry/enterprise requirements for this qualification
Communication	• articulating complex scenarios in a clear, concise manner relevant to all levels of the organisation • documenting information related to projects • using report writing skills for business requiring depth in some areas, and analysis and evaluation of information in a defined range of areas
Teamwork	• managing group facilitation and presentation skills in relation to transferring and collecting information • reviewing strategy with security approved key stakeholders

© Commonwealth of Australia, 2025 Future Skills Organisation

Problem-solving	• developing controls and contingencies to alleviate risks • taking corrective action on system implementation breakdowns • using problem-solving skills for evolving complex scenarios
Initiative and enterprise	• developing new criteria, applications, knowledge and procedures • generating ideas at an abstract level through the analysis of information and concepts • identifying and applying skill and knowledge areas to a wide variety of contexts
Planning and organising	• developing plans • planning for controls and contingencies when designing an IT frameworks
Self-management	• having accountability and responsibility for self and others in achieving workplace outcomes • taking responsibility for own outputs in relation to broad quantity and quality parameters
Learning	• having knowledge of current industry-accepted hardware and software products
Technology	• identifying technology needs • sourcing, purchasing, installing, configuring and testing software components, including hardware • using technological capability assessment skills involving analysis, diagnosis and evaluation

Packaging Rules

Total number of units = 15

9 core units *plus*

6 elective units

The elective units consist of:

- up to 6 from the elective units listed below
- up to 3 from elsewhere in ICA11 or any other Training Package at Advanced Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Core units

ICAICT608A Interact with clients on a business level

ICAICT610A Manage copyright, ethics and privacy in an IT environment

ICAPMG609A Plan and direct complex IT projects

ICASAD601A Perform IT-focused enterprise analysis

ICASAD603A Plan and monitor business analysis activities in an IT environment

ICASAD604A Manage and communicate IT solutions

ICASAD605A Elicit IT requirements

ICASAD606A Analyse stakeholder requirements

ICASAD607A Manage assessment and validation of IT solutions

Elective units

BSBINN601B Manage organisational change

BSBMGT608C Manage innovation and continuous improvement

BSBWOR502B Ensure team effectiveness

ICAICT601A Develop IT strategic and action plans

ICAICT604A Identify and implement business innovation

ICAICT609A Lead the evaluation and implementation of current industry-specific technologies

ICANWK601A Design and implement a security system

ICAPMG601A Establish IT project governance

ICAPMG603A Manage IT project planning

ICAPMG606A Manage IT project quality

ICAPRG602A Manage the development of technical solutions from business specifications

ICASAD505A Develop technical requirements for business solutions

Selecting elective units for different outcomes

The following example is designed to assist in the selection of appropriate electives for particular outcomes at this level, but is in no way prescriptive.

Business analysis

Core units plus:

© Commonwealth of Australia, 2025 Future Skills Organisation

- ICAPMG603A Manage IT project planning
- ICAPRG602A Manage the development of technical solutions from business specifications
- ICASAD505A Develop technical requirements for business solutions

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA60411 Advanced Diploma of Information Technology Project Management

Modification History

Release	Comments
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides the skills and knowledge for an individual to manage a range of information and communications technology (ICT) projects to meet customer requirements. Projects may cover a wide range of specialities, including software development, hardware procurement and implementation, network analysis and deployment, and web and/or system development.

Job roles

Possible job titles relevant to this qualification include:

- e-business project manager
- ICT project manager
- IT business manager
- IT manager
- IT procurement manager
- IT program manager
- quality assurance manager, IT projects
- senior project manager.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

© Commonwealth of Australia, 2025 Future Skills Organisation

- after achieving any ICA11 Diploma qualification or other relevant Diploma.

OR

- with demonstrated vocational experience in a range of work environments in senior information technology and systems roles, including analyst or designer.

Pathways from the qualification

ICA11 Vocational Graduate Certificate qualifications or other higher education sector qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	Industry/enterprise requirements for this qualification
Communication	• articulating complex project scenarios in a clear and concise manner relevant to all levels of the organisation • researching, analysing and evaluating information from a range of sources • documenting information related to a project plan • writing and presenting complex reports for specific purposes using a range of methodologies and media
Teamwork	• managing group facilitation and presentation skills in relation to transferring and collecting information • reviewing and managing project strategy with key stakeholders

© Commonwealth of Australia, 2025 Future Skills Organisation

Problem-solving	• developing controls and contingencies to alleviate risks to the project • managing corrective action on system implementation breakdowns • managing a strategy for organisational change • planning for and managing potential and evolving threats
Initiative and enterprise	• generating innovative ideas through the analysis of multiple sources of information and concepts • anticipating and responding to client business needs
Planning and organising	• developing project plans and managing IT project quality • planning for controls and contingencies when designing project plans
Self-management	• having accountability and responsibility for self and others in achieving work outcomes • taking responsibility for own outputs in relation to broad quantity and quality parameters
Learning	• extending one's knowledge of current industry-accepted hardware and software products and services • participating in learning and development opportunities
Technology	• managing implementation of technical solutions from business specifications • managing implementation of technology needs • managing IT project systems implementation

Packaging Rules

Total number of units = 15

6 core units *plus*

9 elective units

The elective units consist of:

- up to 9 from the elective units listed below
- up to 3 from elsewhere in ICA11 or any other Training Package or accredited course at Advanced Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Core units

ICAICT610A Manage copyright, ethics and privacy in an IT environment

ICAPMG601A Establish IT project governance

ICAPMG602A Manage IT project initiation

ICAPMG603A Manage IT project planning

ICAPMG604A Manage IT project delivery

ICAPMG605A Manage IT project closure

Elective units

BSBINN601B Manage organisational change

ICAICT505A Determine acceptable developers for projects

ICAICT509A Gather data to identify business requirements

ICAICT603A Manage the use of appropriate development methodologies

ICAICT608A Interact with clients on a business level

ICAICT609A Lead the evaluation and implementation of current industry-specific technologies

ICAICT713A Manage IT services

ICAPMG606A Manage IT project quality

ICAPMG607A Manage and control IT project risks

ICAPMG608A Manage IT project systems implementation

ICAPRG602A Manage the development of technical solutions from business specifications

ICASAS505A Review and update disaster recovery and contingency plans

ICASAS515A Manage the testing process

Selecting elective units for different outcomes

The following example is designed to assist in the selection of appropriate electives for particular outcomes at this level, but is in no way prescriptive.

IT project management consultant

Core units plus:

- ICAPMG606A Manage IT project quality
- ICAPMG607A Manage and control IT project risks

© Commonwealth of Australia, 2025 Future Skills Organisation

- ICAPMG608A Manage IT project systems implementation
- ICAPRG602A Manage the development of technical solutions from business specifications

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA60511 Advanced Diploma of Computer Systems Technology

Modification History

Release	Comments
Release 2	*This version first released with ICA11 Information and Communications Technology Training Package Version 2*. Addition of four new units of competency to electives.
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides the skills and knowledge for an individual to coordinate and administer, as an independent information and communications technology (ICT) specialist or as part of a team, the installation, commissioning and ongoing maintenance of a range of networks, enterprise servers and systems, including internetworking, security and e-business solutions.

Job roles

Possible job titles relevant to this qualification include:

- network administrator or coordinator
- network engineer
- enterprise systems administrator
- systems developer
- IT administrator or coordinator
- IT operations administrator or coordinator
- network services administrator or coordinator
- administrator or coordinator network support
- network operations analyst
- administrator or coordinator network security
- administrator or coordinator network e-business.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

© Commonwealth of Australia, 2025 Future Skills Organisation

- after achieving ICA41011 Certificate IV in Computer Systems Technology, or other relevant qualifications or units equivalent to the core of ICA41011

OR

- with demonstrated vocational experience in a range of work environments in senior network support roles, including administrator, operations analyst, technician, operations or support coordinator/technician.

Pathways from the qualification

ICA11 Vocational Graduate Certificate qualifications or other higher education sector qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	Industry/enterprise requirements for this qualification
Communication	• articulating complex scenarios in a clear, concise manner relevant to all levels of an organisation • writing and presenting complex reports for specific purposes using a range of methodologies and media
Teamwork	• consulting with work team to review proposed changes against current and future business requirements • establishing and improving work teams in an IT environment
Problem-solving	• analysing and solving network problems related to the installation of hardware, software and networks • anticipating possible major problems and responding with appropriate contingency recovery plans

© Commonwealth of Australia, 2025 Future Skills Organisation

Initiative and enterprise	• developing new criteria and procedures for performing current practices • identifying, analysing and evaluating information from a variety of sources • anticipating and responding to client business needs
Planning and organising	• creating project plans to guide the development of systems methodologies • preparing feasibility reports that take into account project scope, time, cost, quality, communications and risk management • planning and designing an intranet • directing and managing the execution of complex IT projects • planning for controls and contingencies when designing systems
Self-management	• taking responsibility for own and others' output in relation to specified quality standards • working according to the Australian Computer Society Code of Ethics regarding security, legal, moral and ethical issues
Learning	• keeping abreast of current industry-accepted practices, hardware and software products, including broad knowledge of security features and capabilities • engaging in peer professional development activities • devising and implementing client evaluation and feedback methodologies
Technology	• managing and implementing software and hardware diagnostic tools, including multimedia contexts and automated testing environments • installing, configuring and administering complex IT networks

Packaging Rules

Total number of units = 18

12 core units plus

6 elective units, of which:

- 3 units must be from the elective units listed below
- the remaining units may be from the elective units below or from elsewhere in ICA11 or any other Training Package or accredited course at Diploma level or above.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Core units

ICANWK506A Configure, verify and troubleshoot WAN links and IP services in a medium enterprise network

ICANWK507A Install, operate and troubleshoot medium enterprise routers

ICANWK508A Install, operate and troubleshoot medium enterprise switches

ICANWK509A Design and implement a security perimeter for ICT networks

ICANWK529A Install and manage complex ICT networks

ICANWK602A Plan, configure and test advanced server based security

ICANWK607A Design and implement wireless network security

ICAPMG608A Manage IT project systems implementation

ICAPMG609A Plan and direct complex IT projects

ICAPRG527A Apply intermediate object-oriented language skills

ICAWEB501A Build a dynamic website

ICAWEB502A Create dynamic web pages

Elective units

ICADBS504A Integrate database with a website

ICAICT502A Develop detailed component specifications from project specifications

ICAICT604A Identify and implement business innovation

ICAICT609A Lead the evaluation and implementation of current industry-specific technologies

ICANWK502A Implement secure encryption technologies

ICANWK503A Install and maintain valid authentication processes

ICANWK504A Design and implement an integrated server solution

ICANWK505A Design, build and test a network server

ICANWK524A Install and configure network access storage devices

ICANWK525B Configure an enterprise virtual computing environment

ICANWK535A Install an enterprise virtual computing environment

ICANWK527B Manage an enterprise virtual computing environment

ICANWK533A Configure and manage advanced virtual computing environments

ICANWK534A Monitor and troubleshoot virtual computing environments

ICANWK603A Plan, configure and test advanced internetwork routing solutions

ICANWK605A Design and configure secure integrated wireless systems

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK610A Design and build integrated VoIP networks

ICANWK611A Configure call processing network elements for secure VoIP networks

ICANWK612A Plan and manage troubleshooting advanced integrated IP networks

ICANWK613A Develop plans to manage structured troubleshooting process of enterprise networks

ICANWK615A Design and configure desktop virtualisation

ICANWK616A Manage security, privacy and compliance of cloud service deployment

ICAPRG505A Build advanced user interface

ICAPRG601A Develop advanced mobile multi-touch applications

ICAPRG602A Manage the development of technical solutions from business specifications

ICASAS517A Use network tools

ICAWEB503A Create web-based programs

ICAWEB505A Develop complex web page layouts

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA70111 Vocational Graduate Certificate in Information Technology and Strategic Management

Modification History

Release	Comments
Release 2	*This version first released with ICA11 Information and Communications Technology Training Package Version 2*. Addition of new unit of competency to electives.
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides skills and knowledge for individuals to lead the analysis, implementation and management of emerging and converging information and communication technologies as they are integrated into the business process to support organisational strategic goals.

Job roles

Possible job titles relevant to this qualification include:

- information systems manager
- information technology director
- chief information officer
- senior infrastructure delivery manager
- information technology manager
- service delivery manager.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

- after achieving any ICA11 Advanced Diploma or other relevant Advanced Diploma

OR

- with demonstrated vocational experience in a range of work environments in senior information technology and systems roles, including analyst or designer.

© Commonwealth of Australia, 2025 Future Skills Organisation

Pathways from the qualification

Other ICA11 Vocational Graduate Certificate qualification or other higher education sector qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	**Industry/enterprise requirements for this qualification**
Communication	• writing and presenting high-level strategic and business reports • determining options in discussion with customers to rectify faults • making a complete check of installation against installation plans • reading, interpreting and using equipment or system manuals and specifications and relevant enterprise policy and documentation • conveying information to clients, colleagues and other site personnel • providing feedback to customers on ICT service and equipment
Teamwork	• assigning roles to team members and leading teams • determining and directing team tasks and goals • recognising and responding positively to conflict within a team • facilitating team members to work with clients • cultivating and enhancing partnerships and relationships with industry

© Commonwealth of Australia, 2025 Future Skills Organisation

	• liaising with clients, employer, supervisors, work associates, team members and other contractors
Problem-solving	• ranking causes of problems, working from system-wide impacts to specific impacts • facilitating resolution of diagnosed network security problems to secure the network • developing strategies to overcome identified barriers to installation within time and budget restrictions • directing adjustment and rectification of faults ensuring optimal system operation • determining cable routes, taking into account building services, safety, industry codes and practices, and customer requirements • following up promptly on difficulties and known problem areas
Initiative and enterprise	• prioritising urgent requests and acting according to organisational guidelines • identifying barriers to installation and developing strategies to overcome them within time and budget restrictions • adapting plan to suit specific features of site • managing issues and providing solutions within established guidelines • interacting with enterprise personnel, customers and other contractors keeping a customer focus and considering customer needs
Planning and organising	• setting realistic short and long-term career objectives • planning and monitoring projects to meet key dates and milestones • endorsing a business plan and directing research for an ICT innovation • prioritising work according to organisational guidelines • executing a test of network security arrangements
Self-management	• complying with all related OHS requirements and work practices • developing installation plans to ensure minimal disruption to the workplace • relating own role to the industry and establishing own work schedule • devising strategies to present a professional image to customers • interpreting and applying relevant regulations and standards
Learning	• relating current or intended role to career objectives in a proactive manner • giving and receiving feedback to meeting team and

© Commonwealth of Australia, 2025 Future Skills Organisation

	organisational goals • making clients aware of opportunities that exist for system upgrades, additional services and training • seeking assistance from team members when necessary • providing suitable training and assessment opportunities for work team members • providing training to customers on system, product, product features and facilities
Technology	• ensuring correct and safe use of tools and equipment and adjustments to manufacturer specifications • facilitating convergence of many integrated and emerging technologies • managing the testing and measuring of broadband network infrastructure • directing the procurement, installation and operation of telecommunications equipment and products • directing relevant acceptance testing and analysing results against specified performance criteria

Packaging Rules

Total number of units = 4

1 core units plus

3 elective units, of which:

- 2 units must be from the elective units listed below
- the remaining unit may be from the elective units below or from elsewhere in ICA11 or any other Training Package or accredited course at Advanced Diploma level or above.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

Core units

ICAICT709A Facilitate business analysis

Elective units

BSBREL701A Develop and cultivate collaborative partnerships and relationships

ICAICT701A Lead research into identifying new marketplace opportunities

ICAICT702A Direct ICT services

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT703A Endorse business plan components for a new initiative

ICAICT704A Direct ICT in a supply chain

ICAICT705A Direct ICT procurement

ICAICT706A Direct outsourced ICT services

ICAICT707A Direct research and business response to new ICT technology

ICAICT708A Direct the development of a knowledge management strategy for a business

ICAICT710A Synchronise IT projects

ICAICT711A Manage an information architecture project

ICAICT712A Develop a business intelligence framework

ICAICT713A Manage IT services

ICAICT814A Develop cloud computing strategies for a business

ICASUS701A Plan and manage virtualisation for IT sustainability

ICASUS702A Conduct a business case study for integrating sustainability in IT planning and design projects

ICTSUS7235A Use ICT to improve sustainability outcomes

ICTSUS7236A Manage improvements in ICT sustainability

© Commonwealth of Australia, 2025 Future Skills Organisation

ICA70211 Vocational Graduate Certificate in Information Technology Sustainability

Modification History

Release	Comments
Release 1	This Qualification first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

This qualification provides the skills and knowledge for an individual to plan and manage the implementation of sustainability strategies for information and communications technology (ICT) networks and systems, including conducting applied research, developing organisational policy, and devising strategies to meet sustainability targets.

Job roles

Possible job titles relevant to this qualification include:

- IT sustainability systems consultant
- IT sustainability solutions architect
- IT sustainability project manager
- IT sustainability technology specialist
- IT sustainability business manager
- IT sustainability requirements manager.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

- after achieving any ICA11 or ICT10 Diploma or Advanced Diploma.

OR

© Commonwealth of Australia, 2025 Future Skills Organisation

- with demonstrated vocational experience in a range of work environments in senior network engineering or ICT roles

Pathways from the qualification

Other ICA11 Vocational Graduate Certificate qualification OR other higher education sector qualifications.

Licensing/Regulatory Information

There is no link between this qualification and licensing, legislative or regulatory requirements. However users should confirm requirements with the relevant federal, state or territory authority. There may be some alignment with industry standard certification competencies.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

The following table contains a summary of the employability skills required by industry for this qualification. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	Industry/enterprise requirements for this qualification
Communication	• conducting research for a business case study to integrate sustainability in ICT projects • discussing options with stakeholders and negotiating for best practice and solutions for the enterprise • producing cost-benefit analyses, business case studies, management plans, executive summaries and justifications for implementing sustainability solutions • conducting applied research studies, writing and presenting high-level reports • reading, interpreting and using equipment or system manuals and specifications and relevant enterprise policy and documentation • interpreting high-level technical information and presenting to general audiences

© Commonwealth of Australia, 2025 Future Skills Organisation

Teamwork	• assigning roles to team members and leading teams • directing and managing team activities and goals • recognising and resolving conflict within team • facilitating team members to work with clients to install equipment • liaising with clients, employer, supervisors, work associates, team members and other contractors
Problem-solving	• ranking causes of problems, working from system-wide impacts to specific impacts • managing resolution of diagnosed network problems before and after implementation of sustainability solutions • generating solutions regarding compatibility and interoperability between proposed integrated system and existing system • devising solutions for better grade of service and reliability of new system • managing operations to obtain best solutions for allocated budget • responding promptly to difficulties and known problem areas, as they emerge
Initiative and enterprise	• leading the early adoption of new initiatives and technology • prioritising urgent requests and acting according to organisational guidelines • identifying barriers to integrating sustainability in ICT planning and design projects and developing strategies to overcome them within time and budget restrictions • adapting and modifying operating strategies to suit specific features of site • managing issues and providing solutions within established guidelines • interacting with enterprise personnel, customers and other contractors, keeping a customer focus and considering customer needs
Planning and organising	• planning and monitoring projects to meet key dates and milestones • planning the installation of virtualised systems, taking into account technical, scheduling and financial considerations • interpreting design and relating to site characteristics • prioritising and scheduling work according to organisational guidelines • running a test of network security arrangements
Self-management	• assigning realistic short and long-term career objectives • prioritising and scheduling work to be completed • complying with all related OHS requirements and work

© Commonwealth of Australia, 2025 Future Skills Organisation

	practices • developing implementation plans to ensure minimal disruption to the workplace • relating own role to the industry and establishing own work schedule • devising strategies to present a professional image to customers • interpreting and applying relevant regulations and standards
Learning	• relating current or intended role to career objectives in a positive manner • giving and receiving feedback to assist in meeting team and organisational goals • making clients aware of opportunities that exist for system upgrades, additional services and training • seeking assistance from team members when necessary • providing suitable training and assessment opportunities for work team members • providing training to customers on virtualised system features and facilities
Technology	• facilitating convergence of many integrated and emerging technologies • modifying the use of high end machines to optimise operations and performance • evaluating and implementing virtual machines with minimal disruptions • directing testing, and measuring network performance of ICT sustainability • using software evaluation and audit tools to improve ICT sustainability • directing relevant acceptance tests and analysing results against specified performance criteria

Packaging Rules

Total number of units = 4

1 core unit *plus*

3 elective units

The elective units consist of:

- up to 3 from the elective units listed below

© Commonwealth of Australia, 2025 Future Skills Organisation

- up to 1 from elsewhere in ICA11 at Vocational Graduate Certificate level or above
- up to 1 from any other Training Package or accredited course at Vocational Graduate Certificate level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

Core units

ICASUS702A Conduct a business case study for integrating sustainability in IT planning and design projects

Elective units

BSBREL701A Develop and cultivate collaborative partnerships and relationships

ICAICT706A Direct outsourced ICT services

ICAICT707A Direct research and business response to new ICT technology

ICAICT709A Facilitate business analysis

ICAICT710A Synchronise IT projects

ICASUS701A Plan and manage virtualisation for IT sustainability

ICASUS703A Research strategies using SAP solutions for sustainable economic and environmental outcomes

ICTSUS7235A Use ICT to improve sustainability outcomes

ICTSUS7236A Manage improvements in ICT sustainability

ICTSUS8237A Lead applied research in ICT sustainability

ICTSUS8238A Conduct and manage a life cycle assessment for sustainability

Selecting elective units for different outcomes

The following examples are designed to assist in the selection of appropriate electives for particular outcomes at this level, but are in no way prescriptive.

IT sustainability systems consultant

Core units plus:

- ICTSUS7235A Use ICT to improve sustainability outcomes
- ICAICT709A Facilitate business analysis

© Commonwealth of Australia, 2025 Future Skills Organisation

Plus one additional unit from elective units as appropriate to the specific job role.

IT sustainability solutions architect

Core units plus:

- ICAICT706A Direct outsourced ICT services
- ICAICT707A Direct research and business response to new ICT technology

Plus one additional unit from elective units as appropriate to the specific job role.

IT sustainability project manager

Core units plus:

- ICTSUS8238A Conduct and manage a life cycle assessment for sustainability
- ICAICT706A Direct outsourced ICT services
- ICAICT710A Synchronise IT projects
- BSBREL701A Develop and cultivate collaborative partnerships and relationships

IT sustainability technology specialist

Core units plus:

- ICTSUS7235A Use ICT to improve sustainability outcomes
- ICTSUS8237A Lead applied research in ICT sustainability
- ICTSUS8238A Conduct and manage a life cycle assessment for sustainability

IT Sustainability Business Manager

Core units plus:

- ICAICT706A Direct outsourced ICT services
- ICAICT707A Direct research and business response to new ICT technology

© Commonwealth of Australia, 2025 Future Skills Organisation

- ICAICT709A Facilitate business analysis

IT Sustainability Requirements Manager

Core units plus:

- ICTSUS8237A Lead applied research in ICT sustainability
- ICTSUS8238A Conduct and manage a life cycle assessment for sustainability

Plus one additional unit from elective units as appropriate to the specific job role.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00001 Application Development Specialist Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Pathways Information

This skill set provides credit towards ICA50711 Diploma of Software Development.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

ICAPRG501A Apply advanced object-oriented language skills

ICAPRG505A Build advanced user interface

ICAPRG506A Design application architecture

ICAPRG507A Implement security for applications

ICAPRG523A Apply advanced programming skills in another language

Target Group

This skill set is for persons who are able to work as application programmers and software developers.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology Training Package meet competency requirements for skills in working as a software development specialist.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00002 Basic Application Development Programmer Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Pathways Information

This skill set provides credit towards ICA40511 Certificate IV in Programming.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

ICAPRG406A Apply introductory object-oriented language skills

ICAPRG413A Use a library or pre-existing components

ICAPRG414A Apply introductory programming skills in another language

ICAPRG418A Apply intermediate programming skill in another language

ICAPRG527A Apply intermediate object-oriented language skill

Target Group

This skill set is for persons who are able to work as basic application programmers.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology Training Package meet competency requirements for skills in working as a basic application programmer.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00003 Basic Computer Hardware and System Troubleshooting Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Not applicable.

Pathways Information

This skill set provides credit towards ICA20111 Certificate II in Information, Digital Media and Technology.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

BSBWHS201A Contribute to health and safety of self and others

ICAICT201A Use computer operating systems and hardware

ICASAS201A Maintain inventories for equipment, software and documentation

ICASAS205A Maintain IT system integrity

ICASAS206A Detect and protect from spam and destructive software

ICASAS207A Protect and secure information assets

ICASAS208A Maintain IT equipment and consumables

ICASAS209A Connect and use a home-based local wireless network

Target Group

This skill set is for persons wanting to trouble shoot basic computer hardware and system problems, and work safely across a variety of industries.

© Commonwealth of Australia, 2025 Future Skills Organisation

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology and BSB07 Business Services Training Packages meet competency requirements for basic computer hardware and system troubleshooting.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00004 Basic Web Development Specialist Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Pathways Information

This skill set provides credit towards ICA30111 Certificate III in Information, Digital Media and Technology.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

BSBEBU401A Review and maintain a website

ICAWEB302A Build simple websites using commercial programs

ICAWEB403A Transfer content to a website using commercial packages

Target Group

This skill set is for persons wanting to develop and maintain a basic website.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology and BSB07 Business Services Training Packages meet competency requirements for skills in developing and maintaining a simple website.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00005 Certified IT Network Enterprise, Security or Server Administrator Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Pathways Information

This skill set provides credit towards ICA40411 Certificate IV in Information Technology Networking.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

ICANWK406A Install, configure and test network security

ICANWK403A Manage network and data integrity

Target Group

This skill set is for persons who are able to work as certified IT enterprise, security or server administrators.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology Training Package meet competency requirements for skills in administering security, servers or enterprise networks.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00006 Certified Network Associate Technology Specialist Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Pathways Information

This skill set provides credit towards ICA50411 Diploma of Information Technology Networking.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

ICANWK529A Install and manage complex ICT networks

ICANWK506A Configure, verify and troubleshoot WAN links and IP services in a medium enterprise network

ICANWK507A Install, operate and troubleshoot medium enterprise routers

ICANWK508A Install, operate and troubleshoot medium enterprise switches

Target Group

This skill set is for persons who are able to work as certified network associate technology specialists.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology Training Package meet competency requirements for associate level skills in networking.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00007 Certified Network Professional Specialist - Voice Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Pathways Information

This skill set provides credit towards ICA60211 Advanced Diploma of Network Security.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

ICANWK605A Design and configure secure integrated wireless systems

ICANWK606A Implement voice applications over secure wireless networks

ICANWK607A Design and implement wireless network security

Target Group

This skill set is for persons who are able to work as certified network professional specialists – voice.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology Training Package meet competency requirements for skills in working as a network professional specialising in voice networks.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00008 Certified Network Professional Specialist - Wireless Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Pathways Information

This skill set provides credit towards ICA60211 Advanced Diploma of Network Security.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

ICANWK605A Design and configure secure integrated wireless systems

ICANWK606A Implement voice applications over secure wireless networks

ICANWK607A Design and implement wireless network security

Target Group

This skill set is for persons who are able to work as certified network professional specialists – wireless.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology Training Package meet competency requirements for skills in working as a network professional specialising in wireless networks.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00009 Certified Network Professional Specialist Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Pathways Information

This skill set provides credit towards ICA60211 Advanced Diploma of Network Security.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

ICANWK603A Plan, configure and test advanced internetwork routing solutions

ICANWK604A Plan and configure advanced internetwork switching solutions

ICANWK612A Plan and manage troubleshooting advanced integrated IP networks

Target Group

This skill set is for persons who are able to work as certified network professional specialists.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology Training Package meet competency requirements for skills in working as a network professional.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00010 Certified Networking Technician Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Pathways Information

This skill set provides credit towards ICA40411 Certificate IV in Information Technology Networking.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

ICANWK404A Install, operate and troubleshoot a small enterprise branch network

ICANWK405A Build a small wireless local area network

ICTTEN4199A Install, configure and test a router

Target Group

This skill set is for persons who are able to work as certified network technicians.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology and ICT10 Integrated Telecommunications Training Packages meet competency requirements for technical skills in networks.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00011 Certified Security and Architect Specialist Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Pathways Information

This skill set provides credit towards ICA50411 Diploma of Information Technology Networking.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

ICANWK529A Install and manage complex ICT networks

ICANWK503A Install and maintain valid authentication processes

ICANWK511A Manage network security

Target Group

This skill set is for persons who are able to work as certified security and architect technology specialists.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology Training Package meet competency requirements for skills in working with security and network architecture.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00012 Certified Technician or Technology Specialist - Infrastructure Configuration Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Pathways Information

This skill set provides credit towards ICA50411 Diploma of Information Technology Networking.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

ICANWK505A Design, build and test a network server

ICANWK503A Install and maintain valid authentication processes

Target Group

This skill set is for persons who are able to work as certified infrastructure configuration technicians or technology specialists.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology Training Package meet competency requirements for skills in configuring infrastructure.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00013 Certified Technology Specialist - Graphical User Interfaces Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Pathways Information

This skill set provides credit towards ICA40411Certificate IV in Information Technology Networking.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

ICANWK403A Manage network and data integrity

ICANWK408A Configure a desktop environment

Target Group

This skill set is for persons who are able to work as graphical user interface (GUI) certified technology specialists.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology Training Package meet competency requirements for skills in developing and maintaining GUIs.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00014 Certified Web Design Specialist Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Pathways Information

This skill set provides credit towards ICA40311 Certificate IV in Web-Based Technologies.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

ICAWEB409A Develop cascading style sheets

ICAWEB410A Apply web authoring tool to convert client data for websites

ICAWEB411A Produce basic client-side script for dynamic web pages

ICAWEB412A Produce interactive web animation

ICAWEB414A Design simple web page layouts

Target Group

This skill set is for persons who are able to work as website designers.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology Training Package meet competency requirements for skills in working as a website designer.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00015 Computing and Application Fundamentals Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Not applicable.

Pathways Information

This skill set provides credit towards ICA20111 Certificate II in Information, Digital Media and Technology

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

BSBWHS201A Contribute to health and safety of self and others

ICAICT201A Use computer operating systems and hardware

ICAICT203A Operate application software packages

ICAICT210A Operate database applications

Target Group

This skill set is for persons wanting to use basic information and communications technology (ICT) and application software and work safely in any industry.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology and BSB07 Business Services Training Packages meet competency requirements for basic use of computers and applications.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00016 Computing Fundamentals Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Not applicable.

Pathways Information

This skill set provides credit towards ICA20111 Certificate II in Information, Digital Media and Technology

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

BSBWHS201A Contribute to health and safety of self and others

ICAICT201A Use computer operating systems and hardware

ICAICT203A Operate application software packages

ICAWEB201A Use social media tools for collaboration and engagement

Target Group

This skill set is for persons wanting to use basic information and communications technology (ICT) skills and work safely in any industry.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology and BSB07 Business Services Training Packages meet basic competency requirements for basic ICT skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00017 Digital Literacy - eCitizen Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Pathways Information

This skill set provides credit towards ICA10111 Certificate I in Information, Digital Media and Technology.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

ICAICT101A Operate a personal computer

ICAICT102A Operate word-processing applications

ICAICT103A Use, communicate and search securely on the internet

Target Group

This skill set is for persons wanting to gain basic digital literacy skills in using a personal computer.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology Training Package meet competency requirements for using a personal computer.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00018 Digital Literacy Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Pathways Information

This skill set provides credit towards ICA10111 Certificate I in Information, Digital Media and Technology.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

ICAICT101A Operate a personal computer

ICAICT102A Operate word-processing applications

ICAICT103A Use, communicate and search securely on the internet

ICAICT105A Operate spreadsheet applications

ICAICT106A Operate presentation packages

Target Group

This skill set is for persons wanting to gain digital literacy skills in the use of a personal computer, software applications and digital devices.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology Training Package meet competency requirements for digital literacy.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00019 Hardware Technician Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Pathways Information

This skill set provides credit towards ICA30111 Certificate III in Information, Digital Media and Technology.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

ICAICT302A Install and optimise operating system software

ICAICT303A Connect internal hardware components

ICASAS307A Install, configure and secure a small office home office network

ICASAS301A Run standard diagnostic tests

ICASAS305A Provide IT advice to clients

ICASAS306A Maintain equipment and software

Target Group

This skill set is for persons who are able to work as hardware technicians, providing support in a range of ICT work areas and activities.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology Training Package meet competency requirements for support skills in hardware, software, operating systems and networks.

© Commonwealth of Australia, 2025 Future Skills Organisation

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00020 Internetworking Systems Coordinator-Administrator Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Pathways Information

This skill set provides credit towards ICA60511 Advanced Diploma of Computer Systems Technology.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

ICANWK603A Plan, configure and test advanced internetwork routing solutions

ICANWK605A Design and configure secure integrated wireless systems

ICANWK610A Design and build integrated VoIP networks

ICANWK611A Configure call processing network elements for secure VoIP networks

ICANWK612A Plan and manage troubleshooting advanced integrated IP networks

Target Group

This skill set is for persons who are able to work as an internetworking systems administrator or coordinator.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology Training Package meet competency requirements for skills in working as an internetworking coordinator or administrator.

© Commonwealth of Australia, 2025 Future Skills Organisation

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00021 Rich Interactive Content Specialist Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Pathways Information

This skill set provides credit towards ICA30111 Certificate III in Information, Digital Media and Technology.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

CUFDIG304A Create visual design components

ICAGAM301A Apply simple modelling techniques

ICAGAM302A Design and apply simple textures to digital art

Target Group

This skill set is for persons who are able to work with interactive digital media content.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology and CUF07 Screen and Media Training Packages meet competency requirements for skills in interactive digital media.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00022 System and Hardware Plus Technician Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Pathways Information

This skill set provides credit towards ICA40211 Certificate IV in Information Technology Support.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

BSBSUS301A Implement and monitor environmentally sustainable work practices

ICASAS307A Install, configure and secure a small office home office network

ICAICT421A Connect, maintain and configure hardware components

ICASAS425A Configure and troubleshoot operating system software

ICASAS426A Locate and troubleshoot IT equipment, system and software faults

ICAICT401A Determine and confirm client business requirements

Target Group

This skill set is for persons who are able to work as a computer system and hardware technician.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology and BSB07 Business Services Training Packages meet competency requirements for support skills in working as a computer system and hardware technician.

© Commonwealth of Australia, 2025 Future Skills Organisation

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00023 System and Network Plus Technician Skill set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Pathways Information

This skill set provides credit towards ICA40211 Certificate IV in Information Technology Support.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

ICASAS307A Install, configure and secure a small office home office network

ICANWK401A Install and manage a server

ICANWK404A Install, operate and troubleshoot a small enterprise branch network

ICANWK406A Install, configure and test network security

Target Group

This skill set is for persons who are able to work as a computer system and network support technician.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology Training Package meet competency requirements for skills in working as a network technician.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00024 Virtualisation Specialist Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Not applicable.

Pathways Information

This skill set provides credit towards ICA50411 Diploma of Information Technology Networking

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

ICANWK525B Configure an enterprise virtual computing environment

ICANWK527B Manage an enterprise virtual computing environment

ICANWK535A Install an enterprise virtual computing environment

Target Group

This skill set is for persons who are able to work in the area of hardware, software and system virtualisation.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology Training Package meet competency requirements for skills in in developing hardware, software and system virtual networks.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00025 Visual Communications Specialist Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Pathways Information

This skill set provides credit towards ICA30111 Certificate III in Information, Digital Media and Technology.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

CUFDIG301A Prepare video assets

CUFDIG304A Create visual design components

ICAWEB303A Produce digital images for the web

Target Group

This skill set is for persons wanting to develop visual content for the web.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology and CUF07 Screen and Media Training Packages meet competency requirements for skills in developing visual components for websites.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00026 Website Administration Specialist Skill Set

Modification History

Release	Comments
Release 1	This Skill Set first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Description

Pathways Information

This skill set provides credit towards ICA40311 Certificate IV in Web-Based Technologies.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

ICANWK409A Create scripts for networking

ICAWEB404A Maintain website performance

ICAWEB405A Monitor traffic and compile website traffic reports

ICAWEB406A Create website testing procedures

ICAWEB407A Conduct operational acceptance tests of websites

ICAWEB408A Ensure basic website security

Target Group

This skill set is for persons who are able to work as website administrators.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology Training Package meet competency requirements for skills in working as a website administrator.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00027 Enterprise Desktop Virtualisation Specialist Skill Set

Modification History

Not applicable.

Description

Not applicable.

Pathways Information

This skill set provides credit towards ICA60211 Advanced Diploma of Network Security.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

ICAICT609A Lead the evaluation and implementation of current industry-specific technologies

ICANWK615A Design and configure desktop virtualisation

ICANWK616A Manage security, privacy and compliance of cloud service deployment

ICAPRG602A Manage the development of technical solutions from business specifications

Target Group

This skill set is for persons wanting to work as certified professional desktop virtualisation technology specialists.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology Training Package meet competency requirements for skills in working as a network professional specialising in desktop virtualisation technology.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASS00028 Enterprise Server Virtualisation Specialist Skill Set

Modification History

Not applicable.

Description

Not applicable.

Pathways Information

This skill set provides credit towards ICA50411 Diploma of Information Technology Networking.

Licensing/Regulatory Information

Not applicable.

Skill Set Requirements

ICANWK524A Install and configure network access storage devices

ICANWK525B Configure an enterprise virtual computing environment

ICANWK527B Manage an enterprise virtual computing environment

ICANWK533A Configure and manage advanced virtual computing environments

ICANWK534A Monitor and troubleshoot virtual computing environments

ICANWK535A Install an enterprise virtual computing environment

Target Group

This skill set is for persons wanting to work as certified professional server virtualisation technology specialists.

Suggested words for Statement of Attainment

These units of competency from ICA11 Information and Communications Technology Training Package meet competency requirements for skills in working as a network professional specialising in virtualisation technology.

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBPMG517A Manage project risk

Modification History

Release	Comments
Release 1	This version first released with *BSB07 Business Services Training Package Version 8.0*. Replaces BSBPMG508A Manage project risk.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manage risks that may impact on achieving project objectives. It involves identifying, analysing, treating and monitoring project risks, and assessing risk-management outcomes.

Application of the Unit

This unit applies to those responsible for managing and leading a project in an organisation, business or as a consultant.

The project manager operates within assigned authority levels, and is responsible for own performance and the performance of others.

The project manager may undertake the work in the context of an organisational program and/or portfolio of projects.

This unit has generic application for projects in a range of industries, organisations and contexts.

In the context of this unit a project is defined as involving:

- a comprehensive, detailed and integrated project management plan
- a formal communications plan
- a dedicated and project-based budget
- formal and planned engagement with a wide range of stakeholders
- a documented risk, issues and change-management methodology

© Commonwealth of Australia, 2025 Future Skills Organisation

- a quality plan with assurance and control processes
- a project team-based environment.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Identify project risks	1.1 Determine risk objectives and ***standards***, with input from stakeholders 1.2 Establish ***project risk context*** to inform risk-management processes 1.3 Identify ***project risks*** using valid and reliable ***risk-identification methods*** 1.4 Classify project risks within agreed ***risk categories***
2. Analyse project risks	2.1 Determine risk-analysis classification criteria and apply to an agreed ***risk-ranking system*** 2.2 Use risk-analysis processes, within ***delegated authority***, to analyse and qualify risks, threats and opportunities 2.3 Determine risk priorities in agreement with project client and

© Commonwealth of Australia, 2025 Future Skills Organisation

	other stakeholders 2.4 Document risk-analysis outcomes for inclusion in risk register and ***risk-management plan***
3. Establish risk treatments and controls	3.1 Identify and document existing ***risk controls*** 3.2 Consider and determine ***risk-treatment options*** using agreed consultative methods 3.3 Record and implement agreed risk treatments 3.4 Update risk plans and allocate risk responsibilities to project team members
4. Monitor and control project risks	4.1 Establish regular ***risk-review processes*** to maintain currency of risk plans 4.2 Regularly monitor risk environment to identify changed circumstances that impact on project risks 4.3 Determine ***risk responses*** to changed environment 4.4 Implement agreed risk responses and modify plans to maintain currency of risk treatments and controls
5. Assess risk-management outcomes	5.1 Review project outcomes to determine effectiveness of risk-management processes and procedures 5.2 Identify and document risk-management issues and recommended improvements for application to future projects

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to review project outcomes in terms of risk management
- lateral thinking skills to identify and analyse risks and risk controls
- literacy skills to produce risk-management plans
- planning and organising skills to monitor project progress
- problem-solving skills to control risks.

Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

- industry sector risk classifications
- organisation and industry standard risk frameworks
- quantitative and qualitative risk-management techniques, tools and approaches.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • effective risk management for a project of sufficient complexity to demonstrate the full range of performance requirements • applying risk-management techniques, strategies and tools.
Context of and specific resources for assessment	Assessment must ensure: • access to workplace risk-management documentation • consideration of feedback from project stakeholders as to how risks were managed.
Method of assessment	A range of assessment methods should be used to assess practical skill and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance by the candidate • oral or written questioning to assess knowledge of the risk-management framework • analysis of responses in addressing case studies and scenarios that present issues and problems in project risk management • review of risk-management plans • evaluation of monitoring of progress against project plans • assessment of identified and documented risk issues and recommended improvements.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• other units in the Diploma of Project Management.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Standards may include:	• Australian and international standards • enterprise and industrial agreements • industry codes of practice • industry standards • organisational and industrial agreements • organisational policies, systems and procedures • regulations and legislation.
Project risk context may include:	• legislation and regulation controls • nature of project • organisational risk policies and procedures • project environment • stakeholder expectations.
Project risks may include:	• predicted future events • threats • opportunities • hazards.
Risk-identification methods may include:	• conducting or supervising qualitative and/or quantitative risk analysis, such as schedule simulation, decision analysis, contingency planning and alternative strategy development • lessons learned from previous projects • personal experience input • previous risk registers • risk workshops • subject matter experts • using specialist risk-analysis tools to assist in the decision-making process.
Risk categories may include:	• communications • compliance • consultative

© Commonwealth of Australia, 2025 Future Skills Organisation

	• environmental • finance • health and safety • human resources • legal • organisational brand • physical • political • project assumptions • project constraints • project process risks • quality • social • technology.
Risk-ranking system may include:	• classification rankings from low to high • consequence of risk scale • impact of risk scale • manual or software-based systems • organisational risk policies and methods • predetermined ranking criteria • target and trigger settings.
Delegated authority refers to planning and activities that may:	• be conducted routinely or as changing circumstances dictate • be done independently within broad guidance • involve consultation with other project members, teams and internal stakeholders • involve taking a lead role in a team where required • involve the selection, use and supervision of appropriate risk-management methods, tools and techniques.
Risk-management plan may include:	• audit trail for risk management over project life cycle • format of information • organisation systems and risk methods • manual and computerised systems • risk register • summary outcome of risk processes.
Risk controls may include:	• accepted industry practice and codes of conduct • existing risk planning actions • legislation or regulation over processes • modifications to plans and processes • organisational risk policies and procedures • quality systems • work methods.

© Commonwealth of Australia, 2025 Future Skills Organisation

Risk-treatment options may include:	• accept risk • mitigate risk • transfer or share risk • avoid risk.
Risk-review processes may include:	• ad hoc due to emergency events • gateway or stage transition reviews • ongoing through team member assigned responsibility • regular risk discussions at project meetings • scheduled formal reviews.
Risk responses may be made:	• in consultation with project team members, section heads, project managers and stakeholders • independently or with endorsement of higher project authority if necessary • regularly throughout the project life cycle • taking into account internal organisational change and external environmental change.

Unit Sector(s)

Management and Leadership – Project Management

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBWHS201A Contribute to health and safety of self and others

Modification History

Release	Comments
Release 1	This Unit first released with *BSB07 Business Training Package version 7.0*. Replaces and is equivalent to BSBOHS201A Participate in OHS processes.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to participate in work health and safety (WHS) processes to protect own health and safety, and that of others.

Application of the Unit

This unit applies to individuals who require a fundamental knowledge of WHS to carry out their own work, which may be in a defined context under direct supervision or with some individual responsibility. The unit has broad applicability across industries and workplace contexts.

NOTE: The terms Occupational Health and Safety (OHS) and Work Health and Safety (WHS) are equivalent and generally either can be used in the workplace. In jurisdictions where the National Model WHS Legislation has not been implemented RTOs are advised to contextualise the unit of competency by referring to the existing State/Territory OHS legislative requirements.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Pre-Requisites

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Work safely	1.1 Follow provided ***safety procedures and instructions*** when conducting work 1.2 Carry out pre-start systems and equipment checks according to workplace procedures 1.3 Follow workplace procedures for responding to ***emergency incidents***
2. Implement work safety requirements	2.1 Identify ***designated persons*** for reporting queries and concerns about safety in the workplace 2.2 Identify existing and potential ***hazards*** in the workplace, report them to designated persons, and record them according to workplace procedures 2.3 Identify and implement WHS procedures and work instructions 2.4 Identify and report emergency incidents and injuries to designated persons according to workplace procedures 2.5 Identify WHS ***duty holders*** in own work area and their duties
3. Participate in WHS consultative processes	3.1 Contribute to workplace meetings, inspections and other WHS consultative activities 3.2 Raise WHS issues with designated persons according to organisational procedures 3.3 Take actions to eliminate workplace hazards and reduce risks

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to contribute to workplace meetings
- literacy skills to:
  - contribute to workplace meetings, inspections and other WHS consultative activities
  - interpret safety signs, symbols, notices and other WHS documents
  - record and report hazards, risks, emergency incidents and injuries
- problem-solving skills to follow procedures in an emergency.

Required knowledge

- emergency procedures, including procedures for fires and incidents
- meaning of commonly used hazard signs and safety symbols
- responsibilities, as specified in WHS Acts, regulations and codes of practice, of:
  - self
  - persons conducting businesses or undertakings (PCBUs) or their officers
  - fellow workers.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • following all relevant safety procedures and instructions • identifying and reporting hazards to designated personnel • knowledge of relevant materials, equipment and work processes.
Context of and specific resources	Assessment must ensure:

© Commonwealth of Australia, 2025 Future Skills Organisation

for assessment	• safety processes, hazards and risks are relevant to area of work.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • analysis of responses to case studies and scenarios • demonstration of techniques • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance by the candidate • review of documentation identifying and reporting emergency incidents.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Safety procedures and instructions may include:	• as contained in health and safety brochures, magazines and other material
	• completing required documentation
	• following procedures for work area housekeeping
	• following WHS guidelines relevant to workplace procedures for:
	  • disposing of spilled substances, dangerous products, sharps and waste, and cleaning equipment
	  • maintaining stocks of cleaning equipment, such as disposable gloves, liquid repellent aprons, and disinfectant
	  • sterilising cleaning equipment

© Commonwealth of Australia, 2025 Future Skills Organisation

	• using appropriate cleaning equipment to clean spillages and breakages • wearing personal protective clothing and protective eyewear when in contact with body fluids or chemicals that may splash • handling, using and storing hazardous chemicals according to workplace procedures • labels for hazardous chemicals • safety data sheets (SDS) • specific guidelines and procedures as they apply to own work area • undergoing operator training and instruction when using new equipment or processes.
Emergency incidents may include:	• accidents • alcohol and other drug intoxication • crime • external threats • fire • flood • near misses • sudden illness.
Designated persons may include:	• health and safety officers • health and safety representatives • managers and supervisors • other persons authorised or nominated by the organisation • PCBUs or their officers • team leaders • union officers • WHS inspectors • WHS permit entry holders.
Hazards may include anything that can cause harm, including:	• as specified in WHS Acts, regulations and codes of practice • blood • breakage and spillage • criminal acts • fatigue • hazardous chemicals • hazardous equipment • hazardous work processes • intoxication • needle sticks

© Commonwealth of Australia, 2025 Future Skills Organisation

	• sources of infection • stress • unsafe work tasks or practices.

Duty holders may include:	• as specified in WHS Acts:
	  • PCBUs or their officers
	  • workers
	  • other persons at a workplace.

Unit Sector(s)

Regulation, Licensing and Risk – Work Health and Safety

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBWHS304A Participate effectively in WHS communication and consultation processes

Modification History

Release	Comments
Release 1	This Unit first released with *BSB07 Business Training Package version 7.0*. Replaces and is equivalent to BSBOHS302B Participate effectively in OHS communication and consultative processes.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to participate in work health and safety (WHS) communication and consultation processes.

Application of the Unit

This unit applies to individuals who participate in WHS communication and consultation processes as part of their work health and safety responsibilities, which are in addition to their main duties. Steps to resolve WHS issues are covered in BSBWHS305A Contribute to WHS issue resolution.

NOTE: The terms Occupational Health and Safety (OHS) and Work Health and Safety (WHS) are equivalent and generally either can be used in the workplace. In jurisdictions where the National Model WHS Legislation has not been implemented RTOs are advised to contextualise the unit of competency by referring to the existing State/Territory OHS legislative requirements.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Pre-Requisites

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Contribute to establishing and running WHS consultation and participation processes	1.1 Apply knowledge of WHS Acts, regulations, codes of practice, policies and procedures to contribute to developing and running ***WHS consultation and participation processes*** 1.2 Identify and communicate ***barriers*** to effective WHS consultation and participation processes 1.3 Contribute to removing these barriers 1.4 Identify, record and communicate to others the duties, rights and responsibilities of ***individuals and parties*** in the consultation process
2. Raise WHS issues with others	2.1 Raise relevant WHS issues in meetings and support others to do this 2.2 Record and communicate WHS discussions and their outcomes according to workplace procedures 2.3 Follow up the outcomes of meetings as appropriate 2.4 Communicate outcomes of these meetings to others
3. Contribute to obtaining and communicating information about WHS issues	3.1 Identify ***sources of WHS information*** 3.2 Use ***tools and techniques*** to locate and obtain WHS information 3.3 Communicate relevant WHS information to others using appropriate ***communication methods***

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to communicate with people from a range of backgrounds and with a range of abilities
- information-management skills to source, obtain and share relevant documents
- interpersonal skills to support others to raise WHS issues
- literacy and verbal skills to consult on, present and progress WHS issues.

Required knowledge

- organisational WHS policies, procedures, processes and systems
- relevant commonwealth and state or territory WHS Acts, regulations, codes of practice, standards and guidance material, and other relevant publications
- roles and responsibilities of WHS personnel
- workplace information management procedures, processes and systems
- workplace procedures, communication channels and methods for information sourcing and sharing.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • taking appropriate actions to remove barriers to communication and consultation processes • supporting others to raise relevant WHS issues • knowledge of relevant WHS Acts, regulations, codes of practice, standards, policies and procedures.
Context of and specific resources for assessment	Assessment must ensure access to:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• relevant information on compliance requirements, such as:
	  • organisational policies, standard operating procedures, procedures and plans
	  • relevant Acts, regulations, codes of practice, licensing requirements and standards
	• relevant internal and external WHS data files
	• appropriate office equipment and resources.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • analysis of responses to case studies and scenarios • demonstration of applying WHS legislation when consulting with people in the workplace on WHS issues • direct questioning combined with review of portfolios of evidence and third-party reports of on-the-job performance by the candidate • oral or written questioning to assess knowledge of roles and responsibilities of WHS personnel • review of records of meeting where WHS issues are raised and discussed • evaluation of communication with others about the outcomes of WHS issues raised.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • other BSB07 WHS units.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

WHS consultation and participation processes may include:	• arrangements to meet workplace consultation obligations specified in relevant commonwealth and state or territory WHS legislation, including:
	  • WHS and other consultative and planning committees
	  • health and safety representatives
	  • worker, supervisor, person conducting business or undertaking (PCBU) or their officer's involvement in WHS activities, such as inspections and audits
	  • procedures for reporting hazards, raising awareness and addressing WHS issues
	  • worker and work team meetings
	• formal and informal processes in place for the exchange of information and views on WHS hazards, risks and risk controls
	• informing workers and other stakeholders of WHS matters
	• seeking input and offering the opportunity for stakeholders to participate in decisions that may impact on WHS.

Barriers to consultation may include:	• contractual arrangements • cultural differences arising from ethnic diversity • discriminatory, coercive and misleading conduct • geographic dispersal of workers • inadequate access to technology or information • ineffective dispute-resolution procedures and processes • lack of a systematic approach to managing WHS • lack of support from key management personnel • language, literacy and numeracy levels of the workforce • remote locations or work sites • shift work and rostering arrangements • specific needs of workers not addressed • timing of information provision • unrealistic timeframes • worker disabilities • workplace culture related to WHS • workplace organisational structures.
Individuals and parties may include:	• contractors and subcontractors • duty holders as specified in WHS Acts: • PCBUs or their officers

© Commonwealth of Australia, 2025 Future Skills Organisation

	• workers • other persons at a workplace • health and safety committees • health and safety representatives • self • unions • WHS entry permit holders • WHS inspectors • WHS regulators.
Sources of WHS information may include:	• audits • Australian and international standards • first aid records • hazard, incident and investigation reports • industry bodies and groups • legislation, standards, manufacturer manuals and specifications available at the workplace • minutes of meetings from incident investigations • other manufacturer manuals and specifications • regulatory authorities (for Acts, regulations and codes of practice) • reports • safety data sheets (SDS) and registers • unions • websites, journals and newsletters • WHS professional bodies • WHS specialists • workplace inspections.
Tools and techniques may include:	• examination of relevant information • formal or informal meetings • hazard identification checklists • interviews with workers • job and systems analysis • plant and equipment maintenance records • reviews of: • investigation reports • registers of hazardous chemicals and dangerous goods • reported hazards and incidents • WHS records • SDS • surveys and suggestion boxes • worker concerns communicated through a hazard

© Commonwealth of Australia, 2025 Future Skills Organisation

	reporting system • workplace processes, such as walk-through inspections and surveys.
Communication methods may include:	• audit and inspection records • emails, memos and other agreed forms of communication • individual and team meetings • noticeboards • presentations • risk registers • signs • using interpreters and translators • verbal briefings.

Unit Sector(s)

Regulation, Licensing and Risk – Work Health and Safety

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBWHS403A Contribute to implementing and maintaining WHS consultation and participation processes

Modification History

Release	Comments
Release 1	This Unit first released with *BSB07 Business Training Package version 7.0*. Replaces and is equivalent to BSBOHS402B Contribute to the implementation of the OHS consultation process.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to contribute to the implementation and maintenance of work health and safety (WHS) consultation and participation processes in the workplace as part of a systematic approach to managing WHS.

Application of the Unit

This unit applies to individuals who contribute to the implementation of WHS consultation and participation processes as part of their WHS supervisory responsibilities.

The unit applies to people who work in a broad range of WHS roles across all industries.

NOTE: The terms Occupational Health and Safety (OHS) and Work Health and Safety (WHS) are equivalent and generally either can be used in the workplace. In jurisdictions where the National Model WHS Legislation has not been implemented RTOs are advised to contextualise the unit of competency by referring to the existing State/Territory OHS legislative requirements.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Pre-Requisites

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Identify individuals and parties involved in WHS consultation and participation processes	1.1 Apply knowledge of relevant parts of WHS Acts, regulations, codes of practice, policies and procedures to identify ***individuals and parties*** with roles, duties, rights and responsibilities regarding WHS consultation and participation 1.2 Identify what these roles, duties, rights and responsibilities are and, in line with own job role and work area, communicate this information to individuals and parties 1.3 Identify roles, duties, rights and responsibilities as they apply to own job role and work area
2. Contribute to WHS consultation and participation processes	2.1 Identify workplace ***WHS consultation and participation processes*** 2.2 Contribute to setting up and running these processes, appropriate to own job role and work area 2.3 Implement and communicate to individuals and parties what these processes are and promote and support the participation of individuals and parties, appropriate to own job role and work area
3. Contribute to processes for communicating and sharing WHS information and data	3.1 Identify consultation and participation processes for communicating and sharing ***WHS information and data*** 3.2 Contribute to and participate in these processes appropriate to own job role and work area
4. Contribute to identifying and meeting	4.1 Identify ***training requirements*** for individuals and parties necessary for effective WHS consultation and participation

© Commonwealth of Australia, 2025 Future Skills Organisation

training requirements for effective WHS consultation and participation	4.2 Contribute to the delivery of required training, appropriate to own job role and work area
5. Contribute to improving WHS consultation and participation processes	5.1 Contribute to the identification and assessment of ***barriers*** to the implementation and effectiveness of WHS consultation and participation processes 5.2 Contribute to the development, implementation and evaluation of ***measures*** to remove these barriers

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to communicate with people from a range of backgrounds and with a range of abilities
- information technology skills to use a range of software and communication media
- interpersonal skills to establish and build relationships
- literacy skills to:
  - read and interpret Acts, regulations, codes of practice, policies and procedures
  - communicate verbally and in writing with a range of target groups, including health and safety committees, health and safety representatives, managers, supervisors, and persons conducting businesses or undertakings (PCBUs) or their officers
- organisational and time-management skills to sequence tasks, meet timelines and run efficient and effective meetings
- research skills to obtain internal and external WHS information and data.

Required knowledge

- barriers to the implementation and effectiveness of WHS consultation and participation processes and strategies to remove them
- commonwealth and state or territory WHS Acts, regulations, codes of practice, standards and guidance material, and policies relating to WHS consultation and participation, including the specified roles, duties, rights and responsibilities of individuals and parties
- internal and external sources of WHS information and data, and how to access them
- organisational WHS policies, procedures, processes and systems
- training requirements for individuals and parties necessary for effective WHS.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • making sure all individuals and parties are included in WHS consultation and participation processes • implementing a range of strategies to support their involvement in, and remove any barriers to, WHS consultation and participation processes • knowledge of relevant commonwealth and state or territory WHS Acts, regulations, codes of practice and standards.
Context of and specific resources for assessment	Assessment must ensure access to: • office equipment and resources • relevant Acts, regulations, codes of practice, standards and guidelines • workplace documentation and personnel.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • analysis of responses to case studies and scenarios • demonstration of techniques used to manage WHS consultation and participation in the workplace • direct questioning combined with review of portfolios of evidence and third-party reports of on-the-job performance by the candidate • observation of implementation of consultative techniques • observation of presentations • oral or written questioning to assess knowledge of communication strategies used to communicate with people at all levels of the organisation • review of recommendations made to address barriers to people raising WHS issues or requesting

© Commonwealth of Australia, 2025 Future Skills Organisation

	information and data • evaluation of support and advice provided to people involved in WHS consultative arrangements.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • BSBWHS402A Assist with compliance with WHS laws • BSBWHS404A Contribute to WHS hazard identification, risk assessment and risk control • BSBWHS405A Contribute to implementing and maintaining WHS management systems • BSBWHS406A Assist with responding to incidents.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Individuals and parties may include:	• contractors and subcontractors
	• customers
	• duty holders as specified in WHS Acts:
	  • PCBUs or their officers
	  • workers
	  • other persons at a workplace
	• health and safety committees
	• health and safety representatives
	• suppliers
	• unions
	• WHS entry permit holders
	• WHS inspectors
	• WHS regulators.

WHS consultation and	• health and safety committees

© Commonwealth of Australia, 2025 Future Skills Organisation

participation processes may include:	• health and safety representatives, and other worker representatives • other consultative and planning committees • procedures for reporting hazards, and raising and addressing WHS issues • worker, manager, supervisor, PCBU or their officer's involvement in WHS activities, such as inspections and audits • worker and work team meetings.
WHS information and data may include:	• access to training information and data • hazards that exist in the workplace • manufacturer manuals and specifications • rights and responsibilities • risk assessments • risk-control strategies • safe work procedures • WHS consultation and participation processes • WHS Acts, regulations, codes of practice and guidelines • workplace WHS policies and procedures.
Training requirements may include:	• health and safety representative training • manager, supervisor, and PCBU or their officer WHS training • how to use computers to access WHS information and data.
Barriers may include:	• contractual arrangements • discriminatory, coercive and misleading conduct • language, literacy and numeracy levels of the workforce • ineffective dispute-resolution procedures and processes • location of separate work sites • shift work and rostering arrangements • specific needs of workers • timing of information and data provision • workplace culture related to WHS • workplace organisational structures.
Measures to remove these barriers may include:	• access to intranet systems • effective dispute-resolution procedures and processes • hazard alerts • health and safety committees • informal discussions with workers

© Commonwealth of Australia, 2025 Future Skills Organisation

	• input to safety audits, and hazard identification and risk-assessment processes • meetings with worker representatives and with health and safety representatives • suggestion boxes and processes • surveys and checklists • toolbox meetings • worker meetings.

Unit Sector(s)

Regulation, Licensing and Risk – Work Health and Safety

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBWHS501A Ensure a safe workplace

Modification History

Release	Comments
Release 1	This Unit first released with *BSB07 Business Training Package version 7.0*. Replaces and is equivalent to BSBOHS509A Ensure a safe workplace.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to establish, maintain and evaluate the organisation's work health and safety (WHS) policies, procedures and programs in the relevant work area according to WHS legislative requirements.

Application of the Unit

This unit applies to managers working in a range of contexts. It takes a systems approach and addresses compliance with relevant legislative requirements.

Those who have or are likely to have responsibility for WHS as part of their broader management role should undertake this unit.

The unit is relevant for people with obligations under WHS legislation, for example persons conducting a business or undertaking (PCBUs) or their officers (as defined by relevant legislation).

NOTE: The terms Occupational Health and Safety (OHS) and Work Health and Safety (WHS) are equivalent and generally either can be used in the workplace. In jurisdictions where the National Model WHS Legislation has not been implemented RTOs are advised to contextualise the unit of competency by referring to the existing State/Territory OHS legislative requirements.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

© Commonwealth of Australia, 2025 Future Skills Organisation

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Establish and maintain a WHS management system	1.1 Locate, adapt, adopt and communicate WHS policies that clearly define the organisation's commitment to complying with ***WHS legislation***
	1.2 Identify ***duty holders*** and define WHS responsibilities for all workplace personnel according to WHS legislation, policies, procedures and programs
	1.3 Identify and approve financial and human resources required by the WHS management system (WHSMS)
2. Establish and maintain effective and compliant participation arrangements for managing WHS	2.1 Work with workers and their representatives to set up and maintain participation arrangements according to relevant WHS legislation
	2.2 Appropriately resolve issues raised through participation and consultation arrangements according to relevant WHS legislation
	2.3 Promptly provide information about the outcomes of participation and consultation to workers and ensure it is easy for them to access and understand
3. Establish and maintain procedures for effectively identifying	3.1 Develop procedures for ongoing hazard identification, and assessment and ***control of associated risks***
	3.2 Include hazard identification at the planning, design and

© Commonwealth of Australia, 2025 Future Skills Organisation

hazards, and assessing and controlling risks	evaluation stages of any change in the workplace to ensure that new hazards are not created by the proposed changes and existing hazards are controlled 3.3 Develop and maintain procedures for selecting and implementing risk controls according to the hierarchy of control and WHS legislative requirements 3.4 Identify inadequacies in existing risk controls according to the hierarchy of control and WHS legislative requirements, and promptly provide resources to enable implementation of new measures 3.5 Identify requirements for expert WHS advice, and request this advice as required
4. Evaluate and maintain a WHS management system	4.1 Develop and provide a WHS induction and training program for all workers as part of the organisation's training program 4.2 Use a system for ***WHS recordkeeping*** to allow identification of patterns of occupational injury and disease in the organisation, and to maintain a record of WHS decisions made, including reasons for the decision 4.3 Measure and evaluate the WHSMS in line with the organisation's quality systems framework 4.4 Develop and implement improvements to the WHSMS to achieve organisational WHS objectives 4.5 Ensure compliance with the WHS legislative framework so that, as a minimum, WHS legal requirements are achieved

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical and problem solving skills to examine relevant workplace information and data to identify hazards, and to assess and control risks
- communication skills to consult with staff and to promote a safe workplace
- information technology skills to store and retrieve relevant workplace information and data
- literacy skills to adapt and communicate WHS policies that reflect WHS legislative requirements
- problem-solving skills to deal with complex and non-routine difficulties.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required knowledge

- hazard identification and risk-management processes
- hierarchy of risk control
- in-house and WHS legislative reporting requirements
- relevant WHS Acts, regulations and codes of practice that apply to the business operation.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • detailed knowledge and application of all relevant WHS Acts, regulations and codes of practice • establishing and maintaining arrangements for managing WHS within the organisation's business systems and practices • identifying requirements for expert WHS advice.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate documentation and resources normally used in the workplace.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • analysis of responses to case studies and scenarios • assessment of written reports • demonstration of techniques • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance by the candidate • review of WHS policies, information provided on the WHSMS, and information about the outcomes

© Commonwealth of Australia, 2025 Future Skills Organisation

	of participation and consultation provided to workers • oral or written questioning to assess knowledge of WHS and WHS legislation • evaluation of WHS induction and training • review of WHS recordkeeping system.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

WHS legislation may include:	• applicable commonwealth and state or territory WHS Acts, regulations and codes of practice
	• common law duties to meet general duty of care requirements
	• WHS legislative and regulatory requirements for:
	  • effectively managing hazards
	  • establishing consultation arrangements, including those for health and safety representatives and health and safety committees
	  • providing information and training, including training in safe operating procedures; procedures for workplace hazards; hazard identification, risk assessment and risk control; and emergency and evacuation procedures
	• WHS legislative, regulatory and other requirements for the maintenance and confidentiality of records of occupational injury and disease.

© Commonwealth of Australia, 2025 Future Skills Organisation

Duty holders may include:	• as specified in WHS Acts:
	  • officers
	  • PCBUs or their officers
	  • workers
	  • other persons at a workplace.

Control of associated risks may include:	• administrative • as specified in WHS Acts, regulations and codes of practice • counselling/disciplinary processes, such as those associated with alcohol and other drugs • education about alcohol and other drugs work-related issues • engineering • hazard elimination • housekeeping and storage • issue resolution • personal protective equipment • purchasing of supplies and equipment • workplace inspections, including plant and equipment.

WHS recordkeeping may relate to:	• audit and inspection reports
	• consultation, such as:
	  • meetings of health and safety committees
	  • work team meeting agendas, including WHS items and actions
	• first aid/medical post records
	• hazardous chemicals registers
	• induction, instruction and training
	• manufacturer and supplier information, including dangerous goods storage lists
	• plant and equipment maintenance and testing reports
	• workers' compensation and rehabilitation records
	• workplace environmental monitoring records.

Unit Sector(s)

Regulation, Licensing and Risk – Work Health and Safety

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBWOR301B Organise personal work priorities and development

Modification History

Release	Comments
Release 1	This version first released with *BSB07 Business Training Package version 6.0* Revised unit. Performance criteria and required skills updated to focus on learning and development practices, KPIs and compliance with policy and procedures. Replaces BSBWOR301A Organise personal work priorities and development

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to organise own work schedules, to monitor and obtain feedback on work performance, and to maintain required levels of competence. Operators may exercise discretion and judgement using appropriate theoretical knowledge of work scheduling and performance improvement to provide technical advice and support to a team.

Application of the Unit

This unit applies to individuals who are skilled operators and apply a broad range of competencies in various work contexts.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Organise and complete own work schedule	1.1 Ensure that ***work goals, objectives*** or ***KPIs*** are understood, negotiated and agreed in accordance with ***organisational requirements***
	1.2 Assess and prioritise workload to ensure tasks are completed within identified timeframes
	1.3 Identify ***factors affecting the achievement of work objectives*** and incorporate contingencies into work plans
	1.4 Use ***business technology*** efficiently and effectively to manage and monitor scheduling and completion of tasks
2. Monitor own work performance	2.1 Accurately monitor and adjust personal work performance through self-assessment to ensure achievement of tasks and compliance with legislation and work processes or KPIs
	2.2 Ensure that ***feedback on performance*** is actively sought and evaluated from colleagues and clients in the context of individual and group requirements
	2.3 Routinely identify and report on variations in the quality of and ***products and services*** according to organisational requirements
	2.4 Identify ***signs of stress*** and effects on ***personal wellbeing***
	2.5 Identify ***sources of stress*** and access appropriate ***supports and resolution strategies***
3. Coordinate personal skill development and learning	3.1 Identify personal learning and professional development needs and skill gaps using self-assessment and advice from colleagues and clients in relation to role and organisational requirements
	3.2 Identify, prioritise and plan opportunities for undertaking personal skill development activities in liaison with work groups and relevant personnel
	3.3 Access, complete and record ***professional development***

© Commonwealth of Australia, 2025 Future Skills Organisation

	opportunities to facilitate continuous learning and career development 3.4 Incorporate formal and informal feedback into review of further learning needs

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to give and receive constructive feedback relating to development needs
- literacy skills to read and understand the organisation's procedures
- planning skills to organise work priorities according to work goals and objectives
- problem-solving skills to solve routine problems
- self-management skills to:
  - comply with policies and procedures
  - consistently evaluate and monitor own performance
  - seek learning opportunities.

Required knowledge

- key provisions of relevant legislation from all levels of government that may affect aspects of business operations, such as:
  - anti-discrimination legislation
  - ethical principles
  - codes of practice
  - privacy laws
  - occupational health and safety (OHS)
- organisational policies, plans and procedures
- methods to elicit, analyse and interpret feedback
- principles and techniques of goal setting, measuring performance, time management and personal assessment
- competency standards and how to interpret them in relation to self
- methods to identify and prioritise personal learning needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • preparing work plans • scheduling and prioritising work objectives and tasks • knowledge of the principles and techniques of goal setting, measuring performance, time management and personal assessment.
Context of and specific resources for assessment	Assessment must ensure: • access to an actual workplace or simulated environment • access to office equipment and resources • examples of work schedules and performance improvement plans.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • review of self-assessment documentation outlining learning and development needs • analysis of responses to case studies and scenarios • demonstration of techniques • oral or written questioning to assess knowledge of methods to identify and prioritise personal learning needs • evaluation of planning for personal skill development activities and professional development opportunities.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Work goals and objectives may include:	• budgetary targets • production targets • reporting deadlines • sales targets • team and individual learning goals • team participation.
KPIs may include:	• key performance indicators on customer satisfaction • key performance indicators on customer effort • monitoring time taken to answer calls • operating within reporting protocols • score tools such as net promoter • understanding metrics.
Organisational requirements may include:	• access and equity principles and practice • business and performance plans • defined resource parameters • ethical standards • goals, objectives, plans, systems and processes • legal and organisational policies, guidelines and requirements • OHS policies, procedures and programs • quality and continuous improvement processes and standards • quality assurance and/or procedures manuals.
Factors affecting the achievement of work objectives may include:	• budget constraints • competing work demands • environmental factors such as time, weather • resource and materials availability • technology/equipment breakdowns • unforeseen incidents • workplace hazards, risks and controls.
Business technology may include:	• computer applications • computers • email

© Commonwealth of Australia, 2025 Future Skills Organisation

	• facsimile machines • internet/extranet/intranet • modems • personal schedulers • photocopiers • printers • scanners.
Feedback on performance may include:	• formal/informal performance appraisals • obtaining feedback from clients • obtaining feedback from supervisors and colleagues • personal, reflective behaviour strategies • routine organisational methods for monitoring service delivery.
Products and services may include:	• either products or services • goods • ideas • infrastructure • private or public sets of benefits.
Signs of stress may include:	• absence from work • alcohol or other substance abuse • conflict • poor work performance.
Personal wellbeing may include:	• cultural • emotional • social • spiritual.
Sources of stress may include:	• complex tasks • cultural issues • work and family conflict • workloads.
Supports and resolution strategies may include:	• awareness raising • counselling • employee assistance programs (EAP) • family support • group activities • job design • mediation • sharing load • time off • training.
Professional development	• career planning/development

© Commonwealth of Australia, 2025 Future Skills Organisation

opportunities may include:	• coaching, mentoring and/or supervision • formal/informal learning programs • internal/external training provision • performance appraisals • personal study • quality assurance assessments and recommendations • recognition of current competence/skills recognition • work experience/exchange/opportunities • workplace skills assessment.

Unit Sector(s)

Industry Capability – Workplace Effectiveness

Custom Content Section

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

CUVDRA201A Develop drawing skills

Modification History

Version	Comments
CUVDRA201A	This version first released with *CUV11 Visual Arts, Craft and Design Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use basic drawing techniques to produce creative work. This unit relates to drawing as an art form and therefore differs from units that focus on drawing as a visual representation tool.

Application of the Unit

People with little or no drawing experience apply the skills and knowledge outlined in this unit. Typically they are embarking on a career in visual arts or a related area of creative practice and may have acquired general design or drawing skills either at school or through self-directed learning and experimentation.

At this level, they are applying basic techniques to produce drawings from simple ideas. Supervision and guidance would usually be provided.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Prepare drawing resources	1.1 Identify and obtain drawing ***tools, equipment*** and ***materials***
	1.2 Prepare tools, equipment and materials according to ***workplace procedures*** and safety requirements
	1.3 Set up a safe work space with guidance from ***key people***
2. Use and test drawing techniques	2.1 View a range of drawings in different styles and discuss with others how effects are achieved
	2.2 Match potential techniques to the ***ideas*** for the work with the assistance of key people
	2.3 ***Test*** nominated ***techniques*** to determine the effects they achieve
	2.4 Safely use selected techniques to produce drawings
	2.5 Calculate correct quantities of materials required and minimise waste where possible
	2.6 Clean and store tools, equipment and materials according to safety requirements and specific needs of different items
3. Make plans to develop skills	3.1 Seek feedback on drawing work from key people
	3.2 Respond positively to feedback and identify key areas for improvement
	3.3 Review different opportunities to build own skills and select suitable options

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- communication skills to:
  - discuss the process for producing drawings with others
  - understand and follow instructions
- learning skills to:
  - improve techniques for producing drawings through practice
  - respond appropriately to feedback
- literacy skills to read product and equipment safety labels
- numeracy skills to calculate quantities of materials
- planning and organising skills to prepare and set up resources and work space.

Required knowledge

- materials, tools and equipment commonly used for drawing
- major styles of drawing and the work of key practitioners relevant to individual area of interest
- typical work space and equipment requirements for the production of different types of drawings
- cleaning and maintenance techniques for tools and equipment used in drawing
- elements and principles of design – what they are and what they mean
- intellectual property considerations for any person making creative work
- ways of minimising waste in the use of drawing tools, equipment and materials
- OHS procedures that apply to drawing work.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • produce drawings where the techniques and materials support the ideas for the work • apply knowledge of drawing tools, equipment and materials.
Context of and specific resources for	Assessment must ensure access to:

© Commonwealth of Australia, 2025 Future Skills Organisation

assessment	• equipment and materials used to produce drawings.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of drawings in progress • questioning and discussion of the candidate's intentions and work outcome • review of portfolios of evidence • review of third-party reports from experienced practitioners. Assessment methods should closely reflect workplace demands (e.g. literacy) and the needs of particular groups (e.g. people with disabilities, and people who may have literacy or numeracy difficulties, such as speakers of languages other than English, remote communities and those with interrupted schooling).
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUVPRP201A Make simple creative work.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Tools and equipment may include:	• brushes • crayons • electronic equipment and accessories • pencils • pens • rags • scrapers • spatulas • sponges • sticks.

© Commonwealth of Australia, 2025 Future Skills Organisation

Materials may include:	• chalks • charcoal • crayons • ink and wash • papers • pastels • watercolour.
Workplace procedures may relate to such things as:	• cost control • process-specific procedures • recycling • reporting • safety • use of materials.
Key people may include:	• arts practitioners • mentors • supervisors • teachers.

Ideas may be influenced by:	• elements and principles of design
	• subject matter or theme for the work, such as:
	  • built environment
	  • identity
	  • land and place
	  • natural world
	  • political, cultural and social issues
	  • the body
	• spiritual concerns.

Process used to ***test*** techniques may include:	• experimenting directly with work in progress • exploring techniques by making practice pieces • making samples using nominated techniques.

Techniques would generally be quite limited in nature and may include:	• digital drawing techniques
	• basic use of:
	  • linear marks of differing intensity and character
	  • linear marks to produce illusion of three-dimensional (3-D) form
	  • simple linear perspective through the use of a vanishing point
	  • tonal range to produce illusion of a 3-D form.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Visual communication – drawing

© Commonwealth of Australia, 2025 Future Skills Organisation

CUVPHI519A Investigate and exploit innovative imaging options

Modification History

Version	Comments
CUVPHI519A	This version first released with *CUV11 Visual Arts, Craft and Design Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to investigate and exploit creative and innovative options in the production of photo images using a variety of imaging technologies and processes.

Application of the Unit

The photo imaging practitioner is required to resolve complex visual communications problems and create innovative images. In creating these images, the practitioner must interact with a range of imaging technologies (analog, digital, hybrid, traditional and emerging). These are part of the production workflow where images are captured, enhanced and output. The selection, application and adaptation of imaging technologies allow the practitioner to acquire unique and innovative images.

This work is usually undertaken independently, with guidance where required.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Research a range of imaging technologies	1.1 Critique and review ***historical, contemporary and emerging imaging technologies*** with ***appropriate people***
	1.2 Examine and clarify ***discipline, subject matter and themes*** of photography/photo imaging and their related imaging technologies
	1.3 Identify and review the connection between imaging technology and the ***visual representation, attributes and opportunities*** of an image's subject matter
	1.4 Evaluate ***specialised imaging technologies*** and their corresponding imaging workflow
	1.5 Evaluate currency and credibility of information gathered and ensure research scope is sufficiently broad
2. Create test images and evaluate attributes of imaging technologies	2.1 Acquire or gain access to specialised imaging technologies in cooperation with imaging specialists and suppliers
	2.2 Identify and apply appropriate OHS processes and standards in use of specialised imaging technologies
	2.3 Apply specialised imaging technologies and imaging workflow to create test images
	2.4 Review personal performance in creation of test images
3. Create body of work using imaging technologies	3.1 Select appropriate imaging technology to create a ***body of work*** with specific subject matter or theme
	3.2 Consider requirements of creative vision/product and adopt imaging workflow to create images
	3.3 Review and adapt imaging workflow to ensure consistency

© Commonwealth of Australia, 2025 Future Skills Organisation

	of creative vision and product 3.4 Plan, prepare and organise body of work for presentation using appropriate technology and context 3.5 Review personal performance in creation of body of work and identify concepts for future research 3.6 Store and maintain reference journal of specialised imaging technologies 3.7 Document imaging workflow, reinstate equipment and archive imaging products appropriately

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- photo imaging skills to:
  - archive, maintain and manage analog and digital assets
  - competently operate imaging technologies along with design and allied technologies used within the imaging environment
  - create and optimise files and film to photo imaging industry standards
  - implement OHS and quality control procedures as they apply to all aspects of the imaging process
- research skills to access and compare contemporary styles and conceptual and aesthetic approaches to photo imaging
- critical thinking skills to:
  - reflect on and analyse own performance
  - recognise innovative imaging opportunities from research and testing processes
- literacy skills to:
  - interpret technical information relating to the imaging environment
  - obtain necessary permits and licences to operate equipment and work in special locations
- numeracy skills to determine mathematical problems arising from technical imaging processes
- communication skills to:
  - engage with subjects and professionals in a meaningful and respectful way
  - explain and describe work practices and methods
  - negotiate with models, creative teams and project stakeholders
- learning skills to:
  - learn the operation of equipment

© Commonwealth of Australia, 2025 Future Skills Organisation

  - review personal performance within project context
  - upgrade knowledge required to work in varied locations
- planning and organising skills to:
  - coordinate activities of models and assistants
  - organise shoots on location or in studio and prepare shoot management timelines
- technology skills to check and reinstate equipment, studio and props.

Required knowledge

- OHS procedures and standards associated with imaging technology
- imaging technology to determine suitability for innovative and creative production purposes
- traditions and contemporary issues that inform imaging technology.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • research, identify, test and apply innovative imaging concepts and technology • implement OHS and quality control procedures when applying imaging concepts and technology • review personal performance when applying imaging concepts and technology.

Context of and specific resources for assessment	Assessment must ensure:
	• access to:
	  • a range of technology and media used in the broad imaging environment
	  • sources of information on the historical and contemporary imaging environment
	  • appropriate learning and assessment support when required
	• opportunity for collaboration with or in allied industries
	• the use of culturally appropriate processes, and techniques appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.

© Commonwealth of Australia, 2025 Future Skills Organisation

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence • review of third-party reports from experienced practitioners • direct observation of candidate applying imaging technology, implementing OHS and quality control processes and meeting deadlines • case studies to assess candidate's ability to evaluate imaging technology and its suitability for historical and contemporary contexts and themes • problem-solving activities to assess candidate's critical thinking skills. Assessment methods should closely reflect workplace demands (e.g. literacy) and the needs of particular groups (e.g. people with disabilities, and people who may have literacy or numeracy difficulties, such as speakers of languages other than English, remote communities and those with interrupted schooling).
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUVPHI516A Research the role and use of the photo image in visual communication • CUVPHI517A Research and exploit photo imaging trends.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Historical, contemporary and emerging imaging technologies may include:	• camera-less imaging processes and devices:
	  • digital scanners
	  • photocopiers
	  • photograms and chemigrams

© Commonwealth of Australia, 2025 Future Skills Organisation

	• cameras:
	  • aerial
	  • low-tech (toy and single use)
	  • panorama
	  • pinhole cameras and camera obscura devices
	  • rangefinder
	  • SLR, including 35mm/120 film and digital capture/sensor
	  • underwater
	  • view camera (4 x 5, 5 x 7, 10 x 8)
	• devices that produce books, magazines and newspapers
	• enhancement technologies:
	  • analog and wet darkroom
	  • digital darkroom and imaging software applications
	• historical cameras and techniques:
	  • ambrotype
	  • cyanotype
	  • daguerreotype
	  • Van Dyke brown and salted papers
	  • wet plate
	• hybrid processes:
	  • digital back on a pinhole camera
	  • simulating and emulating analog effects via digital software techniques
	  • using an inter-negative from digital capture for contact printing processes (e.g. cyanotype, palladiotype and platinotype)
	• output technologies, including all kinds of print-making, presentation and projection devices:
	  • analog and digital enlargers and printers/papers
	  • film writers
	  • inkjet, laser, dye-sublimation and thermal printers and media
	  • CMYK offset printing devices
	  • monitor/television screen display and/or data projector images
	  • screen printing and print-making processes
	  • thermo-autochrome (e.g. pictograph).

Appropriate people may include:	• critics, commentators and polemicists • members of relevant professional associations • mentors and peers

© Commonwealth of Australia, 2025 Future Skills Organisation

	• practising photographers, photo imagists and members of allied fields.

Discipline, subject matter and themes may include:	• disciplines:
	  • art photo images
	  • commercial photo images
	  • domestic photo images
	  • illustrative photo images
	  • media photo images
	  • stock photo images
	  • technical photo images
	  • wedding clients
	• subject matter and themes:
	  • abstraction
	  • advertising
	  • beauty
	  • culture
	  • gender identity
	  • landscape
	  • nature
	  • philosophical and classical themes
	  • religion
	  • reportage
	  • science and technology
	  • sexuality
	  • social issues
	  • the human condition
	  • the nude
	  • the photograph as truth
	  • the portrait.

Visual representation, attributes and opportunities may include:	• controlling and displaying time • imaging the passage of time • integrating images into other technologies to provide a range of audio, sensory and tactile human experiences • making images in which an emotive or emotional content is enabled by the selected imaging technology • making images of subjects in environments that are too hot or cold, or too dangerous or life threatening for human observation • pictorial representation of subjects normally beyond human vision, comprehension or understanding: • making images where abstract concepts are explained

© Commonwealth of Australia, 2025 Future Skills Organisation

	using the representational opportunities provided by selected imaging technologies • making minute things visible to the naked eye • making subjects of immense distance visible • presenting images in ways that enhance the communicative quality of the work.
Specialised imaging technologies may include:	• aerial cameras • high speed cameras • non-visible electromagnetic spectrum: • ultraviolet and infra-red imaging • x-ray and gamma ray • microscopy • photo finish cameras • remote sensing devices • scanning electron microscopes • telescopes • thermal imaging • three-dimensional imaging devices and software applications • time and motion cameras • ultrasound imaging.
Body of work may include:	• electronic presentation • exhibition of images • magazine, newspaper or book • portfolio of work.

Unit Sector(s)

Visual communication – photo imaging

© Commonwealth of Australia, 2025 Future Skills Organisation

ICADBS401A Identify physical database requirements

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to identify the physical requirements of a database, including a data dictionary and security and design specifications.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

This unit applies to database administrators who are required to plan the building of a database.

It is necessary before designing a database to take into consideration a range of requirements, including current IT architecture and client requirements, the organisation's IT standards especially related to security, and the outcomes of the business-analysis process.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Identify database scope	1.1 Review ***requirements*** of the user and current ***system architecture***
	1.2 Determine ***database*** size from requirements and technical specifications
	1.3 Document database and scope of project
	1.4 Evaluate several ***database-management systems*** against requirements and make appropriate selection
2. Identify database requirements	2.1 Review technical specifications for the database
	2.2 Identify database tables and relationships
	2.3 Identify database data dictionary, table attributes and keys
	2.4 Develop database reports based on ***acceptance criteria*** and requirements
3. Identify security requirements	3.1 Review ***system***-security plan
	3.2 Clarify and confirm chosen database-management system and user security required for the database to ensure database security is aligned to security-system plan
	3.3 Identify, evaluate and record database performance, recovery and audit trail needs
4. Seek client feedback and approval	4.1 Present database scope, technical requirements and security documentation to user for feedback
	4.2 Review user feedback and adjust database documentation as required

© Commonwealth of Australia, 2025 Future Skills Organisation

	4.3 Present database documentation to user for final approval

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to review user requirements, system architecture and security plan
- communication skills to liaise with user
- literacy skills to:
  - produce database reports
  - review user feedback
- problem-solving skills to develop technical solutions
- technical skills to evaluate, identify and determine database requirements using database modelling.

Required knowledge

- broad knowledge of:
  - database design
  - general features and capabilities of current industry-accepted hardware and software products
  - quality assurance practices
  - client business domain
  - current principles of databases
  - detailed technical knowledge of database requirements.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

© Commonwealth of Australia, 2025 Future Skills Organisation

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • analyse client requirements • identify technical considerations affecting the physical design of a database • produce a security plan for the database.
Context of and specific resources for assessment	Assessment must ensure access to: • user-business requirements • technical documentation defining architecture platform and operating system specifications • database-supplier technical specifications and manuals • data samples • database package • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• review of the final database, specifying business rules, agreed budget and timeframe
	• evaluation of documentation, detailing:
	  • database directories
	  • calculation of space requirements for tables
	  • additional space requirements
	  • design of node groups
	  • security plan.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Requirements may relate to:	• application • business • network • people in the organisation • system.
User may include:	• department within the organisation • person within a department • third party.

System architecture may include:	• configuration:
	  • large memory model
	  • requests per second
	  • small memory model
	• database software:
	  • DB2
	  • Informix
	  • Ingres
	  • Microsoft Structured Query Language (MS SQL) server
	  • Mini SQL (mSQL)
	  • MySQL
	  • Oracle
	  • Sybase
	• operating system:
	  • Novell NetWare
	  • multi-user ability
	  • Linux
	  • Mac
	  • Windows.

Database may include:	• commercial off-the-shelf (COTS) database packages • object-relational databases • proprietary databases • relational databases.

© Commonwealth of Australia, 2025 Future Skills Organisation

Database-management systems may include:	• distributed or centralised • online • partitioned geographically • thematically distributed.
Acceptance criteria may include:	• cost implications • logistical considerations • technical • timeframe.
System may include:	• application • business • computers • financial system • information system • management system • network • software.

Unit Sector(s)

Database

© Commonwealth of Australia, 2025 Future Skills Organisation

ICADBS402A Complete database backup and restore

Modification History

Version	Comments
ICADBS402A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to back up and restore a database.

Application of the Unit

This unit applies to experienced technical support personnel, such as help-desk supervisors, IT support technicians, database support technicians and user-support specialists who are responsible for maintaining a backup schedule for one or more databases, and may also need to restore backups to the live system.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes	*Performance criteria describe the*

© Commonwealth of Australia, 2025 Future Skills Organisation

of a unit of competency.	*performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Review database architecture to plan backup and recovery	1.1 Examine ***architecture*** of ***database*** file system 1.2 Determine most appropriate methods for ***backup*** and recovery 1.3 Identify and examine likely or possible risk and failure scenarios 1.4 Prepare a backup maintenance schedule 1.5 Prepare a contingency plan
2. Determine backup methods appropriate to database requirements	2.1 Evaluate range of backup and restoration methods based on organisational and security ***standards*** and on the assessment of likely or possible failure scenarios 2.2 Complete full off-line backups according to organisational and security standards with minimal down time 2.3 Complete online file backups as determined by organisational and security standards and with minimal down time 2.4 Employ disk mirroring and redundant array of inexpensive disks (RAID) hard disk configurations to keep copies of files 2.5 Arrange off-site copies of backup files
3. Establish recovery points and disaster-recovery procedures	3.1 Determine database recovery points based on the backup arrangements according to ***organisational guidelines*** 3.2 Test the restore process to ensure that the database can be restored to a given recovery point, with minimal down time 3.3 Complete the restoration of the database to the point of failure, without loss of committed transactions

© Commonwealth of Australia, 2025 Future Skills Organisation

4. Create and deploy standby database	4.1 Create or set up a standby database to meet organisational guidelines 4.2 Implement standby database to support critical business functions 4.3 Prepare ***documentation*** for standby database

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - evaluate a range of backup and restoration methods
  - undertake non-routine work processes
- literacy skills to:
  - prepare documentation
  - read and interpret technical manuals
  - set benchmarks and identified scope
- planning and organisational skills to:
  - develop plans with prioritised tasks
  - minimise disruption to client
- problem-solving skills in non-routine work processes
- research skills for identifying, analysing and evaluating broad features of a particular business domain and best practice in backup and recovery strategies
- technical skills to:
  - run backup process
  - set backup schedule
  - test restore process.

Required knowledge

- broad knowledge of:
  - diagnostic tools
  - structured query language (SQL)
  - principles of databases
  - tuning methodologies
- detailed knowledge of:
  - backup and recovery methods

© Commonwealth of Australia, 2025 Future Skills Organisation

- database administration
- database security
- open file backup procedures and restore operations.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: determine the most appropriate methods for backup and recovery • implement backup and restore procedures with minimum disruption to the business, following contingency plan if necessary.
Context of and specific resources for assessment	Assessment must ensure access to: • documentation standards • backup and recovery policies • sites with a representative range of current industry standard software and diagnostic tools • database package with data • technical records • organisational guidelines • vendor documentation • server and networked personal computer on which to conduct backup and restore procedures • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of candidate performing backup and restore procedures
	• review of candidate's documentation containing:
	  • planning
	  • backup schedule
	  • contingency plan
	• verbal or written questioning to assess candidate's knowledge of:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• backup and restore techniques and procedures • risks and failure scenarios that are likely or possible.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Architecture may include:	• configuration:
	  • large memory model
	  • requests per second
	  • small memory model
	• database software:
	  • DB2
	  • Informix
	  • Ingres
	  • Microsoft SQL (MS SQL) server
	  • Mini SQL (mSQL)
	  • MySQL
	  • Oracle
	  • Sybase
	• operating system:
	  • Linux
	  • Mac
	  • multi-user ability

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Windows 2000 or above • Novell NetWare 5 or above.
Database may include:	• commercial off-the-shelf (COTS) database packages • object-relational databases • proprietary databases • relational databases.
Backup may include:	• DVD or CD backup • more comprehensive and complex backup facilities across the network or the internet • multiple tape units • single tape units.
Standards may include:	• International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • organisational standards • project standards.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access • virus risk.
Documentation may include:	• audit trails • client training • ISO, IEC and AS standards • maintaining equipment inventory • naming standards • project management templates and report writing • satisfaction reports • version control.

Unit Sector(s)

Database

© Commonwealth of Australia, 2025 Future Skills Organisation

ICADBS403A Create basic databases

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design a database to meet a specification.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

This unit applies to database or web designers who need to create a simple database to store information for an online application using a simple entity relational database.

This unit should be used in conjunction with other substantiating units, such as ICAPRG425A Use structured query language for the deployment of a database.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Analyse requirements for the database	1.1 Determine the information that the database is required to hold 1.2 Develop a written requirement report for the functionality of the database 1.3 Complete ***documentation*** and submit to ***appropriate person*** for approval
2. Use data modelling to design the database to suit requirements	2.1 Design an entity-relationship (ER) diagram to model the relationships between the entities and attributes the database will hold 2.2 Develop the primary and foreign keys to link the entities 2.3 Develop a data dictionary 2.4 Complete documentation and submit to appropriate person for approval
3. Create a database on a web or database server	3.1 Use the appropriate ***language*** on a web or database server to create one or more databases 3.2 Use the appropriate language on a web or database server to create tables 3.3 Populate the database fields
4. Test database and debug	4.1 Test the database on the web or database server 4.2 Ensure that the information represented matches the requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse the requirements for the project
  - develop and design a database algorithm to match client requirements
- communication skills to:
  - liaise with the client
  - understand client requirements
- initiative and enterprise skills to:
  - create a database on a hosted service
  - research hosting requirements of the database
- literacy skills to:
  - create the necessary documentation to document code
  - write end user documentation
- planning and organisational skills to:
  - deliver a product that responds to client requirements
  - deliver the product by the due date
- problem-solving skills to:
  - deliver a robust solution to a specific database requirement
  - translate an ER diagram to a database.

Required knowledge

- basic knowledge of open platforms, including browsers and databases
- creation of entities, attributes and populating fields using both software solutions and script based input
- data-modelling techniques to design a database
- database design, modelling and implementation
- internet operation related to web servers and clients
- naming conventions
- security restrictions on servers, incorporating some theoretical concepts
- best practice communication and accessibility for audiences with special needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • research client requirements for a database solution • design a database that meets client requirements • create a database on a web hosting service to meet client requirements by a due date.
Context of and specific resources for assessment	Assessment must ensure access to: • database • database-management system • internet • software for creating ER diagrams • software-development environment • server • web browsers • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to identify knowledge of database design and implementation • direct observation of database design and creation • review of a directed project with specified client requirements.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support.

© Commonwealth of Australia, 2025 Future Skills Organisation

	In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Documentation may include:	• audit trails • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • naming standards • project-management templates • report-writing protocols • version control.
Appropriate person may include:	• authorised business representative • client • supervisor.
Language may include:	• Access • Informix • Microsoft Structured Query Language (MS SQL) • MySQL • Oracle • Postgre Structured Query Language (Postgre SQL) • Sybase.

Unit Sector(s)

Database

© Commonwealth of Australia, 2025 Future Skills Organisation

ICADBS404A Identify and resolve common database performance problems

Modification History

Version	Comments
ICADBS404A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to identify and solve common database problems to improve performance.

Application of the Unit

This unit applies to experienced technical support personnel, such as help-desk supervisors, database support technicians, IT support technicians, and user support specialists who are responsible for maintaining good performance from a database.

Resolving database issues can be complex and take considerable time. The core role in this competency is to take part in common database-performance problem solving.

This unit should be flexible enough to allow for the creation of specialised database programs that are poor in performance so that problem-solving processes can be applied.

There are many open-source database offerings that may provide a suitable code base from which to work.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Diagnose problems	1.1 Determine appropriate database performance ***diagnostic tool*** to use based on organisational database requirements and vendor recommendations 1.2 Run diagnostic tool to identify issues causing degradation of database ***performance*** 1.3 Determine and record where inappropriate use of database and temporary table spaces occur 1.4 Carry out appropriate fixes based on diagnostic results
2. Configure database	2.1 Adopt a distributed files ***architecture*** to minimise input and output (I/O) contention 2.2 Ensure that database backup procedures are appropriate for method of data storage 2.3 Reconfigure rollback segments 2.4 Configure the database and test its performance
3. Tune database	3.1 Track the module performance according to specifications 3.2 Monitor and tune the efficiency of ***structured query language*** (SQL), as required 3.3 Monitor and measure the performance of shared pool, blocks and buffers

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.4 Detect, identify and resolve contentions that may arise in the real-time operation of the database 3.5 Reconfigure the database according to specifications

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - detect, identify and resolve contentions in the real-time operation of the database
  - determine appropriate database performance diagnostic tool to use
- literacy skills to record performance test results
- planning and organisational skills to:
  - ensure that database backup procedures are appropriate for the method of data storage
  - set benchmarks
- problem-solving skills to:
  - carry out appropriate fixes based on diagnostic results
  - detect, identify and resolve contentions in the real-time operation of the database
  - determine where inappropriate use of database and temporary table spaces occur
  - identify issues causing degradation of database performance
- technical skills to:
  - configure the database and test its performance
  - monitor and measure the performance of shared pool, blocks and buffers
  - monitor and tune the efficiency of SQL as required
  - track the module performance according to specifications.

Required knowledge

- broad knowledge of:
  - principles of database design
  - SQL
- detailed knowledge of:
  - database administration
  - diagnostic tools
  - tuning methodologies.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • correctly identify common database problems • select appropriate solutions to solve the problem • implement such solutions to improve database performance.
Context of and specific resources for assessment	Assessment must ensure access to: • diagnostic tools • database operating on a network • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of candidate's documentation of problem resolution • direct observation of the candidate using database tools to solve a database problem • evaluation of database after candidate has resolved issues affecting its performance.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Diagnostic tool may include:	• server software or may be inbuilt to the server software • software applications external to the database server.
Database may include:	• commercial off-the-shelf (COTS) database packages • object-relational databases • proprietary databases • relational databases.
Performance may include:	• archiving old records • compacting database files • creating indexes • improvements to response time • latch contention • preventing events causing waits • record or table locking • repairing the database • simultaneous access • splitting database files.

Architecture may include:	• configuration:
	  • large memory model
	  • requests per second
	  • small memory model
	• database software:
	  • DB2
	  • Informix
	  • Ingres
	  • Microsoft SQL (MS SQL) server
	  • Mini SQL (mSQL)
	  • MySQL
	  • Oracle
	  • Sybase

© Commonwealth of Australia, 2025 Future Skills Organisation

	• operating system:
	  • Linux
	  • Mac
	  • multi-user ability
	  • Novell NetWare 5 or above
	  • Windows 2000 or above.

SQL may include:	• ISO/IEC 9075 (1-4,9-11,13,14):2008:
	  • ISO/IEC 9075-1:2008 Framework (SQL/Framework)
	  • ISO/IEC 9075-10:2008 Object Language Bindings (SQL/OLB)
	  • ISO/IEC 9075-11:2008 Information and Definition Schemas (SQL/Schemata)
	  • ISO/IEC 9075-13:2008 SQL Routines and Types Using the Java TM Programming Language (SQL/JRT)
	  • ISO/IEC 9075-14:2008 XML-Related Specifications (SQL/XML)
	  • ISO/IEC 9075-2:2008 Foundation (SQL/Foundation)
	  • ISO/IEC 9075-3:2008 Call-Level Interface (SQL/CLI)
	  • ISO/IEC 9075-4:2008 Persistent Stored Modules (SQL/PSM)
	  • ISO/IEC 9075-9:2008 Management of External Data (SQL/MED)
	• proprietary extensions: AS/NZS 3968.0:1994/Amdt 1:1996 Information technology - database languages - SQL - definition of data structures and basic operations
	• SQL:2008.

Unit Sector(s)

Database

© Commonwealth of Australia, 2025 Future Skills Organisation

ICADBS407A Monitor physical database implementation

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to monitor database performance using database-management system modelling.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

This unit applies to database support staff who are required to test and scrutinise the operation of a physical database to ensure that it functions as efficiently as possible.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes	*Performance criteria describe the*

© Commonwealth of Australia, 2025 Future Skills Organisation

of a unit of competency.	*performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Undertake database management system modelling	1.1 Review ***database*** prototype, as appropriate, to determine ***acceptance criteria*** and performance standards 1.2 Load test data according to the technical sequence detailed in ***documentation*** 1.3 Generate a test schedule for the database of ***tasks*** to be performed and results expected
2. Monitor database performance	2.1 Evaluate database performance against acceptance criteria and performance standards 2.2 Identify discrepancies in results when expected outcomes do not meet acceptance criteria 2.3 Identify areas needing enhancement and document changes to be made 2.4 Modify database according to project standards 2.5 Repeat performance testing until expected results are achieved
3. Seek client feedback and sign-off	3.1 Present test results in a document and provide to ***client*** for feedback 3.2 Incorporate client change requests as appropriate 3.3 Obtain client sign-off of the monitoring process

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- analytical skills to review database prototype and evaluate performance
- communication skills to liaise with client
- literacy skills to:
  - evaluate technical data
  - present and document feedback
- problem-solving skills to provide a range of technical solutions
- technical skills to use database software.

Required knowledge

- client business domain
- current industry-accepted hardware and software products
- database design
- database performance standards
- quality assurance practices
- testing and benchmarking processes
- three or more current principles of databases.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify technical considerations affecting implementation of a database • analyse performance issues during implementation of the database.
Context of and specific resources for assessment	Assessment must ensure access to: • database management system (DBMS) • target database prototype • testing and benchmarking software • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical

© Commonwealth of Australia, 2025 Future Skills Organisation

	skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of database performance testing • review of candidate's test schedule that documents evidence of discrepancies • evaluation of candidate's documented test results.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Database may include:	• commercial off-the-shelf (COTS) database packages • object-relational databases • proprietary databases • relational databases.
Acceptance criteria may include:	• cost implications • technical and logistical considerations • timeframe.
Documentation may follow:	• audit trails • client training • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards

© Commonwealth of Australia, 2025 Future Skills Organisation

	• maintaining equipment inventory • naming standards • project-management templates and report writing • satisfaction reports • version control.
Tasks may include:	• activities • function • job • work.
Client may include:	• external organisations • individuals • internal departments • internal employees.

Unit Sector(s)

Database

© Commonwealth of Australia, 2025 Future Skills Organisation

ICADBS408A Link an RFID system to a database

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to transfer radio frequency identification (RFID) data to a database.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

This unit applies to individuals in a range of information and communications technology (ICT) areas who are required to maintain RFID data and make kit available to an RFID system.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine data mapping and integration requirements	1.1 Identify and document the format of the data from the RFID system, including data schema 1.2 Collect required data, target ***database*** requirements and implementation details ensuring uniqueness of entries
2. Perform data transition	2.1 Write and test ***conversion programs*** and use ***conversion tools*** 2.2 Ensure clean data take-on by converting according to database requirements 2.3 Use database adaptors and interfaces for data transition
3. Check data transition	3.1 Verify that data transition has been completed according to requirements 3.2 Document programs, procedures and processes according to clients requirements 3.3 Provide conversion reports to client for sign-off

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to determine data objects required, data structures and business requirements
- communication skills to liaise with clients to discuss issues
- literacy skills to generate database and sample reports

© Commonwealth of Australia, 2025 Future Skills Organisation

- technical skills to:
  - build a database using a commercially available database product, including Microsoft Structured Query Language (MS SQL) Server 7.0, Oracle and Sybase
  - register a data source name (DSN)
  - use appropriate database data formats
  - use appropriate RFID data formats
  - use data conversion programs
  - use hypertext markup language (HTML) or eXtensible markup language (XML)
  - use ISO/IEC standard 15962:2004 as a reference
  - use website administration software and site server utilities.

Required knowledge

- client database data structures
- client data management and data security policy and procedures
- data analysis, particularly in determining data types and data structures and query and report design
- data source names in use by the organisation
- open database connection (ODC)
- primary files and transaction logs to confirm appropriate database activity
- quality assurance practices
- software tools
- system data requirements
- system's current functionality
- website foundations.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify formats of RFID system output and data fields in database • analyse, write, install and test conversion programs • identify format of data fields of database • write or obtain, and install conversion software

© Commonwealth of Australia, 2025 Future Skills Organisation

	• compile entries in database reports.
Context of and specific resources for assessment	Assessment must ensure access to: • conversion tools • database software • networked computers • organisational guidelines • RFID equipment specifications • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate configuring an RFID system and database using a range of equipment in a variety of scenarios • evaluation of candidate's documentation that includes programs, procedures and processes • review of candidate-generated conversion reports.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Database may include:	• commercial off-the-shelf (COTS) database packages

© Commonwealth of Australia, 2025 Future Skills Organisation

	• object-relational databases
	• proprietary databases
	• relational databases
	• software:
	  • Access connected to a structured query language (SQL) server
	  • DB2
	  • Informix
	  • Ingres
	  • Microsoft SQL (MS SQL) server
	  • Mini SQL (mSQL)
	  • MySQL
	  • Oracle
	  • Sybase.

Conversion programs may be in:	• object-oriented language • procedural programming language.

Conversion tools may include:	• analysis of data quality:
	  • QDB or Analyze
	  • WizRule
	  • Unitech Systems Inc
	• cleansing data:
	  • Integrity
	  • Enterprise or Integrator
	• data-mart management
	• extraction and transformation:
	  • Evolutionary Technologies International (ETI) extract
	  • InfoPump, InfoHub, InfoRefiner and InfoSuite
	  • Passport
	  • Warehouse Manager.

Unit Sector(s)

Database

© Commonwealth of Australia, 2025 Future Skills Organisation

ICADBS409A Monitor and administer a database

Modification History

Version	Comments
ICADBS409A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manage, monitor and administer a database.

Application of the Unit

This unit applies to database support staff who are required to maintain a database, monitoring its performance and access, and administering its security.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

	italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Start up a database	1.1 Configure system for ***database*** start-up 1.2 Monitor database start-up and operation for irregularities
2. Manage database	2.1 Take action to ensure that a data dictionary has been compiled and that data structures are in place 2.2 Maintain data integrity constraints according to ***business requirements*** 2.3 Create and design indexes and multiple-field keys according to business requirements 2.4 Monitor the locking options chosen for the database 2.5 Confirm that recent backups of the database have been stored and that backups can be retrieved as a full working copy 2.6 Monitor the data storage space for ongoing viability and resize as needed 2.7 Update data according to ***organisational guidelines***
3. Manage database access	3.1 Allocate or remove access privileges according to user status 3.2 Monitor ***network server*** log-in log file for illegal log-in attempts or for security breaches 3.3 Manage ***system*** resources in the context of database administration
4. Document database maintenance tasks	4.1 Document changes to database start-up procedures 4.2 Itemise database management structures 4.3 File authorisations for access changes 4.4 Detail procedures for monitoring log files 4.5 Record procedures to manage systems resources

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to determine database start-up and operation irregularities
- literacy skills to write technical and business reports
- problem-solving skills to resolve database irregularities
- research skills to identify, analyse and evaluate features of a particular database.

Required knowledge

- backup and recovery methodologies
- architectural design of relational databases
- database security
- selection and use of appropriate database management tools
- structured query language (SQL)
- tasks involved in database administration
- tuning methodologies.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • configure a database start-up • ensure data integrity • monitor data storage requirements for database • update data • update database access.
Context of and specific resources for assessment	Assessment must ensure access to: • live database, preferably on a LAN on which there is a server that offers log-in functionality • appropriate learning and assessment support when required • modified equipment for people with special needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• review of candidate's database
	• verbal or written questioning to assess candidate's knowledge of:
	  • database security
	  • database space requirements
	  • function of indexes and data dictionaries
	  • monitoring of database access
	• evaluation of candidate's database documentation detailing:
	  • start-up and operation irregularities
	  • network server logs of security breaches
	  • maintenance tasks performed, by whom and when.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Database may include:	• commercial off-the-shelf (COTS) database packages: • DB2

© Commonwealth of Australia, 2025 Future Skills Organisation

	• DB4 • Informix • Ingres • Microsoft Access • Microsoft Structured Query Language (MS SQL) server • Mini SQL (mSQL) • MySQL • Oracle • Postgre Structured Query Language (Postgre SQL) • Sybase • object-relational databases • proprietary databases • relational databases.
Business requirements may include:	• customer • inventory • payroll • supplier • tax requirements.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access • virus risk.
Network server may include:	• Linux • Mac • Novell NetWare 5 or above • operating system that has multi-user ability • Windows 2000 or above.
System may include:	• components that run a computer: • hardware • software.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Database

© Commonwealth of Australia, 2025 Future Skills Organisation

ICADBS412A Build a database

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to build and implement a database using an established design.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

This unit applies to database administrators and designers who are required to build databases.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate*

© Commonwealth of Australia, 2025 Future Skills Organisation

	achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Confirm database design	1.1 Review ***database*** design ***documentation***, including data structures, queries, reports and user interface 1.2 Compare database access and security feature design with organisational security plan 1.3 Document inconsistencies in database and security design
2. Create prototype	2.1 Develop prototype according to database design 2.2 Populate database tables with suitable data, including current business data 2.3 Write conversion programs to import data from existing systems 2.4 Develop test data to assess database features 2.5 Assess functionality of prototype with client, including identifying errors in program code and modifying screens and reports 2.6 Incorporate feedback from client into prototype 2.7 Obtain client sign-off for the prototype
3. Test database	3.1 Develop implementation plan for the database 3.2 Install ***database management system*** software on network 3.3 Populate database tables with business data 3.4 Implement security and access controls 3.5 Test database output and security controls and record results
4. Evaluate database	4.1 Review database with client for final approval 4.2 Complete database documentation 4.3 Identify and document user training ***requirements***

© Commonwealth of Australia, 2025 Future Skills Organisation

	4.4 Seek and secure client acceptance of database

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to review and detect inconsistencies in database design
- communication skills to liaise with users, particularly during the prototype phase
- literacy skills to:
  - document user-training requirements
  - prepare reports and technical documentation
- planning and organisational skills to:
  - complete tasks within required timeframe
  - complete tasks using organisation's business structures
- problem-solving skills to debug errors in coding
- technical skills to:
  - convert and validate data during implementation
  - encrypt and authenticate database security features
  - install and use proprietary software
  - model data, particularly during the design and development phases
  - program structured query language (SQL), particularly during the development phase.

Required knowledge

- overview knowledge of:
  - database management system (DBMS) fundamentals related to overall unit of competency, particularly during the design phase
  - OHS principles and responsibilities in regard to self and others while working in an IT environment
- detailed knowledge of:
  - functions and features of databases
  - logical data model, particularly related to developing a prototype
  - object-model design concepts, particularly related to developing data structures, queries, screens and reports
  - object-oriented data model, particularly related to developing a prototype
  - physical design concepts, particularly related to developing a prototype

© Commonwealth of Australia, 2025 Future Skills Organisation

- run time facilities related to implementing live database and operation of prototype
- SQL programming language.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• build and implement a well-structured database that
	  • represents the client's business reality
	  • provides the user with a productive business tool
	  • conforms to the client’s standards and structures.

Context of and specific resources for assessment	Assessment must ensure access to: • business requirements and strategy • database design documentation • database software • programming language • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate’s knowledge of functions and features of databases and the process of developing a prototype
	• evaluation of database
	• review of:
	  • database documentation, including security controls
	  • test data used to test database functionality.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the

© Commonwealth of Australia, 2025 Future Skills Organisation

	work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Database may include:	• DB2 • Informix • Ingres • Microsoft SQL (MS SQL) server • Mini SQL (mSQL) • MySQL • Oracle • Postgre Structured Query Language (Postgre SQL) • Sybase.
Documentation may follow:	• audit trails • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • naming standards • project management templates • report writing principles • version control.
Client may include:	• clubs • external organisations • individuals • internal departments • internal employees.
Database management system may include:	• distributed or centralised • online • partitioned geographically

© Commonwealth of Australia, 2025 Future Skills Organisation

	• thematically distributed.
Requirements may relate to:	• application • business • network • people in the organisation • system.

Unit Sector(s)

Database

© Commonwealth of Australia, 2025 Future Skills Organisation

ICADBS501A Monitor and improve knowledge management system

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to monitor and improve a knowledge management system.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

This unit applies to knowledge engineers who are required to support and maintain an existing knowledge management system.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Investigate knowledge management system	1.1 Review structure of existing knowledge management system and develop an understanding of its operation 1.2 Interview ***clients*** and staff to determine information ***requirements*** 1.3 Identify frequently requested information 1.4 Create a structure for organising ***information*** 1.5 Document structure and forward to appropriate person for approval
2. Create knowledge management system	2.1 Retrieve identified information 2.2 Organise information to follow the approved structure 2.3 Document information structure
3. Distribute and monitor knowledge management system documentation	3.1 Distribute knowledge management system documentation to clients and staff 3.2 Gather feedback from clients and staff and incorporate into improving ***systems and processes*** 3.3 Monitor use of knowledge management system to determine effectiveness 3.4 Make changes to knowledge management system 3.5 Make knowledge management system documentation available 3.6 Implement and monitor ***process improvements***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- analytical skills to evaluate business needs
- communication skills to liaise with clients and team members to elicit information via:
  - interviews, including open and closed interview questions
  - surveys
- literacy skills to write technical reports
- planning and organisational skills to:
  - evaluate client-information needs and match them to appropriate resources
  - plan for short- and long-term capacity
- problem-solving skills to solve problems in existing knowledge management system
- research skills to review and renew business knowledge systems
- technical skills to work with existing knowledge management systems.

Required knowledge

- overview knowledge of:
  - current practices in the management of information within organisations
  - information sources available within an organisation
- detailed knowledge of:
  - current knowledge management systems
  - database structures and construction
  - procedures for reviewing new systems for organising information.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • monitor existing knowledge management systems • implement strategies to improve a new or existing knowledge management system.

© Commonwealth of Australia, 2025 Future Skills Organisation

Context of and specific resources for assessment	Assessment must ensure access to: • databases • organisational information requirements • information repositories • current knowledge management systems • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning of candidate to determine knowledge of knowledge management • review of candidate's completed documentation of knowledge management system • evaluation of candidate's improvements to existing knowledge management system.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Clients may include:	• clubs • external organisations

© Commonwealth of Australia, 2025 Future Skills Organisation

	• individuals • internal departments • internal employees.
Requirements may relate to:	• application • business • database • network • people in the organisation • platform • system.
I***nformation*** may include:	• documents • other output • test pages • web pages.
Systems and processes may include:	• computer systems (hardware and software) • networks (local, national or international) • workflows, associated routines and operating procedures.
Process improvements may include:	• improved customer relationships • improved international or domestic competitiveness • improved value-adding • new or improved business processes • new products • reduction of production costs.

Unit Sector(s)

Database

© Commonwealth of Australia, 2025 Future Skills Organisation

ICADBS502A Design a database

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to establish client needs and technical requirements and to design a database that meets those requirements.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

This unit applies to database administrators and designers who are required to design databases.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine database requirements	1.1 Meet with ***client*** and conduct a user-needs analysis to determine ***database*** functionality 1.2 Analyse results of user-needs analysis to identify ***technical requirements*** 1.3 Develop a conceptual model of the database 1.4 Submit conceptual model to client for review 1.5 Evaluate client feedback and make changes as required
2. Develop logical data model	2.1 Identify attributes and determine data types 2.2 Undertake normalisation of attributes 2.3 Develop entity relationship diagram to clarify cardinality of relationships 2.4 Document attributes, normalised data and entity relationship diagram 2.5 Forward ***documentation*** to client for confirmation
3. Design data structures	3.1 Confirm primary and foreign keys for tables 3.2 Review client business rules 3.3 Identify referential integrity constraints 3.4 Establish ***database-management system*** constraints and incorporate into database design 3.5 Develop validation rules for data 3.6 Design indexes and develop data dictionary 3.7 Document the database design
4. Design queries, screens and reports	4.1 Design user interface for database, including menus, input screens and outputs

© Commonwealth of Australia, 2025 Future Skills Organisation

	4.2 Design queries based on ***requirements***
	4.3 Design output reports based on requirements
	4.4 Compare physical design with conceptual model or user-needs analysis
	4.5 Incorporate changes as required
5. Design access and security systems	5.1 Review business ***security plan*** as basis for commencing access and security design
	5.2 Design password and access system for database
	5.3 Identify multiple-user requirements
	5.4 Develop client access profiles using client business model
6. Confirm database design	6.1 Identify database backup and recovery requirements
	6.2 Develop and document the database backup and restore procedures
	6.3 Submit database and documentation to client for final approval

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to determine data objects required, data structures and business requirements
- communication skills to liaise with clients
- literacy skills to:
  - produce database documentation
  - produce models
- numeracy skills to calculate field lengths, table and database estimated size
- planning and organisational skills to undertake business analysis
- problem-solving skills to solve normalisation problems
- technical skills to undertake data modelling and structured query language (SQL) programming.

Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

- data analysis, particularly in determining data types and data structures and query and report design
- data modelling related to developing the conceptual data model
- data redundancy
- database management system (DBMS) fundamentals, particularly during the design phase
- encryption and authentication as they apply to database security features
- function and features of data types and data structures
- functions and features of databases
- logical design concepts, particularly related to designing data structures, queries screens and reports
- object model design concepts, particularly related to designing data structures, queries, screens and reports
- scalability of databases.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design a well-structured database that represents the client's business reality and provides the user with a productive business tool.
Context of and specific resources for assessment	Assessment must ensure access to: • current industry-accepted database software, network or other system for remote or multi-user access • business requirements • CASE or diagramming software • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • observation of candidate liaising with client • verbal or written questioning to assess candidate’s knowledge of: • normalisation

© Commonwealth of Australia, 2025 Future Skills Organisation

	• indexing • security models • review of the final database and associated support documentation.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• employees • external organisations • individuals • internal departments.
Database may include:	• commercial off-the-shelf (COTS) database packages • object-relational databases • proprietary databases • relational databases.
Technical requirements may relate to:	• application • business • database • network • people in the organisation • platform

© Commonwealth of Australia, 2025 Future Skills Organisation

	• system.
Documentation may include:	• audit trails • data dictionaries • entity-relationship diagrams • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • naming standards • project management templates and report writing principles • version control.
Database management system may include:	• distributed or centralised • online • partitioned geographically or thematically distributed.
Requirements may relate to:	• application • business • database • network • people in the organisation • platform • system.
Security plan may include:	• authentication • authorisation and integrity • privacy • security objectives of the organisation.

Unit Sector(s)

Database

© Commonwealth of Australia, 2025 Future Skills Organisation

ICADBS503B Create a data warehouse

Modification History

Release	Comments
Release 2	This version first released with ICA11 Information and Communications Technology Version 2. Added performance criteria under element 1. Added to range statement. A range of minor editorial changes. Outcomes deemed equivalent.
Release 1	This version first released with ICA11 Information and Communications Technology Version 1.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to undertake activities, from proposal to implementation stage, for a data warehouse model that reflects current and future business requirements and the business knowledge management strategy.

Application of the Unit

This unit applies to senior database staff required to ensure data warehouse functionality for their enterprise.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Identify required data and sources	1.1. Identify required data according to enterprise knowledge management strategy 1.2. Identify subject areas according to business processes and required data 1.3. Explore operational data, define warehouse sources, and record outcomes 1.4. Identify possible ***big data*** applications 1.5. Develop warehouse source specifications according to existing data tables and files
2. Determine data warehouse operational steps and processes	2.1. Develop warehouse targets according to business processes and required data 2.2. Identify warehouse agents according to ***system configuration*** 2.3. Identify and develop warehouse steps and processes
3. Design and develop data warehouse features	3.1. Design and develop warehouse user interface according to principles of user-interface design 3.2. Develop and implement warehouse security strategy according to enterprise ***security plan*** 3.3. Identify dimension tables and fact tables according to required data 3.4. Develop warehouse information catalogue according to enterprise knowledge management strategy
4. Test and implement data warehouse	4.1. Test data warehouse against business requirements to ensure that iterations meet business objectives 4.2. Recommend changes to business processes to ensure compatibility with data warehouse and knowledge management

© Commonwealth of Australia, 2025 Future Skills Organisation

	strategy 4.3. Implement the data warehouse 4.4. Establish ongoing maintenance schedule to keep ***system*** efficient 4.5. Benchmark and document the performance level of the data warehouse
5. Finalise work processes	5.1. Arrange for ***users*** to have ongoing training in the data warehouse 5.2. Validate test results 5.3. Obtain sign-off of the data warehouse

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills
analytical skills to: • analyse business requirements • analyse data warehouse requirements and identify appropriate data • select the most appropriate data warehouse tool for enterprise needs • communication skills to: • conduct training • liaise with senior management • literacy skills to: • develop policy and procedures • develop data warehouse information catalogue • document performance level of data warehouse • produce data warehouse documentation • numeracy skills to conduct cost-benefit analyses of the data warehouse project • planning and organisational skills to manage the data warehouse project, including deliverables, milestones and work breakdown structure • problem-solving skills to handle unexpected problems in design, implementation and delivery of data warehouse • research skills to: • be aware of the product range in data warehouses • keep informed of the latest activities in data warehouse design and use • technical skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

• design a suitable user interface • develop data warehouse source specifications • gather and analyse data • model data warehouse operational steps and processes • source data • use structured query language (SQL) where appropriate in the data warehousing activity
Required knowledge

• functions and features of:
  • data warehousing and data mining
  • dimension tables and fact tables
  • steps and processes, including transformer steps, program steps, SQL steps and user-defined program steps
  • subject areas, warehouse sources and warehouse targets
  • warehouse agents and agent sites
• overview knowledge of:
  • business operating systems relating to data sources
  • decision support systems relating to knowledge management strategies

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design a data warehouse model that reflects current and future business requirements and the business knowledge management strategy • implement the design.
Context of and specific resources for assessment	Assessment must ensure access to: • business requirements • computers configurable as information servers • enterprise knowledge management strategy • internet connectivity tools • local area network (LAN) with a relational database

© Commonwealth of Australia, 2025 Future Skills Organisation

	management system (DBMS) • proxy server software • specialised internet security software • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of candidate's design of a data warehouse • review of candidate's data warehouse documentation • verbal or written questioning to assess candidate's knowledge of data sources and data warehouses • direct observation of candidate conducting data warehouse training.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating *conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.*

Big data may include:	• data access that incorporates high volume, high velocity and a high variety of information with fast in-depth processing

© Commonwealth of Australia, 2025 Future Skills Organisation

	• data managed by large information management specialist companies using big data technologies, such as Software AG, Oracle, IBM, Microsoft, SAP, EMC, and HP • data that is distributed within the cloud across a wide number of database servers.

System configuration may include:	• configuration, such as:
	  • small memory model
	  • large memory model
	  • requests per second
	• database software, such as:
	  • DB2
	  • Informix
	  • Ingres
	  • Microsoft SQL (MS SQL) server
	  • Mini SQL (mSQL)
	  • MySQL
	  • Oracle
	  • Sybase
	• operating systems, such as:
	  • Linux
	  • Mac
	  • multi-user ability
	  • Novell NetWare 5 or above
	  • Windows 2000 or above.

Security plan may contain:	• alerts • audits • handling theft • privacy • standards, including archival, backup and network • viruses.
System may include:	• application service provider (ASP) • applications • databases • gateways • internet service provider (ISP) • operating systems • servers.
Users may include:	• department within an enterprise • person within a department • third party.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Database

© Commonwealth of Australia, 2025 Future Skills Organisation

ICADBS504A Integrate database with a website

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to ensure database is integrated with a website.

Application of the Unit

This unit applies to web developers who are responsible for creating data-driven web applications.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information*

© Commonwealth of Australia, 2025 Future Skills Organisation

	is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Connect to database	1.1 Identify site data needs from technical requirements 1.2 Connect to ***database*** from web application using a web development ***language***
2. Retrieve data from database and display on web pages	2.1 Retrieve data using structured query language (SQL) 2.2 Display data in the most appropriate control 2.3 Format data so that it is displayed in the most effective way
3. Update database data from user input	3.1 Update existing data stored in the database with ***user***-supplied input 3.2 Insert data in the database with user-supplied input 3.3 Delete data stored in the database 3.4 Include error checking and validation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - determine functional requirements
  - identify database access points
- communication skills to liaise with clients
- initiative and enterprise skills to provide feedback and recommend the most appropriate technology solutions
- literacy skills to:
  - follow documented instruction from a supplied guide
  - interpret workplace instructions and other technical documents

© Commonwealth of Australia, 2025 Future Skills Organisation

- planning and organisational skills to organise the most appropriate solution
- problem-solving skills to:
  - identify and rectify website functional problems
  - identify and resolve bugs in the created code
  - select the most efficient and effective algorithms
- research skills to:
  - find solutions to encountered problems
  - keep up-to-date with industry trends
- technical skills to:
  - apply hypertext transfer protocol (HTTP)
  - apply web programming concepts
  - create hypertext markup language (HTML) or eXtensible hypertext markup language (XHTML) pages
  - create software in a web development language
  - create SQL statements
  - create aesthetically pleasing web pages.

Required knowledge

- detailed knowledge of:
  - database structure
  - internet technology as it relates to the use of databases
  - programming control structures, object-oriented programming
  - SQL
- web programming concepts, including:
  - authentication and web security
  - HTTP
  - session management
  - stateless programming.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

© Commonwealth of Australia, 2025 Future Skills Organisation

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • create a web application which accesses a database, displaying and modifying the database data provided by user input.
Context of and specific resources for assessment	Assessment must ensure access to: • requirements documentation • web server • database • web development environment • browsers • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of a web application created to access, display and update data stored in a database • verbal or written questioning to ensure knowledge of the impact of data-driven web applications.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

Database may include:	• Access • DB2 • Informix • Ingres • Microsoft SQL (MS SQL) server • Mini SQL (mSQL) • MySQL • Oracle • Sybase.
Language may include:	• ASP • ASP.NET • Coldfusion • Perlscript • PHP.
User may include:	• client • external departments • individuals • internal departments.

Unit Sector(s)

Database

© Commonwealth of Australia, 2025 Future Skills Organisation

ICADBS601B Build a data warehouse

Modification History

Release	Comments
Release 2	This version first released with ICA11 Information and Communications Technology Version 2. Added performance criteria under element 1. Added to range statement. A range of minor editorial changes. Outcomes deemed equivalent.
Release 1	This version first released with ICA11 Information and Communications Technology Version 1.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to undertake activities, from proposal to implementation stage, for a data warehouse model that reflects current and future business requirements and the business knowledge management strategy.

Application of the Unit

This unit applies to those managing a knowledge management team, or working in a senior role in such a team. Those with line management responsibility should undertake this role.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Confirm database design	1.1. Review ***database*** design ***document***, including data structures, queries, reports and user interface 1.2. Identify possible ***big data*** applications 1.3. Compare database access and security feature design with business security plan
2. Identify required data and sources	2.1. Identify required data with reference to enterprise knowledge management strategy 2.2. Identify subject areas with reference to business processes and required data 2.3. Explore operational data, define warehouse sources, and record outcomes 2.4. Develop warehouse source specifications with reference to existing data tables and files
3. Determine data warehouse operational steps and processes	3.1. Develop warehouse targets with reference to business processes and required data 3.2. Identify warehouse agents according to system configuration 3.3. Identify and develop warehouse steps and processes
4. Design and develop data warehouse features	4.1. Design and develop warehouse user interface with reference to principles of user-interface design 4.2. Develop and implement warehouse security strategy according to enterprise security plan 4.3. Identify dimension tables and fact tables with reference to

© Commonwealth of Australia, 2025 Future Skills Organisation

	required data 4.4. Cost technology requirements for implementation of warehouse security strategy and include them in e-business budgeting 4.5. Develop warehouse information catalogue with reference to enterprise knowledge management strategy
5. Test and implement data warehouse	5.1. Test data warehouse against business requirements to ensure that iterations meet business objectives 5.2. Recommend changes to business processes to ensure compatibility with data warehouse and knowledge management strategy 5.3. Implement the data warehouse 5.4. Establish ongoing maintenance schedule to keep ***system*** efficient 5.5. Benchmark and document the performance level of the data warehouse
6. Finalise work processes	6.1. Arrange for ***users*** to have ongoing training in the data warehouse 6.2. Validate test results 6.3. Obtain sign-off of the data warehouse

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills
analytical skills to: • analyse business requirements • gather and analyse user requirements • communication skills to liaise with business and technical staff • literacy skills to prepare reports and technical documentation • numeracy skills to complete cost-benefit analyses • planning and organisational skills to manage data warehouse implementation • technical skills to: • convert and validate data • perform data modelling • work with databases, including programming languages

© Commonwealth of Australia, 2025 Future Skills Organisation

Required knowledge
• business operating systems relating to data sources • database management system (DBMS) fundamentals to facilitate extraction of data • decision support systems relating to knowledge management strategies • encryption and authentication as they apply to database security features • functions and features of dimension tables and fact tables • installation and use of proprietary software • logical database model knowledge to facilitate data extraction

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• undertake activities from proposal to implementation stage for a data warehouse model that reflects current and future business requirements and the business knowledge management strategy and demonstrates:
	  • cost-benefit analysis of a data warehouse implementation for a defined enterprise
	  • user guide for use by an implemented data warehouse
	  • technical documentation for an implementation of a data warehouse.

Context of and specific resources for assessment	Assessment must ensure: • data in a DBMS • data-warehousing tools • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of candidate's written report • questioning to determine knowledge of relationship between databases and data warehouses • project to implement a data warehouse.

© Commonwealth of Australia, 2025 Future Skills Organisation

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Database may include:	• DB2 • Informix • Ingres • Microsoft SQL (MS SQL) server • Mini SQL (mSQL) • MySQL • Oracle • Postgre Structured Query Language (Postgre SQL) • Sybase.
Document may relate to:	• audit trails • client training • International Organization for Standardization (ISO) standards • maintaining equipment inventory • naming standards • project management templates and report writing • satisfaction reports • version control.

© Commonwealth of Australia, 2025 Future Skills Organisation

Big data may include:	• data access that incorporates high volume, high velocity and a high variety of information with fast in-depth processing • data managed by large information management specialist companies using big data technologies, such as Software AG, Oracle, IBM, Microsoft, SAP, EMC, and HP • data that is distributed within the cloud across a wide number of database servers.
System may include:	• application service provider (ASP) • applications • databases • gateways • internet service provider (ISP) • operating systems • servers.
Users may include:	• department within an enterprise • person within a department • third party.

Unit Sector(s)

Database

© Commonwealth of Australia, 2025 Future Skills Organisation

ICADBS602A Develop a knowledge management strategy

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop a knowledge management strategy for an organisation. It includes analysing existing systems, determining requirements and developing a strategy to meet those requirements.

Application of the Unit

This unit applies to those managing a knowledge management team, or working in a senior role in such a team. Those with line management responsibility should undertake this role.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

	italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Analyse existing knowledge management arrangements	1.1 Identify existing arrangements for the capture and use of knowledge and information from internal and external sources 1.2 Distinguish between arrangements for managing knowledge and information management 1.3 Understand the importance of ***knowledge management concepts*** in the identified organisation 1.4 Evaluate the effectiveness of existing procedures and systems in terms of meeting the needs of clients, organisational aims, objectives and standards 1.5 Identify improvements in the organisation's strategic use of knowledge and prepare a cost-benefit analysis
2. Evaluate knowledge management options	2.1 Investigate methods for capturing and using the knowledge held by people within a business, and identify and evaluate barriers to their use 2.2 Evaluate ***knowledge management software*** and make recommendations regarding its usefulness and likely benefit to the organisation 2.3 Investigate incentives and reward systems to support knowledge management for their relevance to a business 2.4 Determine business non-technical requirements for maintaining and accessing an integrated knowledge database, according to organisational requirements
3. Develop a knowledge-management strategy	3.1 Develop a ***knowledge management strategy*** in consultation with staff for the capture and strategic use of organisational knowledge 3.2 Design business processes to support

© Commonwealth of Australia, 2025 Future Skills Organisation

	knowledge management according to the organisation's knowledge management strategy and budget 3.3 Plan an executive support system as part of the knowledge management strategy to improve managerial decision making according to organisational requirements 3.4 Cost technology requirements for implementation of the strategy and include in knowledge management budgeting 3.5 Design or redesign processes for the periodic review of knowledge management within the business to ensure ongoing efficiency and effectiveness 3.6 Ensure that the knowledge management strategy meets organisational requirements identified in its overall business plan and knowledge management strategy

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to evaluate existing knowledge management initiatives and compare these to corporate needs and directions
- communication skills to liaise with management, technical staff and end users of an organisation
- initiative and enterprise skills to plan strategies
- literacy skills to produce reports and proposals
- numeracy skills to produce a cost-benefit analysis
- planning and organisational skills to plan a strategy to be implemented over time
- research skills to identify appropriate technologies to fit with an organisational requirements.

Required knowledge

- culture of the business versus traditional business models

© Commonwealth of Australia, 2025 Future Skills Organisation

- database design concepts
- internal and external sources of information
- legal, ethical and security issues relating to knowledge management
- records-management principles
- relevant government legislation that may affect business operation, especially in regard to OHS and environmental issues, equal opportunity, industrial relations and anti-discrimination
- structure of the organisation and its business goals.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • choose a knowledge management option that meets organisational requirements • develop a knowledge management strategy that is able to be implemented • explain the importance of knowledge management in contemporary organisations.
Context of and specific resources for assessment	Assessment must ensure access to: • sample organisations suitable for the implementation of knowledge management, including business plans • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of candidate's written report outlining knowledge management plan and strategy • evaluation of candidate's project setting up first phases of the knowledge management plan.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the

© Commonwealth of Australia, 2025 Future Skills Organisation

	work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Knowledge management concepts may include:	• embedded knowledge • embodied knowledge • explicit knowledge • tacit knowledge.

Knowledge management software may include:	• non-specialist software features, such as:
	  • meeting software
	  • project software
	  • calendaring software
	  • collaboration software
	  • social software
	• specialist knowledge management software, such as:
	  • Lotus Notes
	  • Microsoft SharePoint.

Knowledge management strategy may include:	• best practice transfer • collaborative technologies • communities of practice • cross-project learning • expert directories • knowledge mapping • knowledge repositories • rewards (motivation) • social web collaboration sites • storytelling (transference of tacit knowledge).

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Database

© Commonwealth of Australia, 2025 Future Skills Organisation

ICADBS603B Determine suitability of database functionality and scalability

Modification History

Release	Comments
Release 2	This version first released with ICA11 Information and Communications Technology Version 2. Prerequisite unit removed. Added performance criteria under element 2. Added to range statement. A range of minor editorial changes. Outcomes deemed equivalent.
Release 1	This version first released with ICA11 Information and Communications Technology Version 1.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to identify current and future business requirements for a database.

Application of the Unit

This unit applies to those reviewing and managing databases.

Those with senior operational status or line management responsibility should undertake this role.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine context of business need or problem	1.1. Develop ***database*** objectives and identify expected outcomes to be achieved 1.2***. Document*** the database ***problem***
2. Gather information	2.1. Analyse database to identify the business rules, entities and relationships 2.2. Identify existing and proposed business models 2.3. Identify possible ***big data*** applications
3. Determine database functionality	3.1. Document existing database and environment 3.2. Confirm database functionality with ***client***
4. Identify scalability and functionality	4.1. Identify the reserve and long-term capacity of the database 4.2. Identify the implications for the ***system*** architecture, data models, data structures, hardware and software 4.3. Identify ***requirements*** for scalability 4.4. Compare functionality and scalability features of the database 4.5. Determine and document any gap between the features
5. Prepare database functionality and scalability report	5.1. Document functionality and scalability of database 5.2. Submit report to client for review

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

• analytical skills to analyse business requirements
• communication skills to:
  • elicit information from users
  • liaise with technical and non-technical personnel
• literacy skills to produce reports
• numeracy skills to perform capacity planning
• technical skills to model data processes

Required knowledge
• architecture of the network in which the database resides • Australian Computer Society Code of Ethics • common system hardware relating to client, server and database architecture • data modelling • functions and features of databases • work health and safety (WHS) principles and responsibilities in regard to self and others

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • produce a clear statement of business expectations and needs, including critical business requirements • examine and document the scalability and functionality of a database in light of future growth.
Context of and specific resources for assessment	Assessment must ensure access to: • DBMS • sample database • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for

© Commonwealth of Australia, 2025 Future Skills Organisation

	this unit: • review of candidate's written report • evaluation of candidate's project to assess database functionality and scalability • verbal or written questioning to determine candidate's knowledge of business needs and scalability requirements.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating *conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.*

Database may include:	• commercial off-the-shelf (COTS) database packages • object-relational databases • proprietary databases • relational databases.

Document may relate to:	• audit trails
	• standards, such as:
	  • International Organization for Standardization (ISO)
	  • International Electrotechnical Commission (IEC)
	  • Australian Standards (AS)
	  • Institute of Electrical and Electronics Engineers (IEEE)
	  • Internet Engineering Task Force (IETF)
	• naming standards
	• project-management templates

© Commonwealth of Australia, 2025 Future Skills Organisation

	• report writing principles • version control.
Problem may include:	• application • business need or opportunity • internal business • network • people in the organisation • system.
Big data may include:	• data access that incorporates high volume, high velocity and a high variety of information with fast in-depth processing • data managed by large information management specialist companies using big data technologies, such as Software AG, Oracle, IBM, Microsoft, SAP, EMC, and HP • data that is distributed within the cloud across a wide number of database servers.
Client may include:	• customer • employee • external organisation • individual • internal department.
System may include:	• application • business • cabling infrastructure • computers • database • database management system (DBMS) • financial system • information system • management system • network equipment • software.
Requirements may include:	• application • business • network • people in the organisation • system.

Unit Sector(s)

Database

© Commonwealth of Australia, 2025 Future Skills Organisation

© Commonwealth of Australia, 2025 Future Skills Organisation

ICADMT401A Create visual design components for digital media

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to create visual design components for interactive media using industry standard authoring tools.

Application of the Unit

This unit applies to concept artists, web and digital media designers, game designers, animators and other personnel working in the digital media industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information*

© Commonwealth of Australia, 2025 Future Skills Organisation

	is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify commonly used visual design components for games and interactive media	1.1 Obtain ***project brief and documents*** 1.2 Identify features of visual design components for interactive media 1.3 Discuss ***design considerations*** for designing an interactive visual design component
2. Identify graphics software packages used for visual design	2.1 Identify and review the range of industry standard ***graphics software*** available 2.2 Assess the software related to visual design component requirements 2.3 Discuss ***technical specifications*** for rendering and editing processes 2.4 Select graphics software package
3. Use graphics software	3.1 Run graphics software and become familiar with the interface 3.2 Create new files and organise a file structure 3.3 Learn required tools and features used to create visual design components
4. Create visual design components for an interactive media	4.1 Design the visual components of a basic ***graphical user interface (GUI)*** for interactive media 4.2 Consider the interactive elements of GUI 4.3 Document the design 4.4 Use graphics software to create visual design components to be used for the GUI
5. Evaluate implementation	5.1 Demonstrate implementation to relevant ***personnel*** 5.2 Evaluate the usability of design components 5.3 Reflect on possible changes to improve the visual design and interactivity of components

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse documentation and images to inform implementation of visual design components
  - interpret briefs, work instructions, and technical and conceptual information
- communication skills to:
  - check and confirm design requirements
  - communicate complex designs in a structured format drawn from industry standards, styles and techniques
  - communicate technical requirements related to graphics requirements
- initiative and enterprise skills to exercise a high level of creative ingenuity in visual design and innovation
- literacy and numeracy skills to:
  - develop technical design documents
  - read briefs, work instructions, and technical and conceptual information
- planning and organisational skills to:
  - establish clear roles and goals to achieve required game development outcomes
  - refer decisions to a higher project authority for review and endorsement
- problem-solving skills to recognise and address potential quality issues and problems at design development stage
- research skills to undertake practical, technical and desktop research into visual design components for interactive media
- technical skills to:
  - translate design requirements into specifications
  - use correct file formats.

Required knowledge

- basic programming techniques
- human resources required in the process of creating visual design components and the technology requirements
- technical constraints that hardware imposes on software development, graphics requirements, code development and creative visual design
- techniques for applying concept development skills
- techniques for applying concept visualisation skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • demonstrate original and innovative approaches to the creative development of a GUI • maintain integrity of the design brief • develop concept art and design specifications for splash screens, start screens and game field screens consistent with a design brief • develop technical specifications for visual design components and overall usability.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software and file storage • internet access for research purposes • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of work samples or simulated workplace experiences • evaluation of design brief detailing interface design components • review of production of visual design components • evaluation of a working GUI with basic functionalities.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Project brief and documents may include:	• concept drawings • designer's notes • development-environment description • help notes • information design • interactive media design document • operating manual • storyboard • style and design principles • style and medium • target market information • technical design document • technical design review process.
Design considerations may include:	• aesthetics • cultural context • genre • resource limitations and constraints • target market.
Graphics software may include:	• 3-D paint • Fireworks • Illustrator • Mudbox • Photoshop • Z Brush.
Technical specifications may	• backup procedures • delivery platform

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• disc or memory space • format for final product • navigation design • pixel size • polygon count • source code and game assets archiving • target market.
Graphical user interface elements may include:	• buttons and button clicks • command acknowledgements • edit boxes • file saving and loading • icons • list boxes • markers • menus • options and settings • picture boxes • pointers • radio buttons • scroll bars • shell • splash screens • text boxes • window opening • windows.
Personnel may include:	• animators • concept artists • game-play designers • graphic designers • instructional designers • modellers • motion-capture technicians • other specialist staff • other technical staff • producers • programmers • project manager • sound engineers • team members • technical director • writers.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Digital media technologies

© Commonwealth of Australia, 2025 Future Skills Organisation

ICADMT402A Produce interactive animation

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to create animation for a range of applications, including web pages, e-learning, simulations and advertisements.

Application of the Unit

This unit applies to web designers and digital media designers responsible for creating animations for the web and other media.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

	italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Analyse project requirements	1.1 Determine the necessary dynamic functionality of the animation to be included inside a ***web or other interactive document***
	1.2 Determine the appropriate language to achieve that functionality
	1.3 Determine and evaluate current requirements for the specified application
2. Design animations	2.1 Design the ***animations*** to enhance the page and to meet requirements
	2.2 Design animations to meet specifications for sound and interactive functions
	2.3 Design animations that will add to the overall professionalism or entertainment value of an application
3. Produce animations	3.1 Produce animations for web pages and other media
	3.2 Research and experiment with a range of animation techniques for enhancing the user experience
	3.3 Produce web animations for a website which enhance the overall professionalism or entertainment value of the website
	3.4 Test and debug scripts against the required functionality and reiterate until correct
4. Publish animations	4.1 Publish animations in acceptable format
	4.2 Incorporate animations into a hypertext markup language (HTML) page
	4.3 Complete the documentation and submit to the appropriate person for approval

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - determine functional requirements
  - identify appropriate design elements to match requirements
- communication skills to:
  - create a user-friendly animation
  - create an animation that markets the message effectively
  - liaise with the client
- initiative and enterprise skills to provide feedback and recommend the most appropriate technology solutions
- learning skills to research encountered problems independently
- literacy skills to:
  - create effective marketing dialogue within the animation
  - follow naming conventions
  - interpret workplace instructions and other technical documents
- planning and organisational skills to determine the most appropriate solution
- problem-solving skills to:
  - determine the best coding level to maximise the number of possible browser viewing
  - identify and rectify animation functional problems, resolve bugs in the code created, and resolve error messages
  - select the most efficient and effective algorithms
- research skills to:
  - find solutions to encountered problems
  - find the solution best suited to client requirements
- technical skills to:
  - apply web programming concepts
  - create HTML or eXtensible hypertext markup (XHTML) pages with embedded animation
  - create animations aesthetically pleasing to look at, interesting, entertaining and interactive.

Required knowledge

- internet technology to inform the choice of the right scripting type to reach a maximum determined audience

© Commonwealth of Australia, 2025 Future Skills Organisation

- principles of analysis and design
- principles of marketing
- programming control structures, object-oriented programming:
  - buttons
  - scripting to go to URLs
  - scripting to jump to different parts of the animation
  - scripting using the programming language
- web-animation programming concepts, including:
  - acceptable formats for importing assets
  - component libraries
  - cross-browser issues
  - importing and exporting libraries
  - inserting the published work to an HTML or XHTML page
  - internet animation player statistics
  - masking
  - movements and automated movements
  - publishing the finished work to an acceptable web format
  - shape animation and manipulation
  - symbols
  - text manipulation
  - transparencies.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design and create interactive animation following current industry standards • design and create interactive animation to enhance the professionalism and entertainment value of a website.
Context of and specific resources for assessment	Assessment must ensure access to: • development environment • internet access • browsers

© Commonwealth of Australia, 2025 Future Skills Organisation

	• appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to determine candidate's knowledge regarding:
	  • animation techniques
	  • terminology
	  • methods
	• evaluation of the effectiveness of a candidate's design and creativeness of the animation in advertisements and website enhancements
	• review of the candidate's research report of web technology trends, explaining the methods and attributes used and how the animation created enhances the website and entices buyers to click on advertisements.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Web or other interactive document	• previously created and new HTML documents • saved HTML documents.

© Commonwealth of Australia, 2025 Future Skills Organisation

may include:	
Animations may include:	• ActionScript • Silverlight.

Unit Sector(s)

Digital media technologies

© Commonwealth of Australia, 2025 Future Skills Organisation

ICADMT403A Produce and edit digital images

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to produce and edit digital images using a range of digital media technologies.

Application of the Unit

This unit applies to digital media designers in a broad range of technical and managerial functions who are responsible for producing, editing, enhancing and manipulating digital images.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

	italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Assess digital camera qualities	1.1 Assess camera software compatibility with hardware systems and select appropriate software for the production 1.2 Select a pixel resolution on the camera to achieve the required quality and resolution of outcome 1.3 Check the storage capacity of the camera to identify the number of images required to be captured 1.4 Assess ***camera features*** as suitable to the quality of and use of digital image required 1.5 Handle and store lithium batteries according to OHS requirements
2. Photograph an image	2.1 Consider camera features when operating camera to ensure capture of image meets production requirements 2.2 Load and operate the camera according to manufacturer specifications and appropriate to the quality of image to be photographed 2.3 Capture digital images using designated ***file formats***
3. Edit a digital image	3.1 Ensure correct use of ***digital image software***, including entering and exiting the selected software 3.2 Create and store digital image files on a computer according to software procedures 3.3 Enhance, crop and alter digital images electronically to deliver the required image 3.4 Check digital images for suitability and compliance with specifications 3.5 Save and retrieve digital images using designated file formats 3.6 Assess digital images for the ***delivery mode***
4. Incorporate digital images into an	4.1 Create graphics that incorporate the ***principles of design*** using digital image software

© Commonwealth of Australia, 2025 Future Skills Organisation

interactive sequence	4.2 Edit, enhance, amend and save digital images using digital image software 4.3 Combine digital images into a designated ***interactive sequence*** 4.4 Integrate digital images into a designated interactive sequence 4.5 Evaluate the outcome for purpose, visual impact and effectiveness

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- learning skills to research encountered problems independently
- literacy skills to interpret standards, requirements and equipment operation manuals
- planning and organisational skills to determine the most appropriate solution
- problem-solving skills to anticipate and resolve minor equipment set-up problems
- technical skills to:
  - manage files using standard naming conventions
  - use a digital camera to create well-composed digital images
  - use digital imaging software to edit digital images.

Required knowledge

- basic knowledge of the features of a range of delivery platforms
- basic photographic techniques
- basic principles of visual design and communication
- copyright and intellectual property
- implications of technology connectivity
- OHS requirements for the use of cameras and computers, and handling and disposing of lithium batteries
- procedures for customer and business liaison
- relevant standards.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • operate a digital camera to capture a range of images • identify and select appropriate tools and procedures required to produce digital images • use digital imaging software to prepare high quality digital images that satisfy a range of customer or business requirements.
Context of and specific resources for assessment	Assessment must ensure access to: • range of resources and equipment, including digital camera and industry standard graphics software • standards and copyright information • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of candidate selecting software and hardware types and identifying standards to meet business requirements
	• evaluation of photo images prepared on a number of occasions
	• verbal or written questioning to determine candidate's knowledge regarding:
	  • digital imaging techniques
	  • terminology
	  • methods
	  • OHS issues
	• evaluation of the effectiveness of a candidate's design and creativeness of digital images for interactive sequences.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Camera features may include:	• aperture • automatic, program or manual settings • batteries • colour, target and working space • compatibility with hardware and digital imaging software • exposure compensation • file format • flash or fill flash • lens focal lengths, such as wide angle, close-up and telephoto • menu functions • resolution, such as megapixels • shutter speed • size and type of memory cards • subject modes • white balance.
File formats may include:	• graphic interchange format (gif) • joint photographic expert group (jpeg) • portable document format (pdf) • picture format (pict) • portable network graphics (png) • photoshop data (psd) • raw (not yet processed)

© Commonwealth of Australia, 2025 Future Skills Organisation

	• tagged image file format (tiff).
Digital image software may include a wide range of programs:	• Adobe Photoshop • Adobe Photoshop Elements • Adobe Photoshop Lightroom • Apple Aperture • Corel Paint Shop Pro • Corel PhotoPaint • GNU Image Manipulation Program (GIMP and GIMPshop).
Delivery mode may include:	• CD • DVD • games console • internet • mobile phones • personal digital assistants (PDAs) • print • video players.
Principles of design may include:	• balance • emphasis • movement • perspective • proportion • scale • unity.
Interactive sequence may include:	• animation • e-commerce • educational product • game • information product • promotional product • training product • website.

Unit Sector(s)

Digital media technologies

© Commonwealth of Australia, 2025 Future Skills Organisation

ICADMT501A Incorporate and edit digital video

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to incorporate and edit digital video into interactive media presentations.

Application of the Unit

This unit applies to digital media developers and producers and other personnel working in the digital media industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information*

© Commonwealth of Australia, 2025 Future Skills Organisation

	is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify and describe formats of digital video	1.1 Determine the distinguishing features and uses of a range of digital video software 1.2 Select current ***video-editing software*** appropriate to a range of given outcomes 1.3 Determine limiting factors of computer hardware on video production for a specified job 1.4 Determine differences of image quality and image size required to deliver the desired outcome 1.5 Analyse the formats employed to create a given computer video sequence for a specified outcome
2. Design digital video	2.1 Assess and select appropriate digital video software for the job 2.2 Use digital video editing software to combine video assets 2.3 Control variations in video frame rates as required for the job to be undertaken 2.4 Apply time stamping techniques to the video frames appropriate for the job to be undertaken 2.5 Save digital video using the appropriate file techniques
3. Edit digital video	3.1 Edit single and multiple video tracks to achieve a defined outcome 3.2 Join multiple tracks of digital video according to specifications 3.3 Employ ***digital effects*** to modify and integrate digital video tracks according to specifications 3.4 Apply time encoding to single and multiple edited digital video tracks according to specifications 3.5 Insert a video track into an interactive media production according to specifications
4. Present a digital	4.1 Test digital video and combine with other digital

© Commonwealth of Australia, 2025 Future Skills Organisation

video sequence	imaging, ***sound, visual effects*** and animation to create an ***interactive media presentation*** 4.2 Save the digital media presentation, including video and present to client or customer

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse documentation and media to inform implementation of video components
  - interpret briefs, work instructions, and technical and conceptual information
- communication skills to liaise with client
- initiative and enterprise skills to provide feedback and recommend the most appropriate technology solutions
- literacy and numeracy skills to:
  - develop technical design documents
  - read briefs, work instructions, and technical and conceptual information
- planning and organisational skills to determine the most appropriate solution
- problem-solving skills to recognise and address potential quality issues and problems at design development stage
- research skills to find solutions to encountered problems
- technical skills to use correct file formats and video editing and post-production procedures.

Required knowledge

- contemporary video software
- continuity
- editing conventions
- electronic digital language and other terminology
- montage
- principles of video production and formats
- types of cutting
- video editing and post-production techniques.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • visualise and interpret creative concepts • apply principles of video editing and production techniques • design, compile, edit and test digital interactive media incorporating video.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software and file storage • internet access for research purposes • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • practical demonstration, where direct observation may need to occur on more than one occasion to establish consistency of performance • evaluation of projects, reports and logbooks • evaluation of portfolios of evidence that demonstrate the processes used in developing and realising the creative concept.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be

© Commonwealth of Australia, 2025 Future Skills Organisation

	combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Video editing software may include:	• wide range of current programs:
	  • Adobe Premier
	  • Quicktime.

Digital effects may include:	• 2-D and 3-D animation • 3-D modelling • graphic images • special effects • titles or text • transitions, such as dissolves, fade-ins, fade-outs, supers and subtitles.
Sound may include:	• dialogue • music atmospherics • sound effects.
Visual effects may include:	• colour corrections to modify • digital video effects (DVEs) to move and distort • graphic images • keyers to combine • opticals • production of optical effects • production of titles • special effects • texture generation to add blur • trackers to follow parts of the picture • transitions, such as dissolves, fade-ins, fade-outs, supers and subtitles.
Interactive media presentation may include:	• animations • aspects or sections of film or video production • commercials

© Commonwealth of Australia, 2025 Future Skills Organisation

	• documentary • e-commerce • educational product • feature • game • information product • live or prerecorded performances • live or prerecorded television productions • music video • promotional product • short film and video • television production of any type • training product.

Unit Sector(s)

Digital media technologies

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM301A Apply simple modelling techniques

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to apply simple modelling techniques.

Application of the Unit

This unit applies to concept artists, games designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is*

© Commonwealth of Australia, 2025 Future Skills Organisation

	detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Clarify work requirements	1.1 Clarify ***requirements*** and ***purpose*** for 3-D digital ***modelling techniques*** and refer to ***production documentation*** 1.2 Clarify work flow sequences in consultation with ***relevant personnel*** to ensure that ***production*** schedule deadlines are met 1.3 Select ***software*** that best suits the type of production and ***delivery platform*** for which simple 3-D modelling techniques are being applied 1.4 Gather and analyse ***reference materials*** to help with application of modelling techniques
2. Apply simple 3-D modelling techniques	2.1 Apply simple 3-D modelling techniques to create 3-D models 2.2 Use software features to block out models to determine correct proportions related to reference materials 2.3 Manipulate software features to apply basic lighting and shaders as required 2.4 Ensure that models' topology allows appropriate deformation, as required 2.5 ***Progressively refine*** and check ***integrity*** of models until they meet design requirements 2.6 Submit models to relevant personnel for comment on whether production requirements have been met and make final adjustments as required 2.7 Render and output models in required ***format*** and submit to relevant personnel by agreed deadlines 2.8 Make backup copies of files and complete workplace documentation according to enterprise procedures

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- communication, teamwork and literacy skills to:
  - complete workplace documentation
  - interpret and clarify written or verbal instructions
  - respond constructively to feedback received from other team members
  - work as a member of a production team, both independently on assignment and under direction
- initiative and creativity skills to design, visualise and create 3-D digital models of a range of inanimate objects using simple 3-D modelling techniques
- self-management and planning skills to:
  - meet deadlines
  - prioritise work tasks
  - seek expert assistance when problems arise
- technical skills to:
  - make backup copies of files and store appropriately
  - manage files and directories using standard naming conventions and version control protocols
  - use industry-current software applications to create 3-D models to specifications.

Required knowledge

- 3-D digital model design techniques
- 3-D digital modelling techniques
- basic knowledge of the stages in the production process from initial design through to finished product
- features of a range of delivery platforms
- geometry as it applies to the creation of realistic 3-D digital models
- issues and challenges that arise in the context of creating 3-D digital models
- OHS standards as they relate to working for periods of time on computers
- roles and responsibilities of project team members in the relevant industry sector
- scale, form, weight and volume.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• design 3-D digital models
	• create 3-D digital models that:
	  • demonstrate the application of simple 3-D modelling techniques
	  • demonstrate efficient use of geometry and attention to detail
	  • meet design requirements
	• work collaboratively with other members of the design and development team
	• meet deadlines.

Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of work samples or simulated workplace activities • direct observation of candidate liaising with client and other members of the production team • verbal or written questioning of issues and challenges that arise in the context of creating 3-D digital models • review of fault-finding exercises • evaluation of reports or logbooks.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required

© Commonwealth of Australia, 2025 Future Skills Organisation

	knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Requirements may include:	• assets for integration • collaboration with other team members • creative expectations • design specifications • output format • technical specifications • time lines.

Purpose of 3-D digital models may be for:	• animations
	• digital simulations:
	  • architectural models
	  • e-learning resources
	  • demonstration of processes and procedures.

Modelling techniques may include:	• NURBS • polygonal • primitives • sculpt • splines and patches.
Production documentation may include:	• animatics • brief • storyboard • technical specifications.
Relevant personnel may include:	• 3-D designer or concept artist • 3-D modeller • art director • director • head of department • matte painter • other technical or specialist personnel

© Commonwealth of Australia, 2025 Future Skills Organisation

	• producer • project manager • storyboard artist • supervisor • technical director.

Production may include:	• animated productions
	• commercials
	• digital media products:
	  • e-learning resources
	  • games
	  • simulations
	  • virtual worlds or environments
	• documentaries
	• feature films
	• filmed events or performances
	• music video
	• short films
	• television productions.

Software may include:	• 3-D:
	  • Studio Max
	  • Maya
	  • Softimage
	• graphics:
	  • Illustrator
	  • Photoshop.

Delivery platform may include:	• broadcast television • CD • DVD • film • internet • kiosk • mobile phone • personal digital assistant (PDA) • other digital devices.
Reference materials may include:	• books • concept drawings and designs • direct observation of actions to be simulated in 3-D models • real object on which models are to be based • still images • videos.

© Commonwealth of Australia, 2025 Future Skills Organisation

Progressively refine may relate to:	• achieving required shape • achieving required topology.
Integrity may include checking aspects of:	• double faces • isolated vertices • pivot points • resetting transform • scale of models relative to other components in final sequences.
Format may include:	• AVI • IFF • JPEG • MPEG • PNG • Quicktime • Targa • TIFF.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM302A Design and apply simple textures to digital art

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design and apply simple textures to digital art, including 3-D models.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, modellers, animators and other personnel working in the film, television and game development industries.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

	italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Clarify design requirements and plan approach	1.1 Interpret ***the brief*** to clarify design, texture generation and delivery requirements in consultation with ***client***
	1.2 Identify ***design and technical constraints***
	1.3 Identify ***software***, media and file formats for digital imagery and texture production and manipulation
	1.4 Identify sequence of digital texturing activities in production pipeline
	1.5 Identify production workflow requirements and develop production pipeline to meet client requirements
2. Assess existing textures and shaders for suitability	2.1 Establish underlying surface characteristics of 3-D model to be textured and shaded
	2.2 Identify basic ***shaders*** and ***textures*** with surface characteristics
	2.3 Identify suitable textures from available texture libraries
	2.4 Select shaders and textures for assignment to model
	2.5 Confirm selections are consistent with brief and client requirements
3. Determine shader attributes and assign to 3-D model	3.1 Identify and select ***attributes*** required to achieve desired effects on 3-D models
	3.2 Determine and confirm requirements related to lighting and rendering
	3.3 Use appropriate methods and techniques to achieve a desired shading outcome
4. Acquire new textures	4.1 Identify desired ***resolution*** for texture prior to acquisition
	4.2 Acquire textures from an online library
	4.3 ***Capture real-world textures*** using digital means
	4.4 Generate texture using ***art media*** or digital paint software and save

© Commonwealth of Australia, 2025 Future Skills Organisation

	4.5 Ensure resolution of acquired texture meets resolution requirements
5. Generate procedural textures and create texture map	5.1 Assess nature of surface topology 5.2 Identify suitable types of 3-D projection 5.3 Apply geometry where necessary 5.4 Use algorithms to simulate natural patterns where required 5.5 Determine ***texture-mapping method*** 5.6 Determine ***projection-mapping method*** 5.7 Adjust parameters to achieve desired effects
6. Apply texture to model	6.1 Apply texture to model 6.2 Layer and enhance textures to achieve desired effects 6.3 Apply lighting to test reaction of textures 6.4 Apply textures to lights to achieve specified effects 6.5 Adjust textures to achieve final effects 6.6 Complete test renders and confirm outcome with client
7. Finalise design	7.1 Present test renders to client for approval 7.2 Make technical or design adjustments consistent with feedback and budgetary constraints 7.3 Finalise shading and texturing 7.4 Save and archive files in agreed formats and repository

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to evaluate technical requirements of shading and texturing against resources and timeframes
- communication skills to liaise with project team and clients
- initiative and enterprise skills to:
  - devise efficient and innovative approaches to texturing and shading
  - provide practical support and give feedback to colleagues and management
- literacy skills to read technical documents and specifications

© Commonwealth of Australia, 2025 Future Skills Organisation

- planning and organisational skills to manage time and resources
- technical skills to use related computer graphics applications.

Required knowledge

- camera textures and filters to achieve shading and texturing effects
- features of software used for:
  - 3-D modelling
  - appropriate file sizes and formats
  - digital image manipulation
  - lighting
  - rendering
  - scanning
  - scheduling of production activities
  - shading
  - texturing
- how to interpret design, texturing and shading briefs
- digital image capture using cameras and scanners
- shader attributes and their optimisation
- shader and texture mapping and projection
- texturing and shading requirements for games.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • adhere to texturing and shading brief requirements • design and comprehend texturing tasks • use and optimise software components for best performance • adhere to system requirements related to file sizes and formats • store completed file components in an organised manner for further use.
Context of and specific	Assessment must ensure access to:

© Commonwealth of Australia, 2025 Future Skills Organisation

resources for assessment	• computer hardware and software • input device, such as stylist tablet, keyboard and mouse • output device, such as monitor, TV, printer and speakers • models and scenes to be shaded and textured • style shots • rendering briefs or specifications and schedules • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • discussion or written report of the nominated techniques applied to shading and texturing • discussion with learner and observation of the integration of texturing activities into the overall production pipeline • verbal questioning regarding reasons for use of particular hardware and software options • direct observation of the candidate applying shaders and textures • project or work activities that show research and reference sourcing to gain best texturing effect • written and verbal reports or documentation showing research and production plan • review of portfolios of evidence • review of completed textured, shaded and rendered models.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

The brief may include:	• illustrations • storyboards • technical specifications • verbal or written instructions.
Client may include:	• 3-D artists • animators • art directors • designers • external clients • modellers • technical directors.
Design and technical constraints may include:	• budget • design specifications • file formats for output and end use • technical requirements.
Software may include:	• 3-D Studio Max • Animator Pro • AutoCAD • AutoCAD Revit 9 • Blender • Bodypaint • Cinema 4D • Combustion • CorelDraw • Deep paint • Electric Image • Form Z • Houdini • Illustrator • Lightwave • Maya • Photoshop • Pixie

© Commonwealth of Australia, 2025 Future Skills Organisation

	• POV-Ray • Renderman • Rhino • Shake • Soft Image or XSI • Z Brush.
Shaders may include:	• Blinn • cell shaders • Lambert • Phong • realistic shaders • toon shaders.
Textures may include:	• brick • cloth • glass • latex • leather • metal • skin • sky • stone • textiles • wood.
Attributes may include:	• ambient colour • colour • diffusion • incandescence • reflectivity • refraction • specularity • translucence • transparency.
Resolution may include:	• 1024 x 1024 pixels • 128 x 128 pixels • 720 x 720 pixels.
Capture real-world textures may include:	• digital photography • film photography • scanning.
Art media may include:	• acrylic paint • airbrush • charcoal

© Commonwealth of Australia, 2025 Future Skills Organisation

	• crayon • gouache • ink • ink wash • oil paint • pen • pencil • tusche • watercolour.
Texture-mapping method may include:	• bump maps • colour mapping • displacement maps • reflection maps • specular mapping • transparency maps.
Projection-mapping method may include:	• cubic • cylindrical • planar • spherical • tiling.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM303A Review and apply the principles of animation

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to review and apply the principles of animation.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is*

© Commonwealth of Australia, 2025 Future Skills Organisation

	detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Prepare traditional animation process and the sequence of its component parts	1.1 Describe the ***traditional animation process*** and the principles of animation and its application to producing quality 3-D animation 1.2 Describe the uses of the ***twelve principles of animation*** 1.3 Identify components that are essential to producing quality 3-D animation
2. Prepare scene layout and storyboarding techniques	2.1 Describe and demonstrate scene layout techniques used in traditional animation 2.2 Describe and demonstrate storyboarding techniques used in traditional animation
3. Nominate appropriate animation keys in a proposed animation sequence	3.1 Describe the key animation process 3.2 Produce sample key drawings 3.3 Identify the criteria used for the selection of animation keys 3.4 Select appropriate animation keys in a proposed animation sequence
4. Create a short animation	4.1 Produce shot animation key drawings 4.2 Produce ***line image*** recordings of drawings 4.3 Create a short animated sequence
5. Apply traditional animation principles to a 3-D animation	5.1 Produce a 3-D animated sequence employing traditional animation principles using ***3-D modelling and animation software*** 5.2 Save and store or archive animated sequence onto appropriate ***equipment or media***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- analytical skills to:
  - analyse documentation and images to inform implementation of game specifications
  - interpret briefs, work instructions, and technical and conceptual information
- communication skills to:
  - check and confirm design requirements
  - collect, interpret and communicate in visual and written forms effectively for various audiences, including engineers and artists
  - communicate clearly using speech and text
  - communicate complex designs in a structured format drawn from industry standards, styles and techniques
  - provide practical advice, support and feedback to colleagues and management
  - translate design requirements into specifications
- planning and organisational skills to:
  - appropriately refer decisions to a higher project authority for review and endorsement
  - balance talent, experience and budget
  - delegate tasks and responsibility appropriately
  - establish clear roles and goals to achieve required animation development outcomes
  - meet project deadlines
  - organise equipment and resources to achieve required outcomes
  - organise own time to meet milestones
- problem-solving skills to recognise and address potential quality issues and problems at design development stage
- research skills to:
  - undertake research into key animation and traditional animation process
  - use reference material to recreate animations
- self-management skills to manage multimedia-based and paper-based files
- technical skills to:
  - create a 10-second traditionally animated sequence
  - produce concepts drawings
  - propose and source locations of reference material.

Required knowledge

- analysis of a production brief
- animation keys
- application of traditional animation processes to digital animation

© Commonwealth of Australia, 2025 Future Skills Organisation

- development and recording of ideas
- filling media and paper-based assets
- principles of animation
- production of 3-D animations
- production of a storyboard
- scene layout and storyboarding processes
- scheduling of production components
- traditional animation process
- OHS requirements for:
  - ergonomics
  - electrical safety
  - materials handling.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • use traditional animation processes to create a short animation, using a range of 3-D modelling and animation software.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • internet access for research purposes • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	Assessment may incorporate a range of methods to assess performance and the application of essential underpinning knowledge, and might include: • verbal or written questioning of development of idea • direct observation of candidate using traditional animation processes

© Commonwealth of Australia, 2025 Future Skills Organisation

	• review of nominated animation techniques • evaluation of 3-D animation sequence.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Traditional animation process may include:	• concept creation • key drawings • production planning • research • script development • storyboarding • 'inbetweening' and 'tweening' drawings.
Twelve principles of animation include:	• anticipation • appeal • arcs • exaggeration • follow through and overlapping action • secondary action • slow in and slow out • solid drawing • squash and stretch

© Commonwealth of Australia, 2025 Future Skills Organisation

	• staging • straight ahead action and pose to pose • timing.
Line image may include:	• software-generated, e.g. Photoshop, Illustrator and Flash • traditionally drawn (pen and ink).
3-D modelling and animation software may include:	• 3ds Max • Blender • Cinema 4D • Houdini • Lightwave • Maya • Modo • XSI • ZBrush.
Equipment or media may include:	• blu-ray • CD • DVD • external hard disk, such as universal serial bus (USB) flash drive • internal hard disk.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM401A Produce an interactive game

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to produce an interactive game using an industry standard authoring tool.

Application of the Unit

This unit applies to game designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is*

© Commonwealth of Australia, 2025 Future Skills Organisation

	detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify game component assets	1.1 Obtain ***project brief and documents***
	1.2 Identify ***game-production assets*** required to meet creative and production requirements and ***technical specifications***
	1.3 Discuss formats of assets and issues of asset integration and with appropriate ***personnel***
	1.4 Save all digital assets in the appropriate format for inclusion, and store for retrieval
	1.5 Determine sequence for development of beta version prototype for testing game play
	1.6 ***Create a schedule*** for production and testing
	1.7 Determine strategies for ***monitoring production progress*** against schedule
2. Identify capability of game-engine software and tools and make selection	2.1 Identify and review the range of industry standard ***game-engine software and development tools*** available
	2.2 Assess the software and tools related to specified game concepts and play requirements
	2.3 Discuss ***considerations for selection of game-engine software*** with relevant personnel to ensure selection will meet specified outcomes
	2.4 Select game-engine software
3. Use game-engine software	3.1 Load game engine, including sound and game play
	3.2 Create a new file for the specified task and name appropriately
	3.3 Display and use ***tools and features of software*** relevant to the game production process
	3.4 Create custom code to achieve a unique function
4. Create game-play sequence and prototype	4.1 Import and assemble game-play assets in appropriate sequence according to creative and technical requirements
	4.2 Create and ***check game-play elements*** according to

© Commonwealth of Australia, 2025 Future Skills Organisation

	creative and technical requirements 4.3 Test and run game-play sequence as a presentation to ensure the sequence meets creative, production and technical requirements 4.4 Export to game engine and create prototype 4.5 Save file formats and identify for specified purpose
5. Evaluate game prototype	5.1 Demonstrate initial prototype to relevant personnel 5.2 ***Evaluate*** against criteria, including achievement of a creative and user-friendly product 5.3 Discuss and agree on required changes 5.4 Assist if required in ***tests and user trials*** 5.5 Evaluate feedback from user trials 5.6 Confirm endorsement from relevant personnel to develop prototype into complete product
6. Transform prototype into final proof of concept prototype	6.1 Make necessary changes as indicated by user trials 6.2 Integrate all game elements as required by specifications 6.3 Make final checks to ensure all sequences conform to the navigation design 6.4 Save into specified storage systems

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse documentation and images to inform implementation of game specifications
- communication skills to:
  - check and confirm brief requirements
  - communicate clearly using speech and text
  - communicate technical requirements related to software development, graphics requirements and code development to supervisors and other team members
  - give constructive feedback
- literacy and numeracy skills to read briefs, game documentation, scripts, storyboards, scenarios, images, and technical and conceptual information

© Commonwealth of Australia, 2025 Future Skills Organisation

- planning and organisational skills to:
  - appropriately refer decisions to a higher project authority for review and endorsement
  - balance talent, experience and budget
  - delegate tasks and responsibility appropriately
  - establish clear roles and goals to achieve required game development outcomes
  - meet project deadlines
- problem-solving skills to recognise and address quality issues and problems
- teamwork skills to:
  - contribute to and work in a collaborative team
  - realise a unified game-play vision
- technical skills to:
  - resolve basic hardware, software and other technical issues associated with game production
  - use correct file formats and archiving procedures.

Required knowledge

- basic programming techniques
- capabilities and constraints of game engines
- computer game development, including specific terminology
- current game-play hardware and software products
- risk and critical path management
- technical constraints that hardware imposes on software development, graphics requirements, code development and creative visual design.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • apply a variety of strategies for game trialling and testing • demonstrate original and innovative approaches to the creative development of a game • implement game development and production strategies • maintain integrity of the design brief and game design document

© Commonwealth of Australia, 2025 Future Skills Organisation

	• undertake risk assessment and critical path planning.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• work samples or simulated workplace activities
	• observation of game production activities
	• verbal questioning of aspects of game development, including:
	  • capability of game engines and software tools to meet the requirements of the brief
	  • evaluating game prototypes from technical, design and game-play perspectives
	  • game testing and trialling procedures
	  • maintaining integrity of the design brief and game design document
	  • risk assessment and critical path planning
	  • translating design and technical specifications into working game prototypes.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Project brief and documents may include:	• concept drawings • designer's notes • development environment description • game design document • game-play designs • help notes • information design • operating manual • storyboard • style and design principles • style and medium • target market information • technical design document and review process.

Game-production assets may include:	• current work files
	• development kits
	• existing digital product libraries:
	  • character models
	  • environments
	  • motion capture data
	  • sound effects
	• game engines, including customised game engines
	• personnel.

Technical specifications may include:	• backup procedures • delivery platform • difficulty levels • disc or memory space • format for final product • navigation design • pixel size • polygon count • source code and game assets archiving • specifications for phases of game development: • alpha version - pre-production

© Commonwealth of Australia, 2025 Future Skills Organisation

	• beta version - playable prototype • gold version - completed game • trialling and testing • systems and workplace standards for documentation, including: • computer-file management • job lists • progress reports • target market.
Personnel may include:	• animators • concept artists • game-play designers • graphic designers • instructional designers • modellers • motion capture technicians • producers • programmers • project managers • sound engineers • team members • technical directors • writers • other specialist or technical staff.
Creating a schedule may involve:	• allocating work tasks in consultation with other team members • analysing key requirements of the brief • assessing concept viability against resource availability • conducting risk assessment regarding possible issues and constraints and potential solutions • creating an overall project plan and schedule • determining workflow with consideration to available resources • identifying key milestones and associated deliverables: • alpha version - pre-production • beta version - playable prototype • gold version - completed game • trialling and testing • identifying stakeholders and devising strategies to meet stakeholder needs • identifying the critical path

© Commonwealth of Australia, 2025 Future Skills Organisation

	• researching background information • setting project objectives against achievable timeframes.

Monitoring production progress may involve:	• balancing quality and scheduling requirements
	• coordinating the efforts of development, quality assurance, sales, marketing, public relations and finance
	• ensuring the timely production of assets to brief requirements, including:
	  • animation components
	  • graphic
	  • images
	  • interfaces
	  • text
	  • video
	• identifying and applying testing procedures
	• monitoring workload allocated to individual personnel
	• progressive game testing to ensure playability
	• renegotiating variations and schedule slippage ahead of milestone dates
	• identifying sound and applying contingency strategies.

Game-engine software and development tools may include:	• BigWorld • Dunia • Half life • Jade • Quake • Riot • Scimitar • Unreal.

Considerations for selection of game-engine software may include:	• application of code libraries
	• application of game engine functionality for an interactive game
	• assessing coding strategy for compliance to brief and for optimal performance of game engine:
	  • function testing
	  • test plan development
	  • validating results
	• assessing viability of existing code in relation to interaction of game-play elements
	• assessing strategy for game-play code
	• basic code writing abilities for customising game engine functions
	• building
	• code creation specifically for handling exceptions

© Commonwealth of Australia, 2025 Future Skills Organisation

	• code creation strategy for interaction of game-play elements • data structures • documentation of code development • environmental models • game engine customising • game platform and game platform logic • integration of custom code into game engines • sound capability • spatial data structures • technical constraints imposed by the architecture of given game engine.
Tools and features of software may include:	• animation • compilers • debugging software • development software • efficiency • flexible systems suitable for non-programmers • graphics • graphics system design • middleware • operating systems • plug in tools • programming for game integration • rendering • sound • system architecture for real time game environments and simulations • tools for designers and play analysis.
Check game-play elements may involve:	• chance • fun • logic • playability • rules • skill • strategy.
Create prototype may involve:	• bug fixing, bug databases, creating stable code bases and game tuning • building flexible systems, configurable by others • code review and test harnesses • designing and implementing tests and incorporating feedback from quality assurance • developing a comprehensive design for all missions and

© Commonwealth of Australia, 2025 Future Skills Organisation

	levels, including concept visuals
	• developing a walkthrough for at least one mission or level
	• developing story synopsis and scripts for each level
	• knowledge of games as dynamic systems:
	  • applying game tuning strategies in light of feedback from actual play
	  • characteristics of a balanced game
	  • working with quality assurance and understanding play-test feedback
	• use of appropriate tools and skills for fast, interactive development
	• user-guide development.

Evaluate game prototype may involve:	• examining and analysing the impact of decisions, after the fact, such as:
	  • business decisions
	  • design decisions
	  • methodology and process decisions
	• product 'post-mortems' reviewing actual use of resources to achieve outcomes against initial project plan and schedule.

Tests and user trials may involve play test procedures:	• determining criteria for measurement of success with a given audience • play testing to monitor player frustration, progress and enjoyment • selecting test subjects • testing game with target market and other diverse populations.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM402A Identify and apply principles of games design and game playing

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to identify and apply principles of games design and game playing.

Application of the Unit

This unit applies to concept artists, games designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

	italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Analyse and document methodology relating to various computer game genres	1.1 Review ***game-play elements*** in an example of a chosen or given ***game genre*** 1.2 Identify objectives of play in an example of a chosen or given game genre
2. Interpret consumer demographics for various games products	2.1 Identify the ***target markets*** for various types of games 2.2 Interpret the choices and patterns of buyers and players 2.3 Review social, emotional, and cognitive aspects of contemporary interactive game play
3. Review historical aspects of game-play and game design	3.1 Review and describe the history of the ***games industry*** 3.2 Review game play and design for ***non-computer based games*** 3.3 Review the uses of games in commercial, industrial, education, military training, and therapeutic and assessment contexts
4. Identify industry game-design principles	4.1 ***Research*** and identify current industry ***game-design principles*** 4.2 Identify game-design principles for a chosen or given game
5. Outline the development of a computer game	5.1 Outline game design and play strategies 5.2 Outline ***technical limitations and constraints*** of current hardware and software

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- communication skills to:
  - collect, interpret and communicate in visual and written forms
  - communicate clearly using speech and text
  - communicate complex designs in a structured format drawn from industry standards, styles and techniques
  - communicate technical requirements related to software development, graphics requirements and code development to supervisors and other team members
- initiative and enterprise skills to exercise a high level of creative ingenuity in game design and innovation
- literacy and numeracy skills to read briefs, work instructions and technical and conceptual information
- research skills to:
  - analyse quantitative and qualitative data
  - identify relevant information
  - obtain information
  - sort and summarise information
  - undertake practical technical desktop research into game design and game-play principles
  - use a range of sources of materials and information
- technical skills to:
  - develop concepts and use visualisation skills
  - resolve basic hardware, software and other technical issues associated with games production.

Required knowledge

- procedures and processes for computer game development, including specific terminology
- current game-play hardware and software products
- technical constraints that hardware imposes on software development, graphics requirements, code development and creative visual design.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

© Commonwealth of Australia, 2025 Future Skills Organisation

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • differentiate game genres • differentiate game design and play principles.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • internet access for research purposes • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of work samples or simulated workplace activities
	• verbal questioning concerning aspects of game design and game-play principles, including:
	  • industry standards for game design
	  • game genres
	  • design of non-computer based games
	  • history of games industry.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Game-play elements may include:	• buildings
	• command
	• cooperation
	• core game play
	• damage states
	• edge
	• enemies
	• fight
	• game flow
	• player activity
	• shoot
	• special talents:
	  • magic
	  • power
	• steer
	• switches
	• terrain objects
	• transportation
	• transformations
	• traps
	• weapons.

Game genre may include:	• adventure • alternative reality • ancient • casino • cyberpunk • educational • edutainment • fantasy • first person shooter • flight shooter • flight simulation • futuristic

© Commonwealth of Australia, 2025 Future Skills Organisation

	• god simulation
	• massively multi-player online games
	• massively multi-player online role-playing games
	• medieval
	• modern
	• multi-player
	• post-apocalyptic
	• puzzle
	• racing shooter
	• racing simulation
	• real-time strategy
	• role-playing games
	• science fiction
	• side-scrolling shooter
	• single player
	• sports
	• strategy, including:
	  • action strategy
	  • turn-based strategy
	• tactical combat.

Target markets may include:	• age-specific consumer segments:
	  • children
	  • adolescents
	  • adults
	• educational market segments
	• gender-specific consumer segments.

Games industry may include:	• Australian games • international games.
Non-computer based games may include:	• board games • card games • non-computerised arcade games, such as Pinball • table-top games.
Research may include:	• contact with industry associations • game play • reading newspapers, books, magazines, conference papers, industry organisation papers, and other references • research on audience, including research on attitudes toward game play from various viewpoints, including cultural, societal, national, and age group • talking and listening to experts • use of the internet

© Commonwealth of Australia, 2025 Future Skills Organisation

	• user surveys.
Game-design principles may include:	• closed environments • complexity management and slow bullets • constant positive feedback with sporadic negative feedback • discovery and exploration • movement versus animation • player control • third-person presentation • use of ‘weenies’ • use of maps.
Technical limitations and constraints may include:	• current technology • future technology and release date • pixels • platforms • polygon count • software capability.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM403A Create design documents for interactive games

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to create basic design documents for games.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is*

© Commonwealth of Australia, 2025 Future Skills Organisation

	detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Research, create and document game concept	1.1 ***Research***, identify and describe the ***target market for the game***
	1.2 Research, identify and describe ***game genre*** and working title
	1.3 Identify a suitable ***game platform***
	1.4 Identify a suitable ***game engine***
	1.5 Prepare initial ***concept art*** to establish look and feel of characters, environment and game play
2. Create and document specifications for game design	2.1 Develop ***storylines*** and levels
	2.2 Develop artwork for ***characters and environment***
	2.3 Describe ***game-play elements***
	2.4 Develop ***graphical user interface (GUI)***
	2.5 Identify suitable ***sounds and music*** for game
3. Create and document technical specifications for game	3.1 Determine game mechanics
	3.2 Finalise platform, game engine and ***operating system***
	3.3 Describe the source and purpose of the ***code*** to be used, including level-specific code
	3.4 Determine ***game physics*** and ***artificial intelligence***
	3.5 Determine ***sound engineering requirements***
	3.6 Determine procedures to ***test game prototype***
4. Collate game design document	4.1 Explain proposed ***game features*** in comparison to existing games
	4.2 List estimated ***resources*** required to develop game
	4.3 Prepare estimated ***schedule*** for game development
	4.4 Collate design information, estimates and proposals into comprehensive game design document

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to interpret briefs, work instructions, and technical and conceptual information
- communication skills to:
  - check and confirm design requirements
  - provide practical advice, support and feedback to colleagues and management
  - translate design requirements into specifications
- literacy and numeracy skills to:
  - develop game design and technical design documents
  - write instructions for the normal and competent operation and testing of all game features and permutations
- planning and organisational skills to:
  - organise equipment and resources to achieve required outcomes
  - organise own time to meet milestones
- problem-solving skills to recognise and address potential quality issues and problems at design development stage
- research skills to undertake practical, technical and desktop research
- teamwork skills to contribute to and work in a collaborative team
- technology skills to use correct file formats and archiving procedures.

Required knowledge

- computer game development, including specific terminology
- current game-play hardware and software products
- technical constraints that hardware imposes on software development, graphics requirements, code development and creative visual design
- techniques for applying concept development skills
- techniques for applying concept visualisation skills.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop concept art and design specifications for characters, environments, splash screens, start screens and game field screens consistent with an identified game genre • develop technical specifications for game mechanics, artificial intelligence, physics, sound, game play and overall usability • develop game design documents to required industry standard, consistent with client brief and specifications.
Context of and specific resources for assessment	Assessment must ensure access to: • internet for research purposes • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• work samples or simulated workplace activities
	• observation of game document development activities
	• verbal questioning concerning aspects of game document development, including:
	  • industry standards for concept art
	  • design and technical specification development
	  • game testing and trialling procedures
	  • resources required for game development.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be

© Commonwealth of Australia, 2025 Future Skills Organisation

	combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Research techniques may include:	• conducting surveys and interviews to collect primary data • conducting technical experiments and tests • developing concept sketches • playing games • reviewing literature for suitable storylines • reviewing secondary sources of information in books, journals, newspapers and on the internet • viewing film and performance.

Target market for the game may include:	• age-specific consumer segments:
	  • children
	  • adolescents
	  • adults
	• educational market segments
	• gender-specific consumer segments.

Game genre may include:	• adventure • alternative reality • ancient • casino • cyberpunk • educational • edutainment • fantasy • first person shooter • flight shooter • flight simulation • futuristic • god simulation • massively multi-player online game

© Commonwealth of Australia, 2025 Future Skills Organisation

	• massively multi-player online role-playing game
	• medieval
	• modern
	• multi-player
	• post-apocalyptic
	• puzzle
	• racing shooter
	• racing simulation
	• real-time strategy
	• role-playing game
	• science fiction
	• side-scrolling shooter
	• single player
	• sports
	• strategy, including:
	  • action strategy
	  • turn-based strategy
	• tactical combat.

Game platform may include:	• arcade
	• console platforms:
	  • Microsoft Xbox 360
	  • Nintendo DS (hand-held)
	  • Nintendo Wii
	  • Sony PlayStation
	• hand-held digital device platforms:
	  • Apple IIe, C, C+
	  • Apple IIGS
	  • Blackberry
	  • BREW
	  • Flashlite
	  • J2ME
	  • Java
	  • Palm OS
	  • Sidekick
	  • Symbian
	  • WAP
	  • Windows Mobile
	• PC
	• web.

Game engine may	• BigWorld

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• Blender3D • Dunia • Half Life • Jade • Quake • Riot • Scimitar • Second Life • Unreal.
Concept art may include:	• illustrations • models • settings • sketches • storyboards.
Storylines may involve:	• adventure • back-story • cinematics (cut scenes) • heroes journey • key features (edge) • level diagrams • missions • narrative • scripted dialogue • scripts • storyboards.
Characters and environment may include:	• backgrounds • environments • lighting • main characters • scenery • secondary characters • terrain • textures.
Game-play elements may include:	• buildings • command • cooperation • core game play • damage states • edge • enemies • fight

© Commonwealth of Australia, 2025 Future Skills Organisation

	• game flow
	• player activity
	• shoot
	• special talents:
	  • magic
	  • power
	• steer
	• switches
	• terrain objects
	• transformations
	• transportation
	• traps
	• weapons.

Graphical user interface elements may include:	• buttons and button clicks • command acknowledgements • edit boxes • file saving and loading • icons • list boxes • markers • menus • options and settings • picture boxes • pointers • radio buttons • scroll bars • shell • splash screens • text boxes • window opening • Windows.
Sounds and music may include:	• ambient sounds • cinematic soundtracks • event jingles • intellectual property protection • level themes • musical compositions • radio chatter • situational music • sound effects • voice

© Commonwealth of Australia, 2025 Future Skills Organisation

	• wind, rain and storms.
Operating system may include:	• Linux • Macintosh • PC • Unix.
Code may include:	• code libraries • code objects • control loop • operating system code.

Game physics may include:	• collision
	• combat:
	  • blood spots
	  • debris
	  • explosions
	  • footprints
	  • salvo
	  • smoke and fire
	  • sparks
	  • water
	  • wreckage
	• movement:
	  • creaking floors
	  • footfalls
	  • puddle stepping
	  • wading
	  • wind.

Artificial intelligence may include:	• decisions • movement • pathfinding • reactions • simulated intelligence • situations • statistics • target selection • tests and events for reactionary behaviour.
Sound engineering requirements may include:	• data path • direct memory access (DMA) • file requirements • mixing • multiple channels

© Commonwealth of Australia, 2025 Future Skills Organisation

	• sample lengths • sample rates • sound definitions • third-party drivers.
Testing game prototype may involve play test procedures, such as:	• determining criteria for measurement of success with a given audience • monitoring player frustration, progress and enjoyment • selecting test subjects • testing game with target market and other diverse populations.
Game features may include:	• edge • fun • originality • playability.
Resources may include:	• game assets (collateral) • hardware • money • personnel • software • time.

Schedule may include:	• allocating work tasks in consultation with other team members
	• analysing key requirements of the brief
	• assessing concept viability against resource availability
	• conducting risk assessment regarding possible issues and constraints and potential solutions
	• creating an overall project plan and schedule
	• determining workflow with consideration to available resources
	• identifying key milestones and associated deliverables:
	  • alpha version - pre-production
	  • beta version - playable prototype
	  • gold version - completed game
	  • trialling and testing
	• identifying stakeholders and devising strategies to meet stakeholder needs
	• identifying the critical path
	• researching background information
	• setting project objectives against achievable timeframes.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM404A Apply artificial intelligence in game development

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to incorporate the principles of artificial intelligence (AI) into a game.

Application of the Unit

This unit applies to people contributing to the creation of computer-controlled objects in games.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is*

© Commonwealth of Australia, 2025 Future Skills Organisation

	detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Conduct research on artificial intelligence (AI) strategies	1.1 Describe the ***terminology*** involved in AI as it relates to games and the game industry 1.2 Identify and analyse the range of AI ***pathfinding*** strategies, including appropriate ***genre and environments*** and how they influence the design and development 1.3 Discuss AI strategies and ideas and collaborate as required with relevant personnel to ensure contribution of a range of ideas and creative solutions to fulfil the requirements of the brief 1.4 Organise research and findings for use by relevant personnel throughout the development process, updating as required
2. Design AI strategy for games	2.1 Generate a ***range of possible goals and actions*** and ***other factors*** in the design of an AI non-player character (NPC) 2.2 Select the AI strategies for NPCs for the game design which are technically feasible, respond to the brief and provide creative solutions to all design issues 2.3 Continuously reflect on and assess the AI strategies for implications on budget, time line, technical feasibility and suitability for the brief
3. Implement AI strategy	3.1 ***Implement a pathfinding algorithm*** in a game 3.2 Implement an ***NPC AI strategy*** in a game
4. Evaluate game, based on NPC AI	4.1 Review the game design and AI strategies for its fulfilment of the design brief 4.2 Discuss and confirm additional requirements or modifications to the game design and undertake any necessary amendments

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse game NPC goals and strategies to suit a game design brief
- literacy skills to read a game design brief
- technical skills to integrate designed AI into a game.

Required knowledge

- implications of basic pathfinding algorithms on game development
- overview of AI terminology used in the game industry
- development process for creating AI strategies for NPCs in a game.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • demonstrate an understanding of a broad knowledge base of AI strategies • design and implement AI strategies in a game.
Context of and specific resources for assessment	Assessment must ensure access to: • research tools, such as the internet • pathfinding libraries, algorithms or codes • development tools to implement AI strategies • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• direct observation of candidate discussing and designing AI strategies • verbal or written questioning to assess candidate's knowledge of AI strategies • development of a game involving AI strategies • review of candidate's documented game design.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Terminology may include:	• agent systems • AI • decision trees • flocking • fuzzy logic • obstacle avoidance • state machines • steering behaviours.
Pathfinding may include:	• A* • Dijkstra • grid-graph representation • waypoints

© Commonwealth of Australia, 2025 Future Skills Organisation

	• navigation mesh • heuristics • path smoothing.
Genre and environments may include:	• 2-D or 3-D • first person shooter • outdoors or indoors • strategy game.
Range of possible goals and actions may include:	• AI states such as hunt, run and search • decision making • who to attack based on game data.
Other factors may include:	• cost versus benefit to implement • emotional responses • realism • suit the design brief, genre and target audience.
Implementing a path-finding algorithm may include:	• code the algorithm • using a library to implement pathfinding • using graphical tools.
NPC AI strategy may include:	• flock • game balancing - help the losing player by attacking the leading player to keep everyone in the game • hunt, chase and flee • patrol • search for object or player.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM405A Write story and content for digital games

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop stories and related content for interactive digital games.

Application of the Unit

This unit applies to game concept developers, script writers, storyboard artists, game designers and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is*

© Commonwealth of Australia, 2025 Future Skills Organisation

	detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify and develop storylines with game potential	1.1 Identify potential ***storylines*** for game development 1.2 ***Modify and enhance storyline*** to suit game environment 1.3 Determine appropriate ***game genre***
2. Write plot synopsis and background story	2.1 Determine ***character profiles*** 2.2 Develop ***environment profiles*** consistent with storyline 2.3 Develop ***background story*** 2.4 Develop initial ***plot profile*** 2.5 Develop ***plot synopsis and options*** and link to specific game levels
3. Develop story components	3.1 ***Source initial concept artwork*** 3.2 Develop ***level specifications*** and storylines 3.3 Initiate development of ***storyboards*** showing plot development, cinematic and level outlines
4. Finalise story components for inclusion in the game design brief	4.1 Seek ***feedback*** on story and concept 4.2 Finalise story concept, profiles and other specifications for inclusion in the game design brief

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - communicate narrative concepts and related design requirements to designers and concept artists

© Commonwealth of Australia, 2025 Future Skills Organisation

    - seek and respond to feedback from target audience representatives, clients and colleagues
- planning and organisational skills to:
    - meet project deadlines
    - organise own time to meet milestones
- research skills to:
    - research and identify appropriate game genres
    - source appropriate textual and visual data to inform storylines
    - source concept artwork
- writing skills to develop:
    - background story, storyline and plot elements for levels
    - character, environment and plot profiles.

Required knowledge

- budgeting and scheduling considerations for game development
- copyright and intellectual property protection for written narrative and concept graphics
- different story requirements for particular game genres
- role of story writing in game development and the quality of the final product
- research methods used to stay abreast of the latest changes and developments in narrative development for games
- tools and techniques for developing game narrative.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop storylines for games according to current industry standards • develop storylines that are innovative, competitive and apply processes and procedures to facilitate quality script writing • identify the role of narrative development in game development and what this brings to the quality of the final product • seek and respond professionally to feedback on concept and

© Commonwealth of Australia, 2025 Future Skills Organisation

	storylines.
Context of and specific resources for assessment	Assessment must ensure access to: • range of current computer games across all platforms and genres • range of the latest consoles and hand-held game devices • internet access for research purposes • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• work samples or simulated workplace activities
	• observation of storyline development activities
	• verbal questioning concerning aspects of narrative development for games, including:
	  • game genres
	  • sources of stories and narrative
	  • sourcing concept graphics
	  • respecting the intellectual property rights of other writers.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Storylines may originate from:	• celebrity activities
	• comics and graphic novels
	• cultural traditions
	• fairytales
	• film and television
	• historical events
	• novels and short stories
	• performing arts:
	  • ballet
	  • dance
	  • opera
	• sporting activities
	• 'what if' scenarios.

Modify and enhance storyline may involve:	• background story concept development • creating new stories featuring existing characters • developing storyline from first, second or third person perspective • introducing new characters and settings • modification of plot outcomes • reducing the number of characters • relating the narrative from another point of view.
Game genre may include:	• adventure • alternative reality • ancient • casino • cyberpunk • educational • edutainment • fantasy • first person shooter • flight shooter • flight simulation • futuristic

© Commonwealth of Australia, 2025 Future Skills Organisation

	• god simulation
	• massively multi-player online game
	• massively multi-player online role-playing game
	• medieval
	• modern
	• multi-player
	• post-apocalyptic
	• puzzle
	• racing shooter
	• racing simulation
	• real-time strategy
	• role-playing game
	• science fiction
	• side-scrolling shooter
	• single player
	• sports
	• strategy, including:
	  • action strategy
	  • turn-based strategy
	• tactical combat.

Character profiles may include:	• basic details:
	  • age
	  • appearance
	  • clothing and accessory preferences
	  • colour of eyes
	  • gender
	  • hair
	  • languages spoken
	  • location
	  • motivation
	  • names
	  • nationality and race
	  • occupation
	  • preferences for day or night missions
	  • target demographic the character appeals to
	  • weapon choices
	• biographies
	• characteristics of associates and enemies
	• heroes
	• main characters
	• non-player characters

© Commonwealth of Australia, 2025 Future Skills Organisation

	• protagonists • secondary characters • villains.

Environment profiles may include:	• alien environments
	• fantasy environments
	• foreign environments
	• historical environments
	• natural environments, for example:
	  • arctic
	  • desert
	  • jungle
	  • mountainous
	• post-apocalyptic environments
	• urban environments.

Background story may include:	• cinematics (cut scenes) • experiences, events and missions occurring prior to game action that have a bearing on the proposed game narrative.
Plot profile may involve:	• action • adventure • combat • crime • fantasy • history and background of the environment • missions • murder mystery • premise • psychological • quests • romance • science fiction.

Plot synopsis and options may consist of:	• choices made by the player that influence the direction of the narrative
	• concise outlines of story narrative, including:
	  • secondary plotlines
	  • character story and motivation
	  • climax or cliffhanger
	  • key interactions along the way
	  • objective of the story
	  • plot profile
	  • resolution - what is gained or lost
	• drama outline for cinematics (cut scenes)

© Commonwealth of Australia, 2025 Future Skills Organisation

	• executive summary • flowcharts • one page synopsis • one paragraph synopsis • one sentence synopsis • pitch version of synopsis.

Sourcing initial concept artwork may involve:	• knowledge of copyright and intellectual property protection
	• using visual research techniques to identify exemplary environments, character types and themes consistent with storyline concept
	• working collaboratively with artist and designers to develop original concepts for characters and environments in formats, such as:
	  • 2-D computer graphics
	  • collages
	  • hand rendered illustrations
	  • pencil and ink sketches
	  • physical models.

Level specifications may include:	• level-specific components:
	  • allies
	  • base building and location
	  • cinematics (cut scenes)
	  • colours
	  • enemies
	  • graphics
	  • health
	  • lighting
	  • non-player characters
	  • resources and their harvesting
	  • sounds and music
	  • weapons
	• location
	• stages
	• transportation devices:
	  • buttons
	  • doors
	  • keys
	  • teleporters
	  • tunnels and passageways.

Storyboards may	• animatics, such as technical previsualisation

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• computer-generated illustrations • existing comic strips, comic books or graphic novels • hand-drawn illustrations • illustrations or images displayed in sequence for the purpose of previsualising a motion picture, animation, motion graphic or interactive media sequence, including website interactivity • photomatic, e.g. photographic storyboard • thumbnails.

Feedback may involve:	• accepting and responding to comment, critique and suggestions from:
	  • clients
	  • colleagues
	  • target audience representatives.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM406A Create visual design components for interactive games

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to create visual design components for games and interactive media using industry standard authoring tools.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

	italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify commonly used visual design components for games and interactive media	1.1 Obtain project ***brief and documents***
	1.2 Identify features of visual design components for games and interactive media
	1.3 Discuss ***design considerations*** for designing an interactive visual design component
2. Identify graphics software packages used for visual design	2.1 Identify and review the range of industry standard ***graphics software*** available
	2.2 Assess the software related to visual design component requirements
	2.3 Discuss ***technical specifications*** for rendering and editing processes
	2.4 Select graphics software package
3. Use graphics software	3.1 Run graphics software and become familiar with the interface
	3.2 Create new files and organise a file structure
	3.3 Learn required tools and features used to create visual design components
4. Create visual design components for a game and interactive media	4.1 Design a basic ***graphical user interface*** (GUI) for a game and interactive media
	4.2 Consider the interaction processes of GUI elements
	4.3 Document the design and necessary programming requirements needed to implement the GUI
	4.4 Use graphics software to create visual design components to be used for the GUI
5. Evaluate implementation	5.1 Demonstrate implementation to relevant ***personnel***
	5.2 Evaluate the usability of design components
	5.3 Reflect on possible changes to improve the visual design and interactivity of components

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse documentation and images to inform implementation of visual design components
  - interpret briefs, work instructions, and technical and conceptual information
- communication skills to:
  - check and confirm design requirements
  - communicate clearly using speech and text
  - communicate complex designs in a structured format drawn from industry standards, styles and techniques
  - communicate technical requirements related to graphics requirements and basic code development
  - translate design requirements into specifications
- initiative and enterprise skills to exercise a high level of creative ingenuity in game design and innovation
- literacy and numeracy skills to develop game design and technical design documents
- planning and organisational skills to:
  - appropriately refer decisions to a higher project authority for review and endorsement
  - establish clear roles and goals to achieve required game development outcomes
- problem-solving skills to recognise and address potential quality issues and problems at design development stage
- research skills to undertake practical technical desktop research into visual design components for games and interactive media
- technology skills to use correct file formats.

Required knowledge

- basic programming techniques
- human resources required in the process of creating visual design components and the technology requirements
- technical constraints that hardware imposes on software development, graphics requirements, code development and creative visual design
- techniques for applying concept development skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- techniques for applying concept visualisation skills.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • demonstrate original and innovative approaches to the creative development of a GUI • implement game development and production strategies • maintain integrity of the design brief • develop concept art and design specifications for splash screens, start screens and game field screens consistent with a design brief • develop technical specifications for visual design components and overall usability • implement a working GUI with basic functionalities.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • internet access for research purposes • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of work samples or simulated workplace experiences • evaluation of design brief detailing interface design components • review of production of visual design components • evaluation of working GUI with basic functionalities.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Brief and documents may include:	• concept drawings • designer's notes • development environment description • game design document • game-play designs • help notes • information design • operating manual • storyboard • style and design principles • style and medium • target market information • technical design and review process.
Design considerations may include:	• aesthetics • cultural context • genre • resource limitations and constraints • target market.
Graphics software may include:	• 3-D paint • Fireworks • Illustrator

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Mudbox • Photoshop • Z Brush.
Technical specifications may include:	• backup procedures • delivery platform • disk or memory space • format for final product • navigation design • pixel size • polygon count • source code and game assets archiving • target market.
Graphical user interface elements may include:	• buttons and button clicks • command acknowledgements • edit boxes • file saving and loading • icons • list boxes • markers • menus • options and settings • picture boxes • pointers • radio buttons • scroll bars • shell • splash screens • text boxes • window opening • Windows.
Personnel may include:	• animators • concept artists • game-play designers • graphic designers • instructional designers • modellers • motion capture technicians • other specialist staff • other technical staff • producers • programmers

© Commonwealth of Australia, 2025 Future Skills Organisation

	• project manager • sound engineers • team members • technical director • writers.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM407A Write scripts for interactive games

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to write scripts and related content for interactive games.

Application of the Unit

This unit applies to script writers, concept artists, storyboard artists, designers and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information*

© Commonwealth of Australia, 2025 Future Skills Organisation

	is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify story components	1.1 Identify ***creative concepts*** for script 1.2 Identify ***game genres*** and ***story components*** for script development
2. Develop script components	2.1 Develop script structure consistent with genre and game design brief 2.2 Develop script components for main plot and ***background stories*** and level or mission stories consistent with genre and game design brief
3. Write draft script	3.1 Write ***script synopsis*** 3.2 Write draft script for main characters and interactions using structure and components previously determined according to the brief 3.3 Write draft script for background stories and level/mission stories using previously determined structure and components according to the brief 3.4 Develop character and narrator dialogue 3.5 Initiate ***storyboards*** for draft scripts in required format
4. Review script based on feedback	4.1 Present synopsis and storyboards to client and ***relevant personnel*** for ***feedback*** 4.2 Collate and respond to comments and feedback 4.3 Revise scripts and storyboards consistent with feedback 4.4 Undertake ***focus testing*** with intended audience
5. Write final script	5.1 Collate and respond to comments and feedback from focus testing 5.2 Rewrite script synopsis where required 5.3 Rewrite script or dialogue where required 5.4 Initiate revised storyboards where required 5.5 Present final script in agreed format to client and colleagues

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to apply creative reasoning to determine the appropriate writing style consistent with the game design brief
- communication skills to:
  - conduct focus testing
  - liaise with personnel, clients and target audience representatives to obtain feedback on scripts
- design and writing skills to write:
  - background stories and level or mission stories consistent with the game design brief
  - character profiles, setting profiles and plot profiles
  - dialogue for scripts
  - script synopses
  - scripts for interactive games
- planning and organisational skills to make timely and efficient modifications to scripts consistent with time lines and client requirements
- technical skills to use file saving, storage and version incrementing protocols.

Required knowledge

- budgeting and scheduling considerations for game development
- components that drive script narrative and engage the target audience
- copyright and intellectual property requirements in Australia and other markets for proposed game
- focus testing processes and procedures
- game genres and narrative structures
- industry formats for game scripts
- research methods for:
  - keeping abreast of competitors work in developing stories and scripts for games
  - obtaining factual information as a basis for character, location and narrative development
  - sourcing owners of copyright and intellectual property used in the development of games
- script structures and character profiling for interactive games

© Commonwealth of Australia, 2025 Future Skills Organisation

- script writing techniques and requirements for interactive games
- seeking permission from copyright owners for use of protected elements in scripts
- storyboarding techniques.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • write scripts consistent with game design brief and client requirements • identify the contribution of script writing to narrative development and engaging game play • communicate and liaise with relevant personnel in the development of scripts to meet client and audience requirements and specified quality level.
Context of and specific resources for assessment	Assessment must ensure access to: • reference materials for script writing • internet access for research purposes • range of state of the art computer games across all platforms and genres • range of games consoles and hand-held game devices • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • case studies • work samples or simulated workplace activities • observation • verbal questioning, such as an interview • written or interactive computer-based test or quiz

© Commonwealth of Australia, 2025 Future Skills Organisation

	• fault-finding exercises • reports or logbooks.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Creative concepts may be derived from:	• brainstorming • comics • current events • film and television scripts • focus group sessions • game design briefs • global trends • historic events • literature • political activities • re-interpretation of factual events • social phenomena.
Game genres may include:	• adventure • alternative reality • ancient • casino

© Commonwealth of Australia, 2025 Future Skills Organisation

	• cyberpunk
	• educational
	• edutainment
	• fantasy
	• first person shooter
	• flight shooter
	• flight simulation
	• futuristic
	• god simulation
	• massively multi-player online game
	• massively multi-player online role-playing game
	• medieval
	• modern
	• multi-player
	• post-apocalyptic
	• puzzle
	• racing shooter
	• racing simulation
	• real-time strategy
	• role-playing game
	• science fiction
	• side-scrolling shooter
	• single player
	• sports
	• strategy, including:
	  • action strategy
	  • turn-based strategy
	• tactical combat.

Story components may include:	• celebrity activities • character motivations • character profiles • comics and graphic novels • cultural aspects • cultural traditions • environmental aspects or locations of story • fairytales • film and television • historical events • novels and short stories • performing arts: • ballet

© Commonwealth of Australia, 2025 Future Skills Organisation

	• dance • opera • sporting activities • 'what if' scenarios.
Background stories may include:	• cinematics (cut scenes) • experiences, events and missions occurring prior to game action that have a bearing on the proposed game narrative
Script synopsis may consist of:	• concise outlines of story narrative, including: • character story and motivation • climax or cliffhanger • key interactions along the way • objective of the story • plot profile • resolution - what is gained or lost • secondary plotlines • drama outline for cinematics (cut scenes) • executive summary • flowcharts • one-page narrative synopsis • one paragraph synopsis • one sentence synopsis • pitch version of synopsis.
Storyboards may include:	• animatics (technical previsualisation) • computer-generated illustrations • existing comic strips, comic books or graphic novels • hand-drawn illustrations • illustrations or images displayed in sequence for the purpose of previsualising a motion picture, animation, motion graphic or interactive media sequence, including website interactivity • photomatic (photographic storyboard) • thumbnails.
Relevant personnel may include:	• animators • concept artists • game-play designers • graphic designers • instructional designers • modellers • motion capture technicians • other writers • producers • programmers

© Commonwealth of Australia, 2025 Future Skills Organisation

	• project manager • sound engineers • team members • technical director • other specialist or technical staff.

Feedback may involve:	• seeking, accepting and responding to comment, critique and suggestions from:
	  • clients
	  • colleagues
	  • target audience representatives.

Focus testing may include:	• actively seeking suggestions to improve script and narrative components and provide engaging game play • presenting storyboards and components to colleagues for comment and feedback • presenting storyboards to representatives of the target audience for comment and feedback.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM408A Use 3-D animation interface and toolsets

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use a 3-D package's animation interface and toolsets.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information*

© Commonwealth of Australia, 2025 Future Skills Organisation

	is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Locate and identify 3-D application navigation controls	1.1 Using chosen ***3-D modelling and animation software***, identify a range of ***3-D navigation types***, including panning, zooming and rotating around the viewport 1.2 Identify methods of use for navigation, keyboard hot keys and input procedures to improve user performance
2. Locate and identify 3-D animation toolsets	2.1 Identify ***common toolsets of 3-D animation software*** 2.2 Identify and analyse 3-D application menus and specific category types 2.3 Use common 3-D application transformation types 2.4 Select and use common 3-D application-specific toolset types
3. Select and clarify appropriate menu categories for requirements	3.1 Associate ***menu categories*** as required for specific tasks 3.2 Consult with ***relevant personnel*** and use application hot keys for superior application interaction
4. Initiate and use application-support materials	4.1 Identify and research the range of ***reference material*** available for use in creating 3-D animation and digital effects 4.2 Present reference material for use in the 3-D animation process 4.3 Identify the native ***application support procedures*** 4.4 Access support documents and help files through hotkey and application menus 4.5 In consultation with relevant personnel use support material as required
5. Identify and plan 3-D application import and export procedures	5.1 Discuss with relevant personnel ***application file-management procedure types***, including opening, importing, saving and exporting 5.2 Discuss and use application project configuration procedures with relevant personnel 5.3 Prepare and create projects as required

© Commonwealth of Australia, 2025 Future Skills Organisation

6. Identify and use application feedback	6.1 Discuss user application feedback with relevant personnel 6.2 Use application feedback to troubleshoot error scenarios as required 6.3 Use feedback with inbuilt support documentation as required
7. Customise application interface	7.1 Identify variation of user interface windows and panels configurations 7.2 Use custom interface for specific requirements based on toolset procedural needs

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse documentation and images to inform implementation of game specifications
  - interpret briefs, work instructions, and technical and conceptual information
- communication skills to:
  - check and confirm design requirements
  - collect, interpret and communicate in visual and written forms effectively for various audiences, including engineers and artists
  - communicate clearly using speech and text
  - communicate complex designs in a structured format drawn from industry standards, styles and techniques
  - communicate technical requirements related to software development, graphics requirements and code development to supervisors and other team members
  - provide practical advice, support and feedback to colleagues and management
  - translate design requirements into specifications
- initiative and enterprise skills to exercise a high level of creative ingenuity in 3-D design and innovation
- technical skills to visualise and develop concepts.

Required knowledge

- 3-D animation production protocols

© Commonwealth of Australia, 2025 Future Skills Organisation

- analysis of a production brief
- development and recording of ideas
- filing media assets
- fundamental research principles
- OHS requirements for:
  - ergonomics
  - electrical safety
- principles of design and colour for use in 3-D animation and digital effects environments
- procedures for producing a storyboard and script
- technical constraints that hardware imposes on graphics requirements and creative visual design.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • interact and navigate with 3-D application interface and toolsets • interact with file management procedures • execute and use 3-D application native support • use 3-D application to user feedback • configure custom panel and window configurations.
Context of and specific resources for assessment	Assessment must ensure access to: • plans to source reference materials • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of sample workplace activities • evaluation of written or interactive computer-based fault-finding exercises

© Commonwealth of Australia, 2025 Future Skills Organisation

	• evaluation of reports and logbooks.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

3-D modelling and animation software may include:	• 3ds Max • Blender • Cinema 4D • Houdini • Lightwave • Maya • Modo • XSI • ZBrush.
3-D navigation types may include:	• input procedures • keyboard hotkeys • panning • rotating • zooming.
Common toolsets of 3-D animation software may include:	• animation • animation curve editors • animation dope sheets

© Commonwealth of Australia, 2025 Future Skills Organisation

	• content selection lists • dynamics • modelling • movement • rendering • rotation • scaling • shader or material editors.
Menu categories may include:	• animate • assets • colour • create • create UVs • display • edit • edit mesh • edit UVs • file • geometry • help • mesh • modify • normals • proxy • window.
Relevant personnel may include:	• animator • dead-environment designer • designer • effects artist • environment designer • lead animator • lead artist • lead audio • lead designer • modeller • producer • texturer • trainer • VFX supervisor.
Reference material may include:	• blueprints • developmental drawings

© Commonwealth of Australia, 2025 Future Skills Organisation

	• internet research • museum information • orthographic images • photographs • schematics • video footage.
Application support materials may include:	• help files • reference material • troubleshooting.
Application file-management procedure types may include:	• exporting • importing • opening • saving.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM409A Create 3-D characters for interactive games

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design and build 3-D characters for commercial games.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information*

© Commonwealth of Australia, 2025 Future Skills Organisation

	is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Research and analyse characters	1.1 Determine and agree ***character style*** according to ***client requirements***
	1.2 Determine and agree ***character type*** and ***profile***
	1.3 Determine and agree ***character role*** and name
	1.4 Create animations for each of the 3-D models based on a study of the original character's animations
	1.5 Compare animations with originals for quality
2. Design characters	2.1 Develop ***concept illustration*** for character
	2.2 Conduct ***focus testing*** of concept illustration with client and representatives of target market audience
	2.3 Develop ***character schematics*** based on feedback and submit to client for approval
3. Develop character models	3.1 Construct a 3-D character model on a turntable based on character schematics
	3.2 Construct 3-D costumes, tools and accessories for character model
	3.3 Shade, texture and light complete character model
	3.4 Develop animations of key poses and transitions in consultation with animation personnel for approval
	3.5 Compare 3-D models and animations to original concept illustration for verification of quality and conformity to brief
	3.6 Submit to client for approval

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- communication skills to liaise with project team and clients
- literacy skills to read technical documents and specifications
- planning and organisational skills to manage time and resources
- research skills to conduct research into character attributes and styles
- technical skills to:
  - create 2-D character schematics to construct industry grade 3-D models
  - create industry grade fully textured animated 3-D game characters using 3-D and 2-D graphics software tools
  - create 3-D characters models that meet agreed target market, technical and design requirements.

Required knowledge

- advanced features of 3-D software packages to create 3-D character models for games
- how to interpret game design briefs
- methods of 3-D character modelling within technical parameters and constraints of game development
- technical limitations for creation of 3-D character models for games.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • use 2-D and 3-D software applications to develop and realise characters for games • develop character designs that comply with games design brief and client requirements • develop character designs that are innovative and competitive with characters in games currently in the marketplace • test responses to character designs for aesthetic suitability with intended audience and act on feedback.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • character reference materials, such as models, illustrations,

© Commonwealth of Australia, 2025 Future Skills Organisation

	art and design books, and character photographs • range of state of the art games across all platforms and genres • range of the latest consoles and hand-held game devices • internet access for research purposes • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • discussion or written report of the nominated techniques applied to character design and development • verbal questioning regarding reasons for use of particular hardware and software options • direct observation of the learner undertaking character design activities • project or work activities that demonstrate capacity for research to support character development • review of portfolios of evidence • completed character models on a turntable.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Character style may include:	• abstract • caricatured • cartoon-like • comic • cute • exaggerated • highly realistic • hybrid • idealised • robotic • scary • stylised • symbolic.

Client requirements may include:	• design and platform constraints:
	  • 1500 to 3000 polygons
	  • maximum of 40 bones for animation
	  • up to four 256 by 256 texture maps
	• game design brief:
	  • draft pencil concept illustrations of the player character and a few of the non-player characters
	  • details of player characters, including:
	  • control mechanisms
	  • number and types of interaction with other non-player characters
	  • number of animations
	  • intended audience, genre, platform and control devices
	  • introduction and game overview, including list of special features and selling points
	  • list of all non-player and player characters
	  • other illustrations or graphics that enhance the comprehension of the document
	  • title and cover art
	• wants, needs and interest of the target market audience

© Commonwealth of Australia, 2025 Future Skills Organisation

	identified for the game.
Character type may include:	• alien • animal • anthropomorphised food • anthropomorphised machine • anthropomorphised toy • anthropomorphised vehicle • human • spiritual entity • terrestrial • vegetable.
Character profile may include:	• age • aspects of behaviour • change of circumstances, e.g. rich to poor • counterintuitive props and clothing • courage • cowardice • definitive visual cues • exaggerated physical characteristics • fangs • gender • intelligence • interpretive visual cues • mental and emotional attributes and personality traits • motivation or goals • naivety • physical attributes • profession • professional uniforms • props • race • religion • shyness • social butterfly • social status • strength • tools • wheelchairs.
Character role may include:	• antagonists • extras • minor characters

© Commonwealth of Australia, 2025 Future Skills Organisation

	• objects of desire • partners or sidekicks • protagonists • secret agendas • supporting roles.
Concept illustration may include:	• 2-D hand rendered drawing • 2-D or 3-D digital illustration • 2-D sketch • collage or montage • photograph • storyboard.

Focus testing may include:	• analysis and written summary of focus test discussions, outcomes and results
	• audience perceptions of:
	  • age that character appeals to
	  • 'coolness' factor
	  • value of character
	• consultation with groups representing target market audience for finished game.

Character schematics may include:	• scaled 2-D Illustrations of front, back, side and top of the character
	• scaled 2-D illustration to illustrate the character in various action poses, including:
	  • greeting, hitting, pushing, pulling and colliding
	  • jumping, crawling, climbing, shooting and rolling
	  • sitting and riding
	  • walking and running
	• scaled 2-D sketches of the character face in various expressions:
	  • happy, angry, sad and confused
	  • situational responses
	  • viseme set, such as facial expressions while talking
	• scale comparison illustrations, including character next to:
	  • a building
	  • a vehicle
	  • other characters
	• scale or dimension indicators.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM410A Develop 3-D components for interactive games

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design and create 3-D components within a games environment.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information*

© Commonwealth of Australia, 2025 Future Skills Organisation

	is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Confirm component requirements within game context	1.1 Identify definition and purpose of ***3-D components*** with examples 1.2 Identify context of ***component design*** within game design document 1.3 Create list of required components
2. Identify component integration methods within game architecture	2.1 Discuss component ***format***, file extensions and the ramifications of choice 2.2 Establish methods of component loading and usage
3. Establish content creation pipeline	3.1 Finalise required component list 3.2 Discuss hardware and ***software*** required for the creation of 3-D components and assets 3.3 Discuss methods of file archiving and naming of components and assets 3.4 Establish deadlines for component creation
4. Integrate components for testing and analysis	4.1 Identify evaluation methods for quality assurance 4.2 Ensure that produced components meet the established quality requirements 4.3 Make changes to components as required by testing and evaluation 4.4 Submit finalised assets with archiving format outlined in assignment brief

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- initiative and enterprise skills to:
  - create components and assets suitable for project theme
  - demonstrate creativity in the production of a consistent, repeatable style between 3-D components
- planning and organisational skills to:
  - establish clear goals and deadlines to achieve project and assignment outcomes
  - meet project deadlines and criteria
- teamwork skills to:
  - contribute as a functioning member of a productive team
  - ensure that individual assets are delivered on time
- technical skills to:
  - resolve basic hardware, software and other technical issues
  - use correct file formats and archiving procedures.

Required knowledge

- current game hardware and software products
- game-engine architecture and methods used in component importing
- processes and techniques related to:
  - creation of 3-D objects within industry standard modelling software
  - use of industry formats for the development of 3-D models and objects.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • generate 3-D components for games • follow a clearly defined schedule and production pipeline for assets.
Context of and specific resources for	Assessment must ensure access to: • computer hardware, software, games engines and file storage

© Commonwealth of Australia, 2025 Future Skills Organisation

assessment	• copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of work samples or simulated workplace activities and fault-finding exercises
	• verbal or written questioning to determine candidate's knowledge of:
	  • game-engine architecture and methods used in component importing
	  • current game hardware and software products
	• review of reports and logbooks.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

3-D components may include:	• 3-D landscapes • buildings, walls, houses and other structures • character models

© Commonwealth of Australia, 2025 Future Skills Organisation

	• graphical user interface (GUI) widgets • items and collectables • light sources and effects • trees, shrubs and bushes • vehicles.
Component design may involve:	• development time line constraints • researching current video game products and the components implemented • limitations of available technology • using game engine or interactive media architecture.
Format may include:	• Direct X • Ogre • OpenGL • eXtensible markup language (XML).
Software may include:	• After Effects • Avid • Blender • Combustion • D2 Nuke • Digital Fusion • Final Cut Pro • Flame • Flint • Fusion • Illustrator • Inferno • Inferno • Lustre • Photoshop • Premier • Renderman • Shake.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM412A Design interactive media

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design and implement technologies relating to human-computer interaction.

Application of the Unit

The unit applies to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information*

© Commonwealth of Australia, 2025 Future Skills Organisation

	is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Define human-computer hardware interface devices	1.1 Identify ***standard human-computer interaction devices***
	1.2 Identify ***game-specific human-computer interaction devices*** and the ***common controls*** used in their implementation
2. Research common event handling systems	2.1 Identify and review industry standard event handling systems used in ***application libraries***
	2.2 Create and application, accessing and using technologies and showcasing captured events from hardware devices
	2.3 Discuss considerations for human-computer interaction device selection
3. Understand commonly used graphical user interface (GUI) widget sets	3.1 Identify ***common widgets*** and their usage within an application environment
	3.2 Identify and review industry standard ***graphical user interface libraries*** and their relevancy within game-engine software
	3.3 Discuss considerations for selection of widgets within a game ***heads up display*** (HUD)
	3.4 Use human-computer interface devices and event handling call-backs in the creation of an application, showcasing captured events with GUI widgets
4. Design a simple media software device	4.1 Discuss and ***design a prototype*** for the development of a custom user interface widget to be used within a game heads up display environment
	4.2 Select GUI software for implementation and discuss ramifications of selection
5. Build and implement a simple media software device	5.1 Integrate all custom widget elements as required by prototype specifications
	5.2 Make final checks to ensure functionality conforms to the original design
	5.3 Save into specified storage systems

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - assess suitability of software and hardware technologies within project context
  - discuss suitability of custom widget prototype within project context
  - establish clear advantages, disadvantages and limitations of technologies and their implementation
- planning and organisational skills to:
  - establish clear goals to achieve required software development outcomes
  - meet project deadlines
- research skills to:
  - conduct professional research into software and hardware technologies required for successful completion of project
  - understand and implement efficient design patterns for professional completion of project
- technical skills to:
  - resolve basic hardware, software and other technical issues associated with software production
  - use correct file formats and archiving procedures.

Required knowledge

- basic programming techniques
- specific terminology used by computer game developers
- technical constraints that hardware imposes on software development, code development and creative visual design.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • explain commonly used hardware and software as it applies to a human-computer interaction environment • develop simple applications using correct methods of hardware event handling • use such technologies within the context of a video game environment • produce a custom control for use within a large project • present a completed project on time.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of work samples or simulated workplace activities • verbal or written questioning to confirm knowledge of design processes and methods used to resolve issues and problems • analysis of fault-finding exercises • evaluation of reports and logbooks.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Standard human-computer interface devices may include:	• keyboards • mice • track balls • track pads • web cameras.
Game-specific human-computer interaction devices may include:	• game pads • gaming keyboards • gaming mice • joysticks.
Common controls of devices may include:	• analog hats • buttons • digital pads • joysticks • keys.
Application libraries may include:	• DirectX • Irrlicht • Microsoft Visual Studio • Ogre • OpenGL • Simple DirectMedia Layer (SDL).
Common widgets may include:	• buttons • check boxes • containers • drop down menus • environments • images • input text boxes • input text fields • labels • radio buttons • scroll bars • tabs • Windows.

© Commonwealth of Australia, 2025 Future Skills Organisation

Graphical user interface libraries may include:	• Carbon • Cocoa • GLUI • Guichan • Java Swing • Microsoft Foundation Classes • WX Widgets.
Heads up displays may involve the use of:	• chat windows • context menus • dialogue screens • health bars, ammunition bars and mana bars • inventory screens • main menus • objective guides • overhead maps, mini maps and compasses • pause screens.
Designing a prototype may involve:	• defining a clear context in which the custom widget will be implemented in and used for • having a firm knowledge of existing game-engine architecture • prototyping for a specific purpose • researching existing widgets used in existing products.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM413A Design and create 3-D digital models

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design and create 3-D models.

Application of the Unit

The unit applies to concept artists, games designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information*

© Commonwealth of Australia, 2025 Future Skills Organisation

	is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Clarify work requirements	1.1 Clarify ***requirements*** and ***purpose*** for design and creation of 3-D digital models, with reference to ***production documentation***
	1.2 Clarify work flow sequences to ensure that ***production*** schedule deadlines are met with ***relevant personnel***
	1.3 Select ***software*** that best suits the type of production and ***delivery platform*** for which 3-D digital models are being designed and created
	1.4 Gather and analyse ***reference materials*** to help with design and visualisation of 3-D models
2. Design 3-D digital models	2.1 Design and sketch concept drafts of 3-D model
	2.2 Create concept art of 3-D model
	2.3 Create prototypes of 3-D model
3. Create 3-D digital models	3.1 Use software features to block out models to determine correct proportions related to reference materials
	3.2 Manipulate software features to apply basic lighting and shaders as required
	3.3 Ensure that models' topology allows appropriate deformation, as required
	3.4 ***Progressively refine*** and check ***integrity*** of models until they meet design requirements
	3.5 Submit models to relevant personnel for comment on whether production requirements have been met and make final adjustments as required
	3.6 Render and output models in required ***format*** and submit to relevant personnel by agreed deadlines
	3.7 Make backup copies of files and complete workplace documentation according to enterprise procedures

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication, teamwork and literacy skills to:
  - complete workplace documentation
  - interpret and clarify written or verbal instructions
  - respond constructively to feedback received from other team members
  - work as a member of a production team, both independently on assignment and under direction
- initiative and creativity skills to design, visualise and create 3-D digital models of a range of inanimate objects
- self-management and planning skills to:
  - meet deadlines
  - prioritise work tasks
  - seek expert assistance when problems arise
- technical skills to:
  - make backup copies of files and store appropriately
  - manage files and directories using standard naming conventions and version control protocols
  - use industry-current software applications to design and create 3-D models to specifications.

Required knowledge

- 3-D digital model design techniques
- 3-D digital modelling techniques
- basic knowledge of the stages in the production process from initial design through to finished product
- common issues and challenges that arise in the context of designing and creating 3-D digital models
- features of a range of delivery platforms
- geometry as it applies to the design and creation of realistic 3-D digital models
- OHS standards as they relate to working for periods of time on computers
- roles and responsibilities of project team members in the relevant industry sector
- scale, form, weight and volume.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• design and create 3-D digital models that:
	  • demonstrate efficient use of geometry and attention to detail
	  • meet creation design parameters
	• work collaboratively with development team and meet deadlines.

Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of work samples or simulated workplace activities • verbal or written questioning of the candidate's knowledge of the stages in the production process from initial design through to finished product • analysis of fault-finding exercises • evaluation of reports and logbooks.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined

© Commonwealth of Australia, 2025 Future Skills Organisation

	with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Requirements may include:	• assets for integration • collaboration with other team members • creative expectations • design specifications • output format • technical specifications • time lines.

Purpose of 3-D digital models may include:	• animations
	• digital simulations:
	  • architectural models
	  • demonstration of processes and procedures
	  • e-learning resources.

Production documentation may include:	• animatics • brief • storyboard • technical specifications.

Production may include:	• animated productions
	• commercials
	• digital media products:
	  • e-learning resources
	  • games
	  • simulations
	  • virtual worlds or environments
	• documentaries
	• feature films
	• filmed events or performances
	• music video
	• short films

© Commonwealth of Australia, 2025 Future Skills Organisation

	• television productions.
Relevant personnel may include:	• 3-D designer or concept artist • 3-D modeller • art director • director • head of department • matte painter • producer • project manager • storyboard artist • supervisor • technical director • other technical and specialist personnel.

Software may include:	• 3-D:
	  • 3-D Studio Max
	  • Maya
	  • Softimage
	• graphics:
	  • Illustrator
	  • Photoshop.

Delivery platform may include:	• broadcast television • CD • DVD • film • internet • kiosk • mobile phone • personal digital assistant (PDA) • other digital devices.
Reference materials may include:	• books • concept drawings and designs • direct observation of actions to be simulated in 3-D models • real object on which models are to be based • still images • videos.
Progressively refine may relate to:	• achieving required shape • achieving required topology.
Integrity may include checking aspects of:	• double faces • isolated vertices • pivot points

© Commonwealth of Australia, 2025 Future Skills Organisation

	• resetting transform • scale of models relative to other components in final sequences.
Format may include:	• AVI • IFF • JPEG • MPEG • PNG • Quicktime • Targa • TIFF.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM414A Create audio for digital games

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to produce and manipulate audio assets for computer games using a variety of tools.

Application of the Unit

The unit applies to game musicians, audio technicians, audio programmers and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information*

© Commonwealth of Australia, 2025 Future Skills Organisation

	is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Research and document game audio requirements	1.1 Explain the evolution of audio hardware and ***audio formats***
	1.2 Provide a historical perspective on how audio has become integrated into computer games
	1.3 Identify current trends and speculate on the future of game audio
2. Research and document the use of audio in computer games	2.1 Identify the different methods for using audio in computer games
	2.2 Explore the role of music in creating mood and atmosphere
	2.3 Explain how sound effects and vocals are used within computer games
3. Source existing sound effects, music tracks and voice recordings	3.1 Find sources of sound effects, music tracks and voice recordings
	3.2 Create and maintain a small collection of audio assets
	3.3 Identify different audio formats
	3.4 Differentiate between compressed and uncompressed audio formats
	3.5 Identify different ***genres*** of music
	3.6 Develop an awareness of audio ***copyright laws*** and royalty free audio

© Commonwealth of Australia, 2025 Future Skills Organisation

4. Record and manipulate audio for a game	4.1 Record character voices, music and sound effects 4.2 Develop a sound track for a game using audio editing 4.3 Use ***audio-editing software*** to rearrange audio samples and apply audio effects 4.4 Select appropriate sample format and bit rate 4.5 Normalise audio samples to make volume uniform 4.6 Trim audio samples 4.7 Apply audio effects 4.8 Export audio to a suitable format
5. Create sound effects or music for a game	5.1 Identify ***digital sound waveforms*** 5.2 Apply ***basic music theory*** to simple ***music-creation tool*** 5.3 Determine suitable musical notation 5.4 Identify and use musical creation tools 5.5 Compose a simple piece of music for a game 5.6 Create various sound effects for a game
6. Research audio-programming libraries	6.1 Compare and contrast functional capabilities of ***audio-programming libraries*** 6.2 Explain the use of channels and mixing
7. Integrate sound, music and vocals into a computer game	7.1 Play a mixture of cached and streaming audio sources 7.2 Integrate sound effects in response to different events 7.3 Incorporate ambient music into sections of the computer game 7.4 Locate and play positional audio sources

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

- communicate audio concepts and related sound requirements to designers and concept artists
- seek and respond to feedback from target audience representatives, clients and colleagues
- technical skills to generate, integrate, manipulate and record digital audio into a game project.

Required knowledge

- audio-editing tools
- audio formats
- audio-programming libraries
- copyright as it applies to audio recordings
- music theory as it relates to using music-creation tools.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • record sound sources • generate sound effects • compose simple music tracks • manipulate audio assets with suitable tools • use audio programming libraries in a game.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware • microphone and headphone sets • input device, e.g. keyboard and mouse • output device, such as monitor and speakers • digital audio editing software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of audio that has been included in a games project
	• verbal or written questioning concerning aspects of game audio, including:
	  • evolution of audio hardware and use of audio in computer games
	  • tools and techniques used
	  • capabilities of audio libraries.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Audio formats may include:	• music, such as mp3, ogg, xm, s3m, it, mod and midi • sound effects, such as wav, raw and voc.
Genres may include:	• dance • jazz • pop • rap • rock • techno

© Commonwealth of Australia, 2025 Future Skills Organisation

	• trance.
Copyright laws may include:	• Australian Copyright Act 1968 • international copyright laws.
Audio-editing software may include:	• Audacity • Music Editor Free • Power Sound Editor • Wavosaur.
Digital sound waveforms may include:	• noise • pulse • sine • square • triangle.
Basic music theory may include:	• bass or treble clef • notation, such as semi-quavers and quavers • notes • scales and chords • timing.
Music-creation tools may include:	• FL Studio • Garage Band • MusicShake.
Audio-programming libraries may include:	• Audierre • Bass Library • DirectSound • FMOD • Open_AL • SDL_Mixer.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM415A Develop simple environments for 3-D games

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop simple environments for different genres of games.

Application of the Unit

This unit applies to concept artists, matte painters, game designers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information*

© Commonwealth of Australia, 2025 Future Skills Organisation

	is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Research and analyse brief requirements	1.1 Interpret ***brief*** and clarify design requirements in consultation with ***client***
	1.2 Identify ***design and technical constraints*** and innovative features of the ***environments***
	1.3 Identify ***software***, media and file formats for digital imagery
	1.4 Identify production workflow requirements and develop production pipeline to meet client requirements
2. Design and visualise environment	2.1 Develop ***concept illustration*** for environment consistent with ***game genre***
	2.2 Conduct ***focus testing*** of concept illustration with client and representatives of target market audience
	2.3 Submit to client for approval and feedback
	2.4 Make adjustments to concept illustration based on comment and feedback
3. Verify and validate environment	3.1 Create ***environment prototype*** according to design brief, guidelines and feedback on concept illustration
	3.2 Conduct focus testing and seek recommendations for the further enhancement of the environment prototype documented
	3.3 Make adjustments to environment prototype based on comment and feedback
	3.4 Submit to client for approval and feedback
4. Develop and evolve environment	4.1 Further enhance environment prototype based on the recommendations generated from focus testing
	4.2 Submit to client for approval and feedback
	4.3 Finalise environment design
	4.4 Save and archive files in agreed formats and repository

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to evaluate technical requirements of environment design against resources and timeframes
- communication skills to liaise with project team and clients
- initiative and enterprise skills to:
  - devise efficient and innovative approaches to texturing and shading
  - provide practical support and give feedback to colleagues and management
- literacy skills to read technical documents and specifications
- planning and organisational skills to manage time and resources
- technical skills to:
  - collect, interpret and communicate focus testing results objectively and effectively
  - create environment artwork within style and quality guidelines
  - design and run focus testing
  - exercise a high level of creative ingenuity in environment design and innovation
  - manage environment evolution and change with effective processes and procedures to mitigate risk and improve environment quality
  - use related computer graphics applications
  - visual research skills to source reference materials for the creation of unique environments.

Required knowledge

- budgeting and scheduling considerations for environment creation in games, with consideration given to human resources
- different environment requirements for different genres of game
- how to interpret environment design briefs
- role and position of interactive environments in commercial game development, game duration and quality
- processes and procedures to facilitate quality and innovation of environment development
- prototyping tools and techniques for commercial environment development in games
- research methods used to stay abreast of the latest developments in game environment design.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • use 2-D and 3-D software applications to develop and realise characters for games • develop environment designs that comply with games design brief and client requirements • develop environment designs that are innovative and competitive with characters in games currently in the marketplace • test responses to environment designs for aesthetic suitability with intended audience and act on feedback.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware and software • input device, such as stylist tablet, keyboard and mouse • output device, such as monitor, TV, printer and speakers • game design document or specifications • style shots • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • discussion and written report of the nominated techniques applied to environment design and realisation • discussion with learner and observation of the integration of environment design and evolution into the overall production pipeline • verbal questioning regarding reasons for use of particular hardware and software options • project or work activities that show research and reference sourcing of material to inform environment design • written and verbal reports or documentation showing research and production plan • review of portfolios of evidence

© Commonwealth of Australia, 2025 Future Skills Organisation

	• completed textured, shaded and rendered exemplars.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Brief may include:	• background stories • descriptions of desired look and feel, i.e. aesthetic style • game design document • game overview, including list of special features and selling points • game walkthroughs • illustrations or graphics that enhance the comprehension of the document • intended audience • list of buildings • list of levels or missions • list of non-player and player characters • list of vehicles • references to existing bodies of graphical user interface (GUI) artwork and styles • references to existing game environments • storyboards • verbal instructions

© Commonwealth of Australia, 2025 Future Skills Organisation

	• written instructions.
Client may include:	• 3-D artists • animators • art directors • designers • external clients • modellers • technical directors.
Design and technical constraints may include:	• budget • design specifications • file formats for output and end use • genre and platform • technical requirements • technical specifications.

Environments may include:	• exteriors:
	  • alien
	  • fantasy
	  • historic
	  • natural
	  • underwater
	  • urban
	• interiors:
	  • building
	  • confined spaces
	  • vehicle.

Software may include:	• 3-D Studio Max • Animator Pro • AutoCAD • AutoCAD Revit 9 • Blender • Bodypaint • Cinema 4D • Combustion • CorelDraw • Deep paint • Electric Image • Form Z • Houdini • Illustrator • Lightwave • Maya

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Photoshop • Pixie • POV-Ray • Renderman • Rhino • Shake • Soft Image or XSI • Z Brush.
Concept illustration may include:	• 2-D hand rendered drawing • 2-D or 3-D digital illustration • 2-D sketch • collage or montage • photograph • storyboard.
Game genre may include:	• adventure • alternative reality • ancient • casino • cyberpunk • educational • edutainment • fantasy • first person shooter • flight shooter • flight simulation • futuristic • god simulation • massively multi-player online game • massively multi-player online role-playing game • medieval • modern • multi-player • post-apocalyptic • puzzle • racing shooter • racing simulation • real-time strategy • role-playing game • science fiction • side-scrolling shooter • single player • sports

© Commonwealth of Australia, 2025 Future Skills Organisation

	• strategy, including:
	  • action strategy
	  • turn-based strategy
	• tactical combat.

Focus testing may include:	• documentation of high-level focus test objectives
	• focus test implementation plan (test plan) document to realise focus test objectives and the procedures and processes to be followed
	• test group members based on test plan, examples of criteria may include:
	  • age
	  • sex
	  • location
	  • other socioeconomic factors
	• appropriate environment and facilities for focus testing based on test-plan requirements
	• documentation of focus test results according to test plan.

Environment prototype may include:	• a modelled and textured environment in which characters and objects interact • simulated game play, where the camera follows a game character through the environment demonstrating as many of the environment's features as possible • simulated fly through, where the camera follows a predetermined path through the environment demonstrating as many of the environment's features as possible.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM416A Prepare and complete image rendering processes

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to prepare for and complete simple rendering processes for 3-D modelling, animation and game development.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

	italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Analyse rendering requirements	1.1 Identify ***equipment and media*** required for project 1.2 Identify the features of rendering ***software*** packages used in the film and games industries 1.3 Analyse design brief or other reference sources to ***plan*** and determine rendering requirements
2. Select a suitable rendering application to achieve desired appearance	2.1 Select rendering software with capability to achieve desired effects within timeframe and budget 2.2 Confirm selection is according to the brief, system limitations and requirements
3. Prepare rendering application for desired outcome	3.1 Select and apply appropriate image resolutions, image aspect ratio and pixel ratio 3.2 Adjust renderer attributes to obtain desired anti-aliasing 3.3 Adjust renderer attributes to obtain other desired visual effects
4. Check render integrity and quality	4.1 Refine render integrity 4.2 Re-link any missing images and textures 4.3 Test render times for optimising process 4.4 Test alpha channels and opacity matts 4.5 Test render layers and passes
5. Optimise images for render processes	5.1 Complete ***pre-rendering optimisation tasks*** 5.2 Adjust and refine renderer attributes to optimise render times 5.3 Select appropriate file format for output according to the brief 5.4 Select appropriate filenames and output destinations
6. Render images and save files appropriately	6.1 Undertake final rendering processes 6.2 Store or archive files

© Commonwealth of Australia, 2025 Future Skills Organisation

	6.3 Review completed render to ensure compliance with system and brief 6.4 Confirm rendering with ***relevant personnel***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to evaluate technical requirements of rendering against resources and timeframes
- communication skills to liaise with project team and clients
- initiative and enterprise skills to:
  - devise efficient and innovative approaches to optimise rendering capacity
  - provide practical support and give feedback to colleagues and management
- literacy skills to read technical documents
- planning and organisational skills to manage time and resources
- technical skills to administer render farm and use related computer graphics applications.

Required knowledge

- features of software used for:
  - 3-D animation
  - 3-D modelling
  - appropriate file sizes and file formats
  - lighting
  - rendering
  - scheduling of production components
  - shading
  - texturing
- interpreting rendering briefs
- rendering optimisation techniques
- rendering requirements for games
- using computer networks for rendering.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • adhere to rendering brief requirements • design and comprehend rendering tasks • use and optimise render components for best performance • adhere to system requirements related to file sizes and formats • store rendered components in an organised manner for any further use.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware and software • input device, e.g. stylist tablet, keyboard and mouse • output device, such as monitor, TV, printer and speakers • models and scenes to be rendered • style shots • rendering briefs or specifications and schedules • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • discussion and written report of the nominated techniques applied to rendering • discussion with learner and observation of development of a rendering pipeline • verbal questioning regarding reasons for use of hardware and software to produce optimum render process and product • direct observation of the learner using rendering software • project or work activities that show research and reference sourcing to gain best rendered effects • written and verbal reports or documentation showing research and production plan • review of portfolios of evidence • review of completed and rendered image or sequence.

© Commonwealth of Australia, 2025 Future Skills Organisation

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Equipment and media may include:	• 3-D animation software • computer workstation • ergonomic furniture • hubs • input device, e.g. stylist tablet, keyboard and mouse • output device, such as monitor, TV, printer and speakers • render farm • render network distribution software • rendering software • switch.
Software may include:	• 3-D Studio Max • Animator Pro • AutoCAD • AutoCAD Revit 9 • Blender • Cinema 4D • Combustion • CorelDraw

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Electric Image • Form Z • Houdini • Illustrator • Lightwave • Maya • Photoshop • Pixie • POV-Ray • Renderman • Rhino • Shake • Soft Image or XSI • Z Brush.
Plan may include:	• lighting • networking • production management • production planning • research • shading • team discussions • texturing.
Pre-rendering optimisations tasks may include:	• assessing options with key personnel • deleting unnecessary geometry and components • optimising and refining for best render performance • organisation of output • preparing layer or pass control • preparing opacity mattes and alpha channels • preparing renderer attributes • rendering • selection of most appropriate renderer for specific outcome • testing and diagnosing rendering issues.
Relevant personnel may include:	• animator • designer • modeller • programmer • shading and texture artist • systems support officer • technical director.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM417A Apply digital effects to interactive products

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to apply digital effects to an interactive product.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators and other relevant personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information*

© Commonwealth of Australia, 2025 Future Skills Organisation

	is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify and apply an interactive concept map of the production	1.1 Catalogue individual components to be applied to the presentation 1.2 Identify and apply an interactive concept map showing components in a logical layout and structure 1.3 Prepare an interactive storyboard for the production
2. Identify and apply digital effect components for the production	2.1 Identify method for applying digital effect framework into presentation 2.2 Apply framework for the digital effects using industry standard methods 2.3 Refine digital effects framework 2.4 Ensure framework conforms to ***project specifications***
3. Identify and apply digital effect components for inclusion in the presentation	3.1 Identify digital effect components for inclusion 3.2 Confirm that digital effect components are in an appropriate format for the framework 3.3 Apply digital effect components to framework for inclusion in product presentation
4. Apply all the above components into a functioning and well-designed interactive product	4.1 Apply all ***media components*** in authoring environment 4.2 Identify necessary digital effects programming to ensure satisfactory results 4.3 Identify inconsistencies within digital effects 4.4 Review and test the design to ensure it meets the creative and technical requirements of the ***brief*** 4.5 Apply runtime version of presentation for inclusion in product 4.6 Ensure that presentation runs satisfactorily on all target platforms

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - check and confirm design requirements
  - collect, interpret and communicate in visual and written forms effectively for various audiences, including engineers and artists
  - communicate complex designs in a structured format drawn from industry standards, styles and techniques
  - communicate technical requirements related to software development, graphics requirements and code development to supervisors and other team members
  - provide practical advice, support and feedback to colleagues and management
  - translate design requirements into specifications
- literacy and numeracy skills to read and analyse briefs, work instructions, and technical and conceptual information
- problem-solving skills to recognise and address potential quality issues and problems at design development stage
- research skills to undertake practical, technical and desktop research into integrating digital effects components
- technical skills to:
  - apply digital effect components to a presentation
  - integrate a framework to incorporate digital effect components into a presentation.

Required knowledge

- component-based programming skills
- OHS requirements for ergonomics
- risk and critical path management
- technical constraints that hardware imposes on software development, graphics requirements, code development and creative visual design
- techniques for applying concept development skills
- techniques for applying concept visualisation skills
- techniques for applying framework integration skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • apply the principles of effective and creative design and visual communication in order to produce a functioning and well-designed interactive product.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of sample workplace activities • evaluation of written or interactive computer-based fault-finding exercises • evaluation of reports and logbooks.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Project specifications may include:	• access to facilities and resources
	• budget
	• deliverables
	• delivery platform
	• disc space
	• milestones
	• prototyping
	• technical issues, such as:
	  • testing plan
	  • timeframe.

Media components may include:	• authoring software • computer workstation • ergonomic furniture.
Brief may include:	• animation • budget • graphics • images • photographs • sound • technical issues • text • timeframe • video.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM418A Use simple modelling for animation

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use simple modelling for animation.

Application of the Unit

This unit applies to concept artists, games designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information*

© Commonwealth of Australia, 2025 Future Skills Organisation

	is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Clarify animation requirements of models	1.1 Clarify ***animation*** requirements and ***design specifications*** for the model, in consultation with ***relevant personnel*** and according to ***production documentation***
	1.2 Examine the most appropriate ***animation techniques*** for the animation to determine which ***modelling techniques*** to use
	1.3 Identify the ***file format*** and ***delivery platform*** for animated sequences
	1.4 Identify ***factors*** that may influence animation design approach
	1.5 Clarify work flow sequences, in consultation with relevant personnel, to ensure that production schedule deadlines are met
2. Plan approach	2.1 Research animations, artworks and other creative sources that may inspire visual design ideas
	2.2 Generate a range of animation ideas that are technically feasible, respond to briefs and provide creative solutions to all design issues
	2.3 Present animation ideas to relevant personnel using appropriate ***design techniques***
	2.4 Adjust approach to incorporate feedback and agree on final design concepts
	2.5 Discuss and select ***animation software*** with relevant personnel to ensure that animated sequences of the model meet specified outcomes
	2.6 Analyse ***audio assets*** supplied for animations as required
3. Produce animated sequences for review	3.1 Create animations of models using animation and modelling techniques to suit design requirements
	3.2 Apply basic ***animation principles, screen principles, visual design principles*** and ***communication principles***
	3.3 Apply real world camera techniques to virtual cameras used in animation

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.4 Render completed animated sequences 3.5 Save and store animated sequences using appropriate output file formats, standard naming conventions and version control protocols 3.6 Present animated sequences of simple models to relevant personnel for evaluation by agreed deadlines
4. Finalise animated sequences	4.1 Review animated sequences to assess creative solutions to design briefs, appropriateness to users or audience, and technical feasibility 4.2 Discuss and confirm with relevant personnel additional requirements or modifications and complete changes as required

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication, teamwork and literacy skills to:
  - complete workplace documentation
  - interpret and clarify written or verbal instructions
  - respond constructively to feedback received from other team members
  - work as a member of a production team, both independently on assignment and under direction
- conceptual and creative skills to:
  - generate feasible ideas for animated sequences of models
  - maintain design integrity
  - produce convincing animations incorporating movement and timing
- self-management and planning skills to:
  - meet deadlines
  - prioritise work tasks
  - seek expert assistance when problems arise
- technical skills to:
  - apply the principles of basic screen, visual design and communication to produce animated sequences of models
  - manage files and directories using standard naming conventions and version control protocols

© Commonwealth of Australia, 2025 Future Skills Organisation

- output animated sequences in appropriate file formats for a range of delivery platforms
- use industry-current animation software to develop digitally animated sequences.

Required knowledge

- basic digital animation techniques
- basic screen principles
- basic knowledge of the stages in the production process from initial design through to finished product
- features of a range of delivery platforms
- issues and challenges that arise in the context of creating simple models for digital animations
- OHS standards as they relate to working for periods of time on computers
- principles of animation
- principles of visual design and communication
- roles and responsibilities of project team members in the relevant industry sector.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• create digital animated sequences of a model that:
	  • demonstrate the principles of simple model animation, basic screen, visual design and communication
	  • meet the technical requirements of specific platforms
	  • satisfy the design brief and client requirements
	• meet production deadlines.

Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of work samples or simulated workplace activities • verbal or written questioning of issues and challenges that arise in the context of creating simple models for digital animations • evaluation of a digital animated sequence of a model.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Animation may include:	• basic games • buttons • characters • elements • illustrations • logos • models • morphs or blend shapes • panoramas • puzzles

© Commonwealth of Australia, 2025 Future Skills Organisation

	• simulated sequences • text • titles and credits.
Design specifications may include:	• characters and objects • delivery platform • hardware specifications, including memory size (RAM) • key frames • media form • objects • operating system • output file format • output file size • references • samples • script • storyboard • technical specifications, including • version control protocols.
Relevant personnel may include:	• animation director • audio asset creator • director • graphic artist or designer • instructional designer • lead animator • matte painter • modeller • producer • system support personnel • other technical and specialist personnel.
Production documentation may include:	• animatics • brief • storyboard • technical specifications.
Animation techniques may include:	• acceleration and deceleration • audio integration • dynamic simulation • hierarchies • hinges and pivot points • hybrid method • key frames • layered animation

© Commonwealth of Australia, 2025 Future Skills Organisation

	• looping backgrounds • morphing or object exaggeration • motion capture • motion paths • pose to pose animation • registration points • rotation • scripted animation • speed or motion blur • straight-ahead animation.
Modelling techniques may include:	• NURBS • polygonal • primitives • sculpt • splines and patches.
File format may include:	• AAS • ACT • ANI • ANM • ANS • AVI • AWA • AWM • CEL • CFT • CMV • DIR or DCR • FLA or SWF • FLC • FLI • FLX • GIF • HTML • IFF • JPEG • LWOB • M3D • MMM • MOV • MPEG • MWF • PNG

© Commonwealth of Australia, 2025 Future Skills Organisation

	• QTVR • SEC • TIFF • VAN • VUE.
Delivery platform may include:	• CD • DVD • film • games console • internet • kiosk • mobile phone or device • personal digital assistant (PDA) • video.
Factors may include:	• budget • purpose of animation • resources • target audience • time lines.
Design techniques may include:	• digitally-generated illustrations of objects and characters • freehand sketches • fully rendered hand-drawn illustrations • story trees • storyboards.
Animation software may include:	• 3-D Studio Max • Cinema 4D • Houdini • Lightwave • Maya • Motionbuilder • Soft Image, e.g. XSI.
Audio assets may include:	• music • narration • sound effects.
Animation principles may include:	• anticipation • asymmetry in body and facial poses • balanced poses • exaggeration • movement in arcs • overlapping actions and follow-through • pacing or timing

© Commonwealth of Australia, 2025 Future Skills Organisation

	• secondary actions • singularity of message • squash and stretch • staging • strong silhouette in poses • weight.
Screen principles may include:	• camera techniques • editing, including basic transitions • framing • lighting • montage • narrative • story-telling • style or genre.
Visual design principles may include:	• balance • composition • emphasis • movement • perspective • proportion • scale • unity.
Communication principles may include:	• communicating the message • conveying meaning • meeting audience requirements • using functional components.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM419A Build a database to support a computer game

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to build a database to support a computer game.

Application of the Unit

This unit applies to game programmers or junior analyst programmers responsible for the development and implementation of a database to support state management for a computer game.

This unit relates to the specific requirements for designing and implementing a relational database required for the management of persisted state of a computer game. The game may be an online or networked game or a stand-alone game where player actions are preserved or persisted between sessions.

This unit does not address specialist programming skills required for games programming which are detailed in other units of competency.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Verify database model	1.1 Verify that ***game architecture*** and ***system implementation requirements*** have been addressed by the proposed ***database architecture***
	1.2 Correlate ***data model*** entities and their attributes with the ***game artefacts*** and ***game design requirements***
	1.3 Verify that ***entity relationships*** defined in the data model implement game design and game-play rules
	1.4 Verify estimates of amounts of data storage required and data types defined by the data model
	1.5 Document design inconsistencies
	1.6 Review database model and address and correct inconsistencies
	1.7 Define database test data
2. Create physical database design	2.1 Implement conceptual data model design as a physical database design
	2.2 Determine default database file size according to the data model storage estimates
	2.3 Determine game data ***input and output workload*** estimates
	2.4 Determine reliability and performance requirements
	2.5 Define minimum hardware requirements to support input and output workload and reliability or performance requirements
	2.6 Configure the database management system to use

© Commonwealth of Australia, 2025 Future Skills Organisation

	minimum hardware requirements 2.7 Refine and confirm database test data
3. Implement physical database prototype	3.1 Write structured query language (SQL) scripts to create physical database files according to design requirements 3.2 Write SQL scripts to create database tables 3.3 Implement primary key constraints 3.4 Implement foreign key constraints 3.5 Define and script stored procedures for selecting, inserting, updating and deleting data 3.6 Define and script Insert statements for test data 3.7 Execute SQL scripts and database, including test data
4. Test the database and document results	4.1 Document entity integrity tests and results 4.2 Document referential integrity tests and results 4.3 Document input and output performance tests and results 4.4 Document stored procedures tests and results
5. Review, evaluate and correct database performance	5.1 Review test result deficiencies 5.2 Define, evaluate and test deficiencies and ensure corrective measures are implemented 5.3 Implement corrections to database

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse and assess quantitative requirements for data storage and data throughput
  - analyse game architecture and game system implementation requirements in the context of the proposed database architecture
  - assess how well the implementation of the data model maps to the game artefacts, the game-play rules and the game design requirements
- communication skills to:
  - identify and discuss game-play rules with game designers

© Commonwealth of Australia, 2025 Future Skills Organisation

    - define and describe data throughput requirements and discuss these with game designers
    - negotiate with project managers to determine database implementation resource requirements, project timeframes and deliverables
    - propose data structures to implement game-play functionality and system requirements
- initiative and enterprise skills to:
    - assess proposed database architectures within the context of existing enterprise technologies, infrastructure and industry standards
    - recommend solutions to problems or deficiencies associated with the implementation of the database
- learning skills to:
    - acquire the skills and knowledge required to overcome current limitations in data throughput and query execution times
    - stay at the cutting edge of industry developments, industry standards and innovative applications of relational database management systems to problems of persisting state in computer games
- literacy skills to:
    - document physical design inconsistencies
    - interpret documentation describing game design requirements and game-play rules
    - interpret related game industry standards and associated database management system standards and query language standards
    - write requirement specifications for physical database implementation
- planning and organising skills to:
    - organise resources, documentation and infrastructure elements required for the implementation of a relational or object-oriented database management system
    - plan an effective implementation to a relational or object-oriented database management system
- problem-solving skills to:
    - debug query scripts, identify script errors and resolve all query scripting issues
    - identify and implement solutions to problems with the initial conceptual database model
    - identify problems with physical model and implement solutions
- research skills to:
    - enhance knowledge of industry standards and industry trends related to computer game state management techniques and relational or object-oriented database management systems
    - identify and locate sources of information that provide solutions to technical problems
    - identify sources of information and documentation required to build a database to support a computer game
- technical skills to:
    - execute data and query analysis tools and evaluate data input and output performance statistics

© Commonwealth of Australia, 2025 Future Skills Organisation

- redefine data structures to improve the efficiency of data throughput
- use an integrated development environment to build, modify and manipulate relational or object-oriented data structures
- write code to implement a physical database design.

Required knowledge

- computer hardware specifications and hardware performance expectations
- creation, use and testing of stored procedures:
  - defining input parameters
  - defining output parameters
- database stress testing and stress testing software
- database testing methodologies
- object-oriented database management systems
- relational database management systems:
  - IBM DB2
  - Microsoft Access
  - Microsoft SQL (MS SQL) server
  - MySQL
  - Oracle
  - Postgre Structured Query Language (Postgre SQL)
- relational database modelling building blocks and theory:
  - attributes
  - entity relationship modelling
  - normalisation of database tables
  - relationship cardinality and connectivity:
    - 1:1
    - 1:M
    - M:N
- SQL, such as:
  - data definition language
  - data manipulation language
- evolution of relational database management systems and their relationship to the flat file, hierarchical and network data storage legacy of games
- important functions of a relational database management system within the context of a computer game, such as:
  - controlling data access for multiple users
  - interpreting data access languages, such as SQL and LINQ
  - interpreting data application programming interfaces (APIs), such as ADO.Net
  - managing data integrity

© Commonwealth of Australia, 2025 Future Skills Organisation

  - managing disaster recovery and backups
  - managing the data dictionary
  - managing the data storage
  - managing the security requirements of the data
  - transforming and presenting data
- importance of data models
- different types of data models, such as Chen and Crow's Foot models
- relationship between game-play rules and the modelling of the database structure.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • interpret a conceptual database model and create a physical database design from the conceptual model • create a database that allows for the persistence of state data for a computer game • evaluate and improve the performance of a database built to support a computer game.
Context of and specific resources for assessment	Assessment must ensure access to: • computer aided software engineering and modelling tools • relational or object-oriented database management system • performance testing and analysis software for the selected database management system • game architecture specifications • game design and requirements documentation • client or server hardware and networking infrastructure sufficient to simulate the game architecture specifications • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • written or verbal evaluation of knowledge of data modelling techniques

© Commonwealth of Australia, 2025 Future Skills Organisation

	• written or verbal evaluation of knowledge of scripting languages, such as SQL and LINQ • evaluation of the implementation of a conceptual model as a physical model • review of a database created to support a computer game • review of a database performance measurement process and evaluation techniques.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Game architecture may include:	• networked, persistent games, including massively multi-player online (MMO) games, such as:
	  • World of Warcraft
	  • Second Life implemented in a client (PC), server architecture using web-based protocols
	• networked proprietary console game architectures implemented on hardware, such as:
	  • PlayStation
	  • Xbox
	  • Wii
	  • Nintendo

© Commonwealth of Australia, 2025 Future Skills Organisation

	• iPod Touch • Zone 40 • where game state is persisted between sessions • non-networked persistent games.
System implementation requirements may include:	• games that persist current game state and consequently must manage an authoritative store of state data using a client-server architecture • non-networked stand-alone games that persist game state between sessions.
Database architecture may include:	• client-server based architectures that use: • relational database management systems • object-oriented database management systems.
Data model may include:	• Chen Entity relationship diagrams • Crow's Foot entity relationship diagrams • data dictionaries • object data models • relational data models.
Game artefacts may include:	• characters • maps • objects, weaponry, machinery and prizes • players • regions, geographical locations and game servers.
Game-design requirements may include:	• design rules and limitations • level customisations and game level design • level definitions • level progression requirements • play rules.
Entity relationships may include:	• assessed and implemented cardinality requirements • assessed and implemented connectivity requirements • consideration of degree of normalisation of tables and referential integrity constraints • consideration of entity integrity constraints.
Input and output workload may include estimates of:	• index read, modify and rebuild rates • number of database transaction log entries generated • number of random disk read writes • number of sequential disk read writes.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM501A Create design concepts for digital games and 3-D media

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to create design concepts for digital games and 3-D media.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

	italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify and analyse commonly used design concepts for games and 3-D media	1.1 Obtain the project ***brief and other relevant documents***
	1.2 Research and identify commonly used design concepts used in digital games and interactive 3-D media
	1.3 Analyse and interpret chosen common design concepts used in digital games and interactive 3-D media
	1.4 Discuss ***design considerations*** for designing a digital game or interactive 3-D media concept
2. Identify appropriate software packages used for digital game and 3-D concept design	2.1 Identify and review the appropriate range of ***industry standard software*** available to develop with, according to chosen design concepts
	2.2 Assess the software related to the concept design process requirements
	2.3 Discuss the ***technical specifications*** for the development process
	2.4 Select the software package
3. Use chosen software package	3.1 Run selected software package and become familiar with the user interface
	3.2 Create new files and organise and develop a file structure
	3.3 Learn the required tools and components used to create and develop digital game or interactive 3-D media concept
4. Create and develop concept components for a digital game or interactive media	4.1 Design a ***heads-up display*** for a digital game or 3-D interactive media
	4.2 Consider the specific processes for heads-up display elements
	4.3 Document the design and necessary programming process and requirements needed to implement the heads-up display
	4.4 Use chosen software package to create and develop visual design elements and components to be used for the heads-up display

© Commonwealth of Australia, 2025 Future Skills Organisation

5. Implement design concept into a game or 3-D interactive media	5.1 Load in images required and write ***code*** to implement the heads-up display into an existing framework 5.2 Write code to demonstrate ***HUD capabilities*** with implemented concepts
6. Evaluate implementation	6.1 Demonstrate implementation to ***relevant personnel*** 6.2 Accept ***feedback*** to incorporate into final design 6.3 Assess and refine concept with relevant personnel 6.4 Evaluate the usability of concept components 6.5 Reflect on possible changes to improve the visual design and capabilities of components

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse documentation and images to inform implementation of game specifications
  - interpret briefs, work instructions, and technical and conceptual information
- communication skills to:
  - check and confirm design requirements
  - collect, interpret and communicate in visual and written forms effectively for various audiences, including engineers and artists
  - communicate complex designs in a structured format drawn from industry standards, styles and techniques
  - communicate technical requirements related to software development, graphics requirements and code development to supervisors and other team members
  - provide practical advice, support and feedback to colleagues and management
  - translate design requirements into specifications
- initiative and enterprise skills to exercise a high level of creative ingenuity in game design and innovation
- literacy and numeracy skills to:
  - develop game design and technical design documents
  - write instructions for the normal and competent operation and testing of game features and permutations
- planning and organisational skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - refer decisions to a higher project authority for review and endorsement
  - balance talent, experience and budget
  - delegate tasks and responsibility appropriately
  - establish clear roles and goals to achieve required game development outcomes
  - meet project deadlines
  - organise equipment and resources to achieve required outcomes
  - organise own time to meet milestones
- problem-solving skills to recognise and address potential quality issues and problems at design development stage
- research skills to undertake practical, technical and desktop research into concept design for digital games and 3-D media
- technical skills to:
  - use correct file formats and archiving procedures
  - resolve basic hardware, software and other technical issues associated with game production.

Required knowledge

- basic programming techniques
- capabilities and constraints of game engines
- concept development and visualisation skills
- computer game development, including specific terminology
- current game-play hardware and software products
- human resources required in the process of creating a game and their respective skills and technology requirements
- OHS requirements for:
  - ergonomics
  - electrical safety
- risk and critical path management
- technical constraints that hardware imposes on software development, graphics requirements, code development and creative visual design.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

© Commonwealth of Australia, 2025 Future Skills Organisation

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • demonstrate original and innovative approaches to the creative development of a game • implement game development and production strategies • maintain integrity of the design brief • develop concept art and design specifications for heads-up displays, splash screens, start screens and game field screens consistent with an identified game genre • develop technical specifications for game mechanics, artificial intelligence, physics, sound, game play and overall usability • implement a working heads-up display with basic functionalities.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • internet access for research purposes • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of work samples or simulated workplace activities • review of reports and logbooks • evaluation of work samples or simulated workplace activities • direct observation of candidate preparing game documentation during development activities.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Brief and other relevant documents may include:	• concept drawings • designer's notes • development environment description • game design document • game-play designs • help notes • information design • operating manual • storyboard • style and design principles • style and medium • target market information • technical design document • technical design review process.
Design considerations may include:	• aesthetics • cultural context • genre • resource limitations and constraints • target market.
Industry standard software may include:	• 3-D paint • 3ds Max • Blender • Cinema 4D • Houdini • Illustrator • Lightwave • Maya • Microsoft Visual Studio • Modo • Mudbox • Photoshop

© Commonwealth of Australia, 2025 Future Skills Organisation

	• XSI • Z Brush.

Technical specifications may include:	• backup procedures
	• delivery platform
	• difficulty levels
	• disk or memory space
	• format for final product
	• navigation design
	• pixel size
	• polygon count
	• specifications for phases of game development:
	  • alpha version - pre-production
	  • beta version - playable prototype
	  • gold version - completed game
	  • trialling and testing
	• systems and workplace standards for documentation, including:
	  • computer file management
	  • job lists
	  • progress reports
	• source code and game assets archiving
	• target market.

Heads-up display components may include:	• ammo counter • armour bar or counter • buttons for using magic skills and potions • crosshair • enemy indicators • friendly indicators • health bar • mana or magic bar • mini-map • objective points • speedometer • weapon indicator.
Code may involve:	• basic interaction with screen elements • displaying components on screen • keyboard presses • loading images • mouse movement.
HUD capabilities may	• dynamic changing of components due to conditions (taking damage means reduced health or armour).

© Commonwealth of Australia, 2025 Future Skills Organisation

involve:	
Relevant personnel may include:	• animators • concept artists • game-play designers • graphic designers • instructional designers • modellers • motion capture technicians • other specialist staff • other technical staff • producers • programmers • project manager • sound engineers • team members • technical director • writers.

Feedback may involve:	• accepting and responding to comment, critique and suggestions from:
	  • clients
	  • colleagues
	  • target audience representatives.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM503A Create a complex 3-D interactive computer game

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to create a complex 3-D interactive computer game using industry standard production techniques.

Application of the Unit

This unit applies to games designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information*

© Commonwealth of Australia, 2025 Future Skills Organisation

	is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify required game assets in a team environment	1.1 Obtain ***project brief and other relevant documents***
	1.2 Identify ***game-production assets*** required to meet creative and production requirements and ***technical specifications***
	1.3 Discuss formats of assets and issues of asset integration with appropriate ***personnel***
	1.4 Determine sequence for development of beta-version prototype for testing game play
	1.5 ***Create a schedule*** for production and testing
	1.6 Determine strategies for ***monitoring production progress*** against schedule
2. Identify capability of game-engine software and tools and make selection in a team environment	2.1 Identify and review the range of industry standard ***game-engine software and development tools*** available
	2.2 Assess the software and tools related to specified game concept and play requirements
	2.3 Discuss ***considerations for selection of game-engine software*** with relevant personnel to ensure selection will meet specified outcomes
	2.4 Select game-engine software and development tools
3. Create or acquire required assets for a game in a team environment	3.1 Establish an environment for a project that supports sharing of project assets produced by team members
	3.2 Review the ***attributes of assets*** required in a game project related to chosen game engine
	3.3 Create or acquire visual assets for a games project
	3.4 Customise asset attributes to suit the game design and chosen game engine
4. Use game-engine software and development tools in a team environment	4.1 Collaborate in the use of ***tools and features of software*** relevant to the game-production process
	4.2 Create, modify or access scripts or code to combine assets and achieve agreed project goals
	4.3 Create and check ***game-play elements*** according to

© Commonwealth of Australia, 2025 Future Skills Organisation

	creative and technical requirements 4.4 Test and run ***game prototype*** as a presentation to ensure sequences meet creative, production and technical requirements
5. Evaluate game prototype in a team environment	5.1 Demonstrate initial prototype to relevant personnel 5.2 ***Evaluate*** against criteria, including achievement of a creative and user-friendly product 5.3 Discuss and agree on required changes 5.4 Assist if required in ***tests and user trials*** 5.5 Evaluate feedback from user trials 5.6 Confirm endorsement from relevant personnel to develop prototype into complete product
6. Transform prototype into final publication	6.1 Make necessary changes as indicated by user trials 6.2 Integrate all game elements as required by specifications 6.3 Make final checks to ensure all sequences conform to the navigation design 6.4 Assemble final publication for final distribution

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse documentation and images to inform implementation of game specifications
- communication skills to:
  - check and confirm brief requirements
  - communicate clearly using speech and text
  - communicate technical requirements related to software development, graphics requirements and code development to supervisors and other team members
  - give constructive feedback
- literacy and numeracy skills to read briefs, game documentation, scripts, storyboards, scenarios, images, and technical and conceptual information
- planning and organisational skills to:
  - appropriately refer decisions to a higher project authority for review and endorsement

© Commonwealth of Australia, 2025 Future Skills Organisation

  - balance talent, experience and budget
  - delegate tasks and responsibility appropriately
  - establish clear roles and goals to achieve required game development outcomes
  - meet project deadlines
- problem-solving skills to recognise and address quality issues and problems
- teamwork skills to:
  - contribute to and work in a collaborative team
  - realise a unified game-play vision
- technical skills to:
  - resolve basic hardware, software and other technical issues associated with game production
  - use file formats and archiving procedures.

Required knowledge

- basic programming techniques
- capabilities and constraints of game engines
- computer games development, including specific terminology
- current game-play hardware and software products
- risk and critical path management
- technical constraints that hardware imposes on software development, graphics requirements, code development and creative visual design.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • apply a variety of strategies for game trialling and testing • apply original and innovative approaches to the creative development of a 3-D game • implement game development and production strategies • maintain integrity of the design brief and game design document • undertake risk assessment and critical path planning.

© Commonwealth of Australia, 2025 Future Skills Organisation

Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of work samples or simulated workplace activities
	• observation of game production activities
	• verbal questioning or interview concerning aspects of game development, including:
	  • capability of game engines and software tools to meet the requirements of the brief
	  • evaluating game prototypes from technical, design and game-play perspectives
	  • game testing and trialling procedures
	  • maintaining integrity of the design brief and game design document
	  • risk assessment and critical path planning
	  • translating design and technical specifications into working game prototypes.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Project brief and other relevant documents may include:	• concept drawings • designer's notes • development environment description • game design document • game-play designs • help notes • information design • operating manual • storyboard • style and design principles • style and medium • target market information • technical design document and review process.

Game-production assets may include:	• current work files
	• development kits
	• existing digital product libraries:
	  • character models
	  • environments
	  • motion capture data
	  • sound effects
	• game engines, including customised game engines
	• personnel.

Technical specifications may include:	• backup procedures • delivery platform • difficulty levels • disc or memory space • format for final product • navigation design • pixel size • polygon count • source code and game assets archiving • specifications for phases of game development: • alpha version - pre-production

© Commonwealth of Australia, 2025 Future Skills Organisation

	• beta version - playable prototype • gold version - completed game • trialling and testing • systems and workplace standards for documentation, including: • computer file management • job lists • progress reports • target market.
Personnel may include:	• animators • concept artists • game-play designers • graphic designers • instructional designers • modellers • motion capture technicians • producers • programmers • project manager • sound engineers • team members • technical director • writers • other specialist and technical staff.
Creating a schedule may involve:	• allocating work tasks in consultation with other team members • analysing key requirements of the brief • assessing concept viability against resource availability • conducting risk assessment regarding possible issues and constraints and potential solutions • creating an overall project plan and schedule • determining workflow with consideration to available resources • identifying key milestones and associated deliverables: • alpha version - pre-production • beta version - playable prototype • gold version - completed game • trialling and testing • identifying stakeholders and devising strategies to meet stakeholder needs • identifying the critical path

© Commonwealth of Australia, 2025 Future Skills Organisation

	• researching background information • setting project objectives against achievable timeframes.

Monitoring production progress may involve:	• balancing quality and scheduling requirements
	• coordinating the efforts of development, quality assurance, sales, marketing, public relations and finance
	• ensuring the timely production of assets to brief requirements, including:
	  • animation components
	  • graphic
	  • images
	  • interfaces
	  • text
	  • video
	• identifying and applying testing procedures
	• monitoring workload allocated to individual personnel
	• progressive game testing to ensure playability
	• renegotiating variations and schedule slippage ahead of milestone dates
	• sound identifying and applying contingency strategies.

Game-engine software and development tools may include:	• 3-D Studio Max • Bullet • Cinema 4D • Corel Draw • DirectSound • DirectX • FMOD • Irrlicht • Lightwave • Maya • Newton • OGRE • OpenGL • Photoshop.

Considerations for selection of game-engine software may include:	• application of code libraries
	• application of game-engine functionality for an interactive game
	• assessing coding strategy for compliance to brief and for optimal performance of game engine:
	  • function testing
	  • test plan development
	  • validating results
	• assessing viability of existing code in relation to interaction

© Commonwealth of Australia, 2025 Future Skills Organisation

	of game-play elements • assessing strategy for game-play code • basic code writing abilities for customising game-engine functions • building • code creation specifically for handling exceptions • code creation strategy for interaction of game-play elements • data structures • documentation of code development • environmental models • game engine customising • game platform and game platform logic • sound capability • spatial data structures • technical constraints imposed by the architecture of given game engine • integration of custom code into game engines.
Attributes of assets may include:	• alpha-channel colours or layers • colour bit-depth • dimensions of 2-D artwork • file format compatible with game engine • naming convention • polygon count for 3-D models.
Tools and features of software may include:	• animation • compilers • debugging software • development software • efficiency • flexible systems suitable for non-programmers • graphics • graphics-system design • middleware • operating systems • plug-in tools • programming for game integration • rendering • sound • system architecture for real-time game environments and simulations • tools for designers and play analysis.
Game-play elements	• chance • fun

© Commonwealth of Australia, 2025 Future Skills Organisation

may involve:	• logic • playability • rules • skill • strategy.

Creating game prototype may involve:	• bug fixing, bug databases, creating stable code bases and game tuning
	• building flexible systems, configurable by others
	• code review and test harnesses
	• designing and implementing tests and incorporating feedback from quality assurance
	• developing a comprehensive design for all missions and levels, including concept visuals
	• developing a walkthrough for at least one mission or level
	• developing story synopsis and scripts for each level
	• knowledge of games as dynamic systems:
	  • applying game tuning strategies in light of feedback from actual play
	  • characteristics of a balanced game
	  • working with quality assurance and understanding play-test feedback
	• use of appropriate tools and skills for fast, interactive development
	• user-guide development.

Evaluating game prototype may involve:	• examining and analysing the impact of decisions, after the fact:
	  • business decisions
	  • design decisions
	  • methodology and process decisions
	• product ‘post-mortems’ reviewing actual use of resources to achieve outcomes against initial project plan and schedule.

Tests and user trials may involve play test procedures:	• determining criteria for measurement of success with a given audience • play testing to monitor player frustration, progress and enjoyment • selecting test subjects • testing game with target market and other diverse populations.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM504A Manage interactive media production

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manage interactive media or game production.

Application of the Unit

This unit applies to people who manage personnel working in the interactive media or game development industry. These people may be concept artists, designers, programmers, animators and others.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

	italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Attend to placement of staff for a digital media production	1.1 Undertake work placement of production team 1.2 Ensure punctuality and appropriate dress 1.3 Observe and describe ***workplace culture*** and corporate image
2. Monitor workplace structure and staff responsibilities	2.1 Identify duties carried out by the ***various personnel*** 2.2 Observe lines of reporting and ***communication*** 2.3 Determine responsibilities of own area or department
3. Identify appropriate behaviours and attitude	3.1 Apply communication skills to interact effectively with other staff and clients 3.2 Demonstrate behaviour that reflects the organisational culture
4. Carry out tasks within the range or context specified for the workplace	4.1 Complete set tasks according to instructions and deadlines 4.2 Discuss any problems or concerns with assigned work with supervisor or mentor
5. Report on workplace experience	5.1 Maintain a log book recording daily activities 5.2 Complete a short report of the work experience

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse documentation and images to inform implementation of game specifications

© Commonwealth of Australia, 2025 Future Skills Organisation

  - interpret briefs, work instructions, and technical and conceptual information
- communication skills to:
  - check and confirm design requirements
  - collect, interpret and communicate in visual and written forms effectively for various audiences, including engineers and artists
  - communicate complex designs in a structured format drawn from industry standards, styles and techniques
  - communicate technical requirements related to software development, graphics requirements and code development to supervisors and other team members
  - provide practical advice, support and feedback to colleagues and management
  - translate design requirements into specifications
- initiative and enterprise skills to exercise a high level of creative ingenuity in 3-D design and innovation
- planning and organisational skills to:
  - refer decisions to a higher project authority for review and endorsement
  - balance talent, experience and budget
  - delegate tasks and responsibility appropriately
  - establish clear roles and goals to achieve required game development outcomes
  - meet project deadlines
  - organise equipment and resources to achieve required outcomes
  - organise own time to meet milestones
- technical skills to:
  - create 3-D animation and digital effects
  - develop and visualise concepts
  - resolve basic hardware, software and other technical issues associated with game production
  - use correct file formats and archiving procedures.

Required knowledge

- basic 3-D techniques
- budgeting and scheduling considerations for 3-D design
- capabilities and constraints of 3-D packages
- digital animation development, including specific terminology
- current game-play hardware and software products
- environmental impact and sustainability considerations
- OHS requirements for:
  - ergonomics, such as when lifting
  - electrical safety
  - materials handling

© Commonwealth of Australia, 2025 Future Skills Organisation

- risk and critical-path management
- technical constraints that hardware imposes on graphics requirements and creative visual design
- production process required to produce a 3-D animation sequence or components
- 3-D animation or digital effects team and the roles and responsibilities of each member.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • adapt behaviour to the workplace culture • understand a company structure and lines of reporting • maintain responsibilities and time management of completing assigned tasks in a real production environment • maintain production scheduling and management • understand the pipeline • demonstrate communication and listening skills.
Context of and specific resources for assessment	Assessment must ensure access to: • workplace where interactive media production may be carried out • organisational guidelines and policies • personnel • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the learner at the workplace • review of written or verbal reports or journals • review of portfolios of work completed at host organisation • discussion with representative of host organisation • review of production schedule.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Workplace culture may include:	• ability to influence • achievement orientation • collectivism • comfort with ambiguity • individualism • space orientation • time orientation.
Various personnel may include:	• animator • assistant producer • audio designer • composer • dead-environment designer • designer • director • editor • effects artist • environment designer • lead animator • lead artist • lead audio • lead designer • modeller

© Commonwealth of Australia, 2025 Future Skills Organisation

	• producer • production manager • project coordinator • project manager • systems support • texturer • VFX supervisor • writer.
Communication may include:	• electronic • forms • hierarchy • pin up board • post-it notes • reports • taking messages • telephone use • verbal • whiteboards • written.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM506A Create complex code for mobile game devices

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to create complex code for mobile game devices.

Application of the Unit

This unit applies to concept artists, games designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information*

© Commonwealth of Australia, 2025 Future Skills Organisation

	is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Research and identify appropriate implementations for complex code for mobile game devices	1.1 Obtain or create a mobile game device framework 1.2 Identify ***tools and technology for creating applications for mobile game devices*** 1.3 Research and identify appropriate ***game physics*** implementation for a ***mobile game device*** 1.4 Research and identify appropriate ***artificial intelligence*** (AI) implementation for a mobile game device 1.5 Research and identify appropriate ***shaders*** for mobile game device 1.6 Identify technical limitations and constraints of the mobile device with the game
2. Implement physics code for mobile game devices	2.1 ***Develop code*** for simulating velocity and momentum 2.2 Develop code for simulating acceleration and gravity 2.3 Develop code for simulating frictional effects 2.4 Develop code for simulating collisions and collision detection 2.5 Implement the code for game physics in the mobile game device
3. Develop and implement artificial intelligence for mobile game devices	3.1 Use finite state machines to model behaviour 3.2 Develop pathfinding algorithms 3.3 Develop code based on a genetic algorithm 3.4 Implement the code for AI in the mobile game device
4. Develop and implement shader for mobile game devices	4.1 Develop code based on shading algorithm 4.2 Implement the shading algorithm code in the mobile game device

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse documentation and images to inform implementation of game specifications
  - interpret briefs, work instructions, and technical and conceptual information
- communication skills to:
  - check and confirm design requirements
  - collect, interpret and communicate in visual and written forms effectively for various audiences, including engineers and artists
  - communicate clearly using speech and text
  - communicate complex designs in a structured format drawn from industry standards, styles and techniques
  - communicate technical requirements related to software development, graphics requirements and code development to supervisors and other team members
  - provide practical advice, support and feedback to colleagues and management
- initiative and enterprise skills to exercise a high level of creative ingenuity in game design and innovation
- learning skills to make improvements based on reviews and feedback
- literacy and numeracy skills to write instructions for the normal and competent operation and testing of all game features and permutations
- management skills to manage teams in order to extract useful feedback
- planning and organisational skills to:
  - balance talent, experience and budget
  - establish clear roles and goals to achieve required game development outcomes
  - meet project deadlines
  - organise equipment and resources to achieve required outcomes
  - organise own time to meet milestones
  - refer decisions to a higher project authority for review and endorsement
- problem-solving skills to recognise and address potential quality issues and problems at the design and development stage
- research skills to undertake practical, technical or desktop research into mobile game devices
- self-management skills to manage own work and priorities to meet deadlines
- teamwork skills to:
  - contribute to and work in a collaborative team
  - delegate tasks and responsibility appropriately
  - realise a unified game-play vision

© Commonwealth of Australia, 2025 Future Skills Organisation

- technical skills to:
  - develop game design and technical design documents
  - resolve basic hardware, software and other technical issues associated with game production
  - translate design requirements into specifications
  - use correct file formats and archiving procedures.

Required knowledge

- basic programming techniques
- budgeting and scheduling considerations for game design
- capabilities and constraints of game engines
- computer game development, including specific terminology
- concept development
- concept visualisation
- current game-play hardware and software products
- environmental impact and sustainability considerations
- human resources required in the process of creating a game and their respective skills and technology requirements
- OHS requirements for:
  - ergonomics
  - electrical safety
  - materials handling
  - physical hazards
- risk and critical path management
- technical constraints that hardware imposes on software development, graphics requirements, code development and creative visual design.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate	Evidence of the ability to: • develop physics for mobile game devices • develop artificial intelligence for mobile game devices • develop shading algorithm for mobile game devices.

© Commonwealth of Australia, 2025 Future Skills Organisation

competency in this unit	
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • internet access for research purposes • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of work samples or simulated workplace activities
	• verbal questioning or interview concerning aspects of game document development, including:
	  • industry standards for concept art
	  • design and technical specification development
	  • game testing and trialling procedures
	  • resources required for game development
	• assessment of written or interactive computer-based test or quiz
	• setting and observing fault-finding exercises
	• evaluation of reports or logbooks.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Tools and technology for creating applications for the mobile gaming device may include:	• compilers • debugging software • development software • efficiency • flexible systems suitable for non-programmers • graphics • graphics system design • integrated development environments • middleware • operating systems • plug in tools • programming for game integration • rendering • sound • system architecture for real time game environments and simulations • tools for designers and play analysis.

Game physics may include:	• collision
	• combat:
	  • blood spots
	  • debris
	  • explosions
	  • footprints
	  • salvo
	  • smoke and fire
	  • sparks
	  • water
	  • wreckage
	• movement:
	  • creaking floors
	  • footfalls
	  • puddle stepping

© Commonwealth of Australia, 2025 Future Skills Organisation

	• wading • wind.
Mobile game device may include:	• mobile phones • personal digital assistants (PDAs) • tablets.
Artificial intelligence may include:	• decisions • movement • pathfinding • reactions • simulated intelligence • situations • statistics • target selection • tests and events for reactionary behaviour.
Shaders may include:	• Blinn-Phong • Cook-Torrance • Gouraud • Lambert • Oren-Nayar • Phong • Ward anisotropic.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM507A Develop intermediate 3-D software for games and interactive media

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop intermediate 3-D software for games or interactive media.

Application of the Unit

This unit applies to games programmers working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information*

© Commonwealth of Australia, 2025 Future Skills Organisation

	is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Build a 3-D application using a provided framework or engine	1.1 Employ ***integrated development environment*** facilities to include existing 3-D libraries suitable for games or interactive media production 1.2 Use existing library facilities and appropriate ***language*** to facilitate ***configuration of a 3-D environment*** compatible with a specified platform 1.3 Instantiate ***virtual objects*** in a simple 3-D environment 1.4 Create ***mesh primitives*** using 3-D library routines 1.5 Generate code to manipulate 3-D objects, including cameras, lights and mesh primitives 1.6 Import pre-constructed meshes from persistent storage into a 3-D environment using scripts or library routines 1.7 Apply class inheritance to modify or extend existing 3-D class 1.8 Select and apply exception handling techniques to ensure program stability in a simple 3-D environment
2. Create a graphical user interface (GUI) for a 3-D environment	2.1 Employ integrated development environment facilities to include existing 3-D compatible GUI controls suitable for games or interactive media production 2.2 Combine predefined ***GUI elements*** to create a simple interface for a 3-D environment 2.3 Modify scripts or code to customise existing GUI elements 2.4 Write code that processes events raised by a GUI in a 3-D environment 2.5 Create GUI events to modify the configuration of a simple 3-D environment
3. Debug a 3-D application	3.1 Use stand-alone debugging tools or tools provided by an integrated development environment to examine variables and trace running code 3.2 Use debugging facilities, such as log windows or files, to

© Commonwealth of Australia, 2025 Future Skills Organisation

	detect logical and coding errors
4. Deploy documentation tools	4.1 Investigate and select integrated or third-party ***documentation*** tools 4.2 Deploy integrated or third-party tools to create and maintain code documentation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to interpret documentation and images to inform implementation of game specifications
- communication skills to:
  - check and confirm brief requirements
  - communicate clearly using speech and text
  - communicate technical requirements related to software development, graphics requirements and code development to supervisors and other team members
  - give constructive feedback
- literacy and numeracy skills to read briefs, game documentation, scripts, storyboards, scenarios, images, and technical and conceptual information
- planning and organisational skills to:
  - appropriately refer decisions to a higher project authority for review and endorsement
  - balance talent, experience and budget
  - delegate tasks and responsibility appropriately
  - establish clear roles and goals to achieve required game development outcomes
  - meet project deadlines
- problem-solving skills to recognise and address quality issues and problems
- resolve basic hardware, software and other technical issues associated with games
- teamwork skills to:
  - contribute to and work in a collaborative team
  - realise a unified game-play vision
- technical skills to:
  - build a GUI to interact with a user
  - use correct file formats and archiving procedures
  - use 3-D libraries or frameworks.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required knowledge

- 3-D application development
- debugging techniques
- documentation techniques
- object-oriented 3-D programming concepts and language.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • create at least one 3-D framework or library that includes an appropriate GUI • create documentation generated by appropriate tools.
Context of and specific resources for assessment	Assessment must ensure access to: • suitable 3-D IT equipment hardware, software and other technical material, such as manuals • 3-D software applications • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of work samples or simulated workplace activities
	• observation of game production activities
	• verbal questioning or interview concerning aspects of game development, including:
	  • capability of game engines and software tools to meet the requirements of the brief
	  • evaluating game prototypes from technical, design and game-play perspectives
	  • game testing and trialling procedures
	  • maintaining integrity of the design brief and game design

© Commonwealth of Australia, 2025 Future Skills Organisation

	document • risk assessment and critical path planning • translating design and technical specifications into working game prototypes.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Integrated development environment may include:	• Code Warrior • Code::Blocks • Eclipse • J-Edit • Visual C++ • Visual Studio suite.
Language may include:	• C#.net • C++ • Java • Small Talk • VB.NET.
Configuration of a 3-D environment must include:	• device selection • game resolution • screen colour depth • output performance, such as:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• anti-aliasing • level of detail • filtering • caustics and refraction.
Virtual objects must include:	• cameras • lights • viewports.
Mesh primitives may include code generated:	• cubes • cylinders • other vertex-based constructs • spheres.
GUI elements may include:	• buttons • checkboxes • item lists • option buttons • overlay panels • text input fields.
Documentation may include:	• architecture documentation • code comments • design documents • in-code documentation • internal module documentation • release documents • requirement documents • test documents • user manuals.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM508A Develop complex 3-D software for games and interactive media

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop complex 3-D software for games or interactive media.

Application of the Unit

This unit applies to games programmers working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information*

© Commonwealth of Australia, 2025 Future Skills Organisation

	is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Build complex 3-D applications using multiple frameworks provided or engines	1.1 Employ integrated development environment facilities to include existing ***3-D, audio and physics libraries*** suitable for games or interactive media production 1.2 ***Configure a 3-D environment*** compatible with a specified platform by using existing library facilities and appropriate ***language*** 1.3 Instantiate ***virtual objects*** in a complex 3-D environment 1.4 Import complex ***pre-constructed models*** retrieved from persistent storage into a 3-D environment using scripts or library routines 1.5 Use code to ***animate*** 3-D ***objects*** required by game play 1.6 Use code to handle collisions between objects in a 3-D environment 1.7 Use code to manipulate the texturing and other attributes of models during run-time execution 1.8 Incorporate ***environmental elements*** to enhance user experience 1.9 Select and use appropriate exception handling techniques to ensure program stability in a complex 3-D environment that uses multiple libraries
2. Create a complex graphical user interface (GUI) for a 3-D environment	2.1 Employ ***integrated development environment*** facilities to include existing 3-D compatible GUI controls suitable for complex games or interactive media production 2.2 Combine predefined GUI elements to create a complex interface for a 3-D environment 2.3 Modify scripts or code to customise existing GUI elements for a complex interface 2.4 Write code that processes events raised by a complex GUI in a 3-D environment 2.5 Use GUI events to modify the configuration of a complex 3-D environment

© Commonwealth of Australia, 2025 Future Skills Organisation

3. Debug a complex 3-D application	3.1 Use stand-alone debugging tools or tools provided by an integrated development environment to examine variables and trace running code across multiple libraries 3.2 Employ debugging facilities, such as log windows or files to detect logical and coding errors
4. Use documentation tools	4.1 Identify and choose suitable integrated or third-party documentation tools 4.2 Create and maintain code ***documentation*** for a complex 3-D project using selected integrated or third-party tools

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to interpret documentation and images to inform implementation of game specifications
- communication skills to:
  - check and confirm brief requirements
  - communicate clearly using speech and text
  - communicate technical requirements related to software development, graphics requirements and code development to supervisors and other team members
  - give constructive feedback
- literacy and numeracy skills to read briefs, game documentation, scripts, storyboards, scenarios, images, and technical and conceptual information
- planning and organisational skills to:
  - refer decisions to a higher project authority for review and endorsement
  - balance talent, experience and budget
  - delegate tasks and responsibility appropriately
  - establish clear roles and goals to achieve required game development outcomes
  - meet project deadlines
- problem-solving skills to recognise and address quality issues and problems
- teamwork skills to:
  - contribute to and work in a collaborative team
  - realise a unified game-play vision
- technical skills to:
  - implement programming solutions for specified problems

© Commonwealth of Australia, 2025 Future Skills Organisation

- resolve basic hardware, software and other technical issues associated with game.

Required knowledge

- complex 3-D application development
- debugging techniques
- documentation techniques
- object-oriented 3-D programming concepts
- object-oriented 3-D programming language
- techniques for using a GUI to interact with a user
- techniques for using multiple games-oriented libraries.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • employ multiple 3-D frameworks or libraries • build an appropriate GUI to develop complex 3-D applications with documentation generated by appropriate tools.
Context of and specific resources for assessment	Assessment must ensure access to: • suitable 3-D equipment, software and hardware • technical manuals • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of work samples or simulated workplace activities • observation of game production activities • verbal questioning or interview concerning aspects of game development, including: • capability of game engines and software tools to meet the

© Commonwealth of Australia, 2025 Future Skills Organisation

	requirements of the brief • evaluating game prototypes from technical, design and game-play perspectives • game testing and trialling procedures • maintaining integrity of the design brief and game design document • risk assessment and critical path planning • translating design and technical specifications into working game prototypes.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

3-D, audio and physics libraries may include:	• bullet • direct sound • directX • FMOD • Irrlicht • newton • OGRE • openGL.
Configure a 3-D environment must	• device selection • game resolution

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• screen colour depth
	• output performance such as:
	  • anti-aliasing
	  • level of detail
	  • filtering
	• caustics and refraction.

Language may include:	• C#.net • C++ • Java • Small Talk • VB.NET.
Virtual objects must include:	• audio managers • cameras • lights • physics managers • viewports.
Pre-constructed models refers to:	• 3-D mesh data containing predefined animation sequences that are retrieved from persistent storage using script or code • developed in-house • purchased third party.
Animate must include:	• animation selection/playback for pre-constructed models • based on user input • driven by code • dynamic camera movement as required by game play.
Objects may include:	• cameras • lights • pre-constructed meshes.
Environmental elements may include:	• audio • render filters • simulated physics • tactile feedback.
Integrated development environment may include:	• Code Warrior • Code::Blocks • Eclipse • J-Edit • Visual C++ • Visual Studio suite.
Documentation may include:	• architecture documentation • code comments • design documents • in-code documentation

© Commonwealth of Australia, 2025 Future Skills Organisation

	• internal module documentation • release documents • requirement documents • test documents • user manuals.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM509A Design interactive 3-D applications for scientific and mathematical modelling

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design interactive 3-D applications for scientific and mathematical modelling.

Application of the Unit

This unit applies to individuals with object-oriented programming skills working in any industrial context that requires 3-D computer simulation of a well-defined environment, system or set of relationships.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes	*Performance criteria describe the performance needed to demonstrate*

© Commonwealth of Australia, 2025 Future Skills Organisation

of a unit of competency.	*achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine and confirm business expectations and needs	1.1 Apply skills to determine business requirements and verify the accuracy of the information gathered 1.2 Determine critical environmental, systemic relationships that require simulation in a 3-D environment 1.3 Identify critical ***data sources*** required by simulations or modelling 1.4 Document critical environmental, systemic relationships and data sources that require simulation in a 3-D environment
2. Design an interactive 3-D application for scientific or mathematical modelling	2.1 Use ***prototyping tools*** to provide proof of concept for environmental and systemic relationships 2.2 Identify ***technologies and platforms*** suitable for the deployment of scientific or mathematical modelling 2.3 Apply object-oriented programming principles to design ***classes and algorithms*** to support scientific or mathematical modelling in an interactive 3-D environment
3. Design a 3-D environment that simulates a scientific or mathematical model	3.1 Select appropriate visual representation for ***elements of a 3-D scientific or mathematical model*** 3.2 Analyse required interaction between user and a 3-D environment 3.3 Design a graphical user interface (GUI) to support required interaction between use and a 3-D environment
4. Develop procedures to test a scientific or mathematical model	4.1 Develop ***testing procedures*** and standards that verify modelling integrity 4.2 ***Document*** testing procedures and standards that verify modelling integrity

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to interpret documentation and images to inform implementation of game specifications
- communication skills to:
  - check and confirm brief requirements
  - communicate clearly using speech and text
  - communicate technical requirements related to software development, graphics requirements, code development and testing procedures to supervisors and other team members
  - give constructive feedback
- literacy and numeracy skills to:
  - document testing procedures
  - read briefs, game documentation, scripts, storyboards, scenarios and images
  - develop technical and conceptual information
- planning and organisational skills to:
  - refer decisions to a higher project authority for review and endorsement
  - balance talent, experience and budget
  - delegate tasks and responsibility appropriately
  - establish clear roles and goals to achieve required game development outcomes
  - meet project deadlines
- problem-solving skills to recognise and address quality issues and problems
- teamwork skills to:
  - contribute to and work in a collaborative team
  - realise a unified vision of the completed project
- technology skills to:
  - design programming solutions for specified problems
  - use a GUI.

Required knowledge

- documentation techniques
- object-oriented 3-D programming design methodologies
- object-oriented 3-D programming principles
- data sources and business expectations and needs
- techniques for using a GUI to interact with a user

© Commonwealth of Australia, 2025 Future Skills Organisation

- testing procedures.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • determine business requirements and determine data to be used in a 3-D computer simulation or mathematical modelling application • design an interactive 3-D environment that reflects scientific or mathematical modelling.
Context of and specific resources for assessment	Assessment must ensure access to: • suitable 3-D equipment, software and hardware • technical manuals • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of work samples or simulated workplace activities
	• observation of design activities
	• verbal questioning or interview concerning aspects of design development, including:
	  • capability of engines and software tools to meet the requirements of the brief
	  • evaluating prototypes from technical, design and interactive perspectives
	  • simulation testing and trialling procedures
	  • maintaining integrity of the design brief and design document
	  • risk assessment and critical path planning
	  • translating design and technical specifications into working simulation prototypes.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where

© Commonwealth of Australia, 2025 Future Skills Organisation

	appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Data sources may include:	• analog devices • databases • digital devices • process controllers • spreadsheets • web-based data sources • XML documents.
Prototyping tools may include:	• 3-D prototyping applications • existing simulation and modelling software • flow chart applications • scientific calculators • spreadsheet applications.
Technologies and platforms may include:	• Berkeley Madonna • DeSolve • EMACS • ESS • Maple • Mathematica • MatLab • MMNP • networked computers

© Commonwealth of Australia, 2025 Future Skills Organisation

	• R • Stella • Supercomputers.

Classes and algorithms may include:	• application of Taylor series as convergent and asymptotic series
	• Cholesky factorisations
	• computing derivatives by:
	  • automatic differentiation (AD)
	  • finite differences
	• Discrete Fourier transform
	• graph theoretic suites
	• high order difference approximations
	• LU factors with Gaussian elimination
	• methods for integration on a uniform mesh
	• molecular dynamics
	• Monte Carlo methods
	• Newton's method
	• numerical linear algebra
	• Runge Kutta method for solving ordinary differential equations
	• time stepping methods for dynamical systems.

Elements of a 3-D scientific or mathematical model may include:	• computer animation • computer simulation • information visualisation • interface technology and perception • surface rendering • volume rendering • volume visualisation.
Testing procedures may include:	• expected results • parallel processing • test data.
Document may include:	• architecture • design • release • requirement • test • user manuals.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM510A Prepare games for different platforms and delivery modes

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to build, maintain and test games across multiple system platforms.

Application of the Unit

This unit applies to games programmers and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

	italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Produce a game package for multiple platforms	1.1 Research and identify cross-***platform installers*** 1.2 Use an installer to package a game for multiple platforms
2. Develop a cross-platform project	2.1 Identify cross-platform ***integrated development environment*** (IDE) 2.2 Identify cross-platform ***renderer libraries, physics libraries, audio libraries*** and ***network libraries*** 2.3 Source or compile cross-platform libraries 2.4 Compile project for multiple platforms 2.5 Test and maintain cross-platform software project 2.6 Use platform specific ***input devices***
3. Compile a report on cross-platform software development	3.1 Identify and document ***issues in cross-platform development*** 3.2 Develop an awareness of cross-platform hardware

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to document and present research results
- learning skills to incorporate results of trialling and testing
- planning skills to:
  - produce distributable packages for multiple platforms
  - undertake risk assessment and critical path planning
- problem-solving skills to:
  - apply a variety of strategies for game trialling and testing

© Commonwealth of Australia, 2025 Future Skills Organisation

  - recognise and address potential problems while testing cross-platform software
- research skills to identify and source appropriate cross-platform installers
- technical skills to develop and test cross-platform applications.

Required knowledge

- current cross-platform IDEs
- evaluation techniques for cross-platform development libraries
- research methods for cross-platform development and distribution
- testing procedures.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • produce cross-platform game project • identify and use cross-platform IDE libraries and installers • resolve issues of developing cross-platform games.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • computers running various operating systems • platform-specific hardware • IDEs and libraries • installers for product distribution • internet access for research purposes • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• evaluation of written or verbal reports
	• evaluation of work samples or simulated workplace activities
	• observation of game document development activities
	• verbal questioning or interview concerning aspects of game document development, including:
	  • industry standards for concept art
	  • design and technical specification development
	  • game testing and trialling procedures
	  • resources required for game development
	• verbal questioning or interview concerning aspects of game development, including:
	  • capability of game engines and software tools to meet the requirements of the brief
	  • game testing and trialling procedures.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Platforms may include:	• arcade
	• console platforms:
	  • Microsoft Xbox 360
	  • Nintendo DS (hand-held)
	  • Nintendo Wii

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Sony PlayStation
	• hand-held digital device platforms:
	  • Apple IIe/c/c+
	  • Apple IIGS
	  • Blackberry
	  • BREW
	  • Flashlite
	  • Google Android
	  • J2ME
	  • Java
	  • Palm OS
	  • Sidekick
	  • Symbian
	  • WAP
	  • Windows Mobile
	• personal computer (PC)
	• Snow Leopard (Mac OS)
	• Unix
	• Web.

Installers may include:	• Install Anywhere • Install builder • Install system • Nulsoft scriptable • Windows installer.
Integrated development environment may include:	• Code::Blocks • Eclipse • NetBeans • Visual Studio • Xcode.
Renderer libraries may include:	• DirectX • Irrlicht • Jmonkey • Newton Game Dynamics • Ogre • OpenGL.
Physics libraries may include:	• Ageia • Box2D • Bullet • Farseer • Havok

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Open Dynamics Engine (ODE) • PhysX.
Audio libraries may include:	• Audacity • FMOD • IrrKlang • Open_AL • SDL_mixer.
Network libraries may include:	• HawkNL • Raknet • SDL_Net.
Input devices may include:	• accelerometer • gamepads • gyroscope • keyboard • mice • touch screen • trackpad.
Issues in cross-platform development may include:	• display systems that may vary, such as Nintendo DS • graphical user interfaces (GUIs) that are rendered differently by various platforms • threads implemented differently on various platforms.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM511A Manage testing of games and interactive media

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manage the testing of games and interactive media to enable timely product release.

Application of the Unit

This unit applies to IT personnel who take responsibility for managing testing games and interactive media.

The management of the testing of a product directly impacts on the quality and time lines of delivery to market of a product. Good test management can deliver a quality product. Badly designed products take longer to test but can still be of quality, when partnered with good test management. Well-designed software and good test management go hand in hand to produce quality, timely software products.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine quality requirements statement which will enable product release	1.1 Review picture of product in market place to determine high-level requirements provided by product, for expected clients, considering all ***types of requirements***
	1.2 Define a releasable product in terms of ***outstanding bugs***, to enable a ***limited release*** and a complete product release
	1.3 Summarise findings into a product release enabling quality requirements statement
	1.4 Confirm client and development, agreement on product release enabling quality requirements statement
2. Define test plan to enable testing of required quality as defined by agreed quality requirements statement	2.1 Determine expected ***test cycles***, during the software development life cycle, considering what development methodology is in use and what the quality requirements are for product release
	2.2 Determine what ***types of testing*** will be performed during the test cycles to enable efficiency of processes and confirmation of quality requirements statement
	2.3 Determine what ***testing methods*** will be used to implement testing types defined for defined test cycles
	2.4 Determine ***testing technique*** to be used to determine test cases and analyse results
	2.5 Perform test cycle until a combination is found that provides an acceptable balance of cost, quality and risk, for upper management and development to agree to
	2.6 Selection ***test-support software*** to enable efficiency in testing and testing management
	2.7 Define ***implementation details*** for agreed testing and team

© Commonwealth of Australia, 2025 Future Skills Organisation

	responsible for testing management 2.8 Define ***reporting details*** for testing throughout product life cycle to enable ongoing management of testing process 2.9 Confirm test plan completeness using available ***completeness techniques*** 2.10 Confirm test plan with development and management
3. Install and configure test plan defined test support software	3.1 Install and configure bug tracking process and define bug description fields to maximise efficiency and minimise possibilities of bouncing bugs 3.2 Install and configure test case management software 3.3 Install and configure test cycle management and reporting software 3.4 Install and configure automated test tools
4. Manage testing process to enable defined quality requirements	4.1 Manage and report on development of test cases 4.2 Manage and report on test cycle status 4.3 Manage and report on outstanding bug status 4.4 Manage and report on status of product testing related to product release enabling quality requirements statement 4.5 Update test plan and schedule to deal with changing development conditions, and ensure management are informed 4.6 Manage bugs to ensure efficient bug handling and resolution 4.7 Manage test environment, including setup, receipt of test builds and clean-up
5. Finalise testing for release	5.1 Produce testing results for management review prior to release 5.2 Manage test product freeze for final release and final test run 5.3 Confirm product, release enabling, and quality requirements have been met

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- analytical skills to define test plan details and identify bugs or issues
- communication skills to:
  - determine and define quality requirements statement
  - manage and coordinate testing processes and finalisation of testing
- literacy skills to produce technical documentation and reports
- planning skills to define test plan details
- technical skills to:
  - manage test environment
  - develop test plan details
  - select, install and configure test plan support software.

Required knowledge

- client requirements for platforms, hardware and software
- client system requirements, both functional and non-functional
- procedures for bug or issue management and identification
- test reporting requirements
- testing techniques, methods, test types, system dissection.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • define quality requirements and an associated test plan for software • install and configure testing support software • manage testing process • identify bugs or issues accurately and concisely • finalise software testing process to enable product release.
Context of and specific resources for assessment	Assessment must ensure access to: • system undergoing development with associated specifications

© Commonwealth of Australia, 2025 Future Skills Organisation

	• client requirements (verbal or written) for system quality requirements • testing support software • test environment • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate identifying or finding bugs and issues • review of reports prepared by candidate showing plans and management of testing.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Types of requirements may include:	• functional, such as audio and visual • installation, such as new, upgrades, database and software • non-functional, such as performance, load, stress and cultural • platform or environment.
Outstanding bugs may	• defined priorities • with or without defined priorities.

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	
Limited release may include:	• alpha and beta release options • environment-specific release • internal or in-house release options • external release options • platform-specific release.
Test cycles may include:	• delivery of testable product to client • delivery of testable product to test team • in-development tests, such as source-code updates or retrievals from source control, initial implementation complete time, pre-implementation time.
Types of testing may include:	• acceptance • data functionality • functionality • graphical user interface (GUI) • load • performance • regression • smoke • stress • unit.
Testing methods may include:	• automated, such as coded testing or using automation-tool • manual, such as exploratory or testing of specific test cases • static and dynamic analysis.
Testing technique may include:	• boundary value analysis • equivalence • way of designing test cases.

Test-support software may include:	• bug tracking software
	• test automation software, such as:
	  • WinRunner
	  • LoadRunner
	• test case-management software, such as Test Director.

Implementation details and ***reporting details*** may include:	• communication and interaction levels between departments for cycles, such as development may or may not be approachable during particular processes or cycles • details of all processes and procedures • required documentation repositories, templates, structures and locations.
Completeness techniques may include:	• interdepartmental reviews • intradepartmental reviews • system dissection.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM512A Create and implement designs for a 3-D games environment

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to create and implement designs within the context of a 3-D games environment.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

	italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify technologies to be used with 3-D games development	1.1 Discuss and decide on 3-D ***modelling software*** for production of designs and ramifications of choice 1.2 Discuss and decide on 2-D ***image-editing software*** for textures 1.3 Establish 3-D production considerations for available computer hardware
2. Develop design documentation for 3-D effects	2.1 Establish ***theme*** for design and determine required modelling assets 2.2 Create file archiving system for the storage of ***3-D components***, models and versions 2.3 Establish project development pipeline and production deadlines to meet assessment dates
3. Develop and create storyboards	3.1 Create storyline for animation 3.2 Develop storyboard that implements storyline document 3.3 Review and finalise storyboard document for implementation
4. Develop and create projects	4.1 Create new document and conduct creation of models as outlined in the production pipeline, theme and storyboard documents 4.2 Archive project as specified by the assignment criteria for submission

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- analytical skills to:
  - assess suitability of software and hardware technologies within project context
  - establish clear advantages, disadvantages and limitations of technologies and their implementation
- communication skills to discuss suitability of storyboard design within project context
- planning and organisational skills to:
  - establish clear goals to achieve required software development outcomes
  - meet project deadlines
- technology skills to:
  - resolve basic hardware, software and other technical issues associated with software production
  - use correct file formats and archiving procedures.

Required knowledge

- concepts of animation techniques
- concepts of digital effects generation
- 2-D and 3-D graphics editing software and their common concepts
- appropriate graphics formats.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • create and develop design documents for 3-D animations • follow a project pipeline to produce a 3-D animation product.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required

© Commonwealth of Australia, 2025 Future Skills Organisation

	• modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of work samples or simulated workplace activities • observation of fault-finding exercises • verbal questioning or interview • evaluation of written or interactive computer-based test or quiz • evaluation of reports and logbooks.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Modelling software may include:	• 3D Studio Max • Blender • Cinema 4D • Maya.
Image-editing software may include:	• After Effects • Avid • Combustion • D2 Nuke • Digital Fusion

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Final Cut Pro • Flame • Flint • Fusion • Inferno • Inferno • Lustre • Photoshop • Premier • Renderman • Shake.
Theme may include:	• cyber or steam punk • fantasy • horror • medieval • science fiction.
3-D components may include:	• 3-D landscapes • buildings, walls, houses and other structures • character models • graphical user interface (GUI) widgets • items and collectables • light sources and effects • trees, shrubs and bushes • vehicles.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM514A Design and create models for a 3-D and digital effects environment

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design and create models for a 3-D and digital effects environment.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

	italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Design and plan a 3-D model	1.1 Research and collect a portfolio of ***reference material***
	1.2 Present portfolio of collected reference material
	1.3 Use reference material to develop and design a ***modelling plan***
2. Use suitable geometry surface for models	2.1 Research different types of geometry to find which choice would be most suitable for 3-D model
	2.2 Clearly document selected ***geometry choice***
	2.3 Explain, justify and demonstrate reasons for selected geometry choice
	2.4 Apply selected geometry choice to 3-D model
	2.5 Make changes where necessary
3. Analyse resource material to construct and apply suitable topology	3.1 Construct and test a topology plan using chosen ***concept development software***
	3.2 Explain or demonstrate reason for choosing particular modelling method
	3.3 Assess and refine topology plan with client and relevant personnel
4. Construct a 3-D model	4.1 Use modelling plan to construct model in chosen ***3-D modelling and animation software***
	4.2 Build model according to specifications
	4.3 Present the near finished product to relevant personnel
	4.4 Accept ***feedback*** to incorporate into final design
	4.5 Assess and refine model with clients and relevant personnel
	4.6 Compose a ***report on experience*** of working on 3-D model

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse documentation and images to inform implementation of game specifications
  - interpret briefs, work instructions, and technical and conceptual information
- communication skills to:
  - check and confirm design requirements
  - collect, interpret and communicate in visual and written forms effectively for various audiences, including engineers and artists
  - communicate complex designs in a structured format drawn from industry standards, styles and techniques
  - communicate technical requirements related to software development, graphics requirements and code development to supervisors and other team members
  - provide practical advice, support and feedback to colleagues and management
  - translate design requirements into specifications
- initiative and enterprise skills to exercise a high level of creative ingenuity in 3-D design and innovation
- numeracy skills to interpret technical charts, specifications or diagrams relevant to the construction of a 3-D model
- planning and organisational skills to:
  - appropriately refer decisions to a higher project authority for review and endorsement
  - balance talent, experience and budget
  - delegate tasks and responsibility appropriately
  - establish clear roles and goals to achieve required 3-D modelling outcomes
  - meet project deadlines
  - organise equipment and resources to achieve required outcomes
  - organise own time to meet milestones
- problem-solving skills to recognise and address potential quality issues and problems at design development stage
- research skills to undertake technical research into the proper topology and geometry layout for 3-D models
- technical skills to visualise and develop concepts.

Required knowledge

- box, edge-loop and patch modelling

© Commonwealth of Australia, 2025 Future Skills Organisation

- capabilities and restraints of 3-D modelling packages
- copyright laws and regulations
- digital model development, including specific terminology
- geometry surfaces, including NURBS, Sub-D, Polygon and T-splines
- human resources required in the process of creating a 3-D model, and their respective skills and technology requirements
- methods of sourcing and using reference material
- OHS requirements for ergonomics and electrical safety
- scheduling production components
- technical requirements that hardware imposes on graphics development and requirements, and creative visual design
- topology layouts
- key aspects of modelling plan to build models
- uses of storyboards and scripts.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • build advanced models according to plans • use specified geometry surfaces • use complex topology layouts.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the learner using 3-D animation software • review of written and verbal reports or documentation showing modelling plan

© Commonwealth of Australia, 2025 Future Skills Organisation

	• review of portfolios of evidence • review of third-party workplace reports of learner skills and performance • review of functional 3-D scene files • evaluation of a completed model.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Reference material may include:	• blueprints • developmental drawings • internet research • museum information • orthographic images • photographs • schematics • video footage.
Modelling and topology ***plan*** may include:	• blueprints • concept creation • orthographic images • schematics • time management.
Geometry choice and	• box modelling

© Commonwealth of Australia, 2025 Future Skills Organisation

modelling method may include:	• edge-loop modelling • NURBS modelling • patch modelling • polygon modelling • sub-division modelling • T-Spline modelling.
Concept development software may include:	• Adobe Flash • Adobe Illustrator • ArtGem • ArtRage • Artweaver • Aviary • Corel Draw, Painter, Essentials • Deluxe Paint • GIMP • Grafx • Graphics Gale • ImageForge • Inkscape • Microsoft Paint • mtpaint • MyPaint • NeoPaint • Open Canvas • Paint Shop Pro • Paint.NET • Photoshop • Synfig • Ulead PhotoImpact • Ultimate Paint.
3-D modelling and animation software may include:	• 3ds Max • Blender • Cinema 4D • Houdini • Lightwave • Maya • Modo • XSI • ZBrush.
Feedback may involve:	• accepting and responding to comment, critique and suggestions from:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• clients • colleagues • target audience representatives.

Reporting on experience may involve:	• explaining what went wrong
	• what could be improved, such as:
	  • geometry choice
	  • modelling method
	  • modelling plan
	  • topology plan.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM515A Design and create advanced particles, fluids and bodies for 3-D digital effects

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to produce advanced simulated effects in a 3-D and digital effects environment.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

	italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Analyse approaches to design requirements	1.1 Analyse the design requirements for ***particle systems, fluids*** and ***bodies*** outlined in ***brief and documents*** 1.2 Identify where the ***advanced simulated effects*** will fit into the production pipeline 1.3 Identify factors that may influence the design approach to creating advanced simulated effects
2. Demonstrate understanding of advanced simulated effects	2.1 Review ***media*** and techniques that may inspire simulated effects ideas 2.2 Respond to brief and documents and provide solutions to the creation of advanced simulated effects for ***3-D environments*** 2.3 Present design ideas and ***design considerations*** with justification of the choice of advanced simulated effects to relevant ***personnel***
3. Plan approach to simulated effects	3.1 Adapt and finalise the design according to ***feedback*** from relevant personnel 3.2 Identify skills and processes required for creating advanced simulated effects systems 3.3 Source and gather reference materials and maintain a portfolio of these references 3.4 Plan a time line to create the advanced simulated effects
4. Produce particles, fluids and bodies for review	4.1 Use ***programming languages*** to create ***code*** to assist or produce the advanced simulated effects 4.2 Using ***toolsets, create prototype*** of advanced simulated effects based on finalised design 4.3 Implement physics and forces to the advanced simulated effects to produce the desired outcome 4.4 Conduct ***testing*** 4.5 Review results and present created effects to relevant personnel for feedback and discussion about the

© Commonwealth of Australia, 2025 Future Skills Organisation

	implementation of the effects in accordance to the requirements of the design
5. Finalise advanced simulated effects	5.1 Adapt the advanced simulated effects and the design if necessary according to feedback 5.2 ***Polish*** the advanced simulated effects 5.3 Present finalised advanced simulation effects in ***requested form***, including pre-production portfolio demonstrating project research and development for evaluation and review by the relevant personnel

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse design requirements for particle systems, fluids and bodies
  - interpret briefs, documents and conceptual information
- communication skills to:
  - check and confirm design requirements
  - collect, interpret and communicate in visual and written forms effectively for various audiences, including engineers and artists
  - communicate complex designs in a structured format drawn from industry standards, styles and techniques
  - communicate technical requirements related to software development, graphics requirements and code development to supervisors and other team members
  - provide practical advice, support and feedback to colleagues and management
- initiative and enterprise skills to exercise a high level of creative ingenuity in advanced 3-D effects and innovation
- literacy and numeracy skills to:
  - develop technical design documents
  - read briefs, work instructions, and technical and conceptual information
  - write instructions for the normal and competent operation and testing of all features and permutations
- management skills to manage teams in order to effectively extract useful feedback
- planning and organisational skills to:
  - refer decisions to a higher project authority for review and endorsement
  - balance talent, experience and budget

© Commonwealth of Australia, 2025 Future Skills Organisation

  - delegate tasks and responsibility appropriately
  - establish clear roles and goals to achieve required game development outcomes
  - meet project deadlines
  - organise equipment and resources to achieve required outcomes
  - organise own time to meet milestones
- problem-solving skills to recognise and address potential quality issues and problems at design development stage
- research skills to undertake practical, technical and desktop research into advanced effects
- self-management skills to complete assigned tasks
- teamwork skills to:
  - contribute to and work in a collaborative team
  - realise a unified game-play vision
- technical skills to:
  - resolve basic hardware, software and other technical issues associated with 3-D environments
  - translate design requirements into specifications
  - use correct file formats and archiving procedures.

Required knowledge

- basic programming techniques
- computer game development, including specific terminology
- current game-play hardware and software products
- environmental impact and sustainability considerations
- human resources required in the process of creating a game and their respective skills and technology requirements
- OHS requirements for:
  - ergonomics, such as when lifting
  - electrical safety
  - materials handling
  - physical hazards
- risk and critical path management
- technical constraints that hardware imposes on software development, graphics requirements, code development and creative visual design
- techniques for applying concept development skills
- techniques for applying concept visualisation skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • demonstrate knowledge of advanced simulated effects • adapt design according to feedback • develop advanced simulation effects according to a production plan • use appropriate effects, such as particles, fluids and rigid or soft bodies • use programming languages to assist the creation of advanced simulation effects • maintain a portfolio of reference materials • produce a polished and finalised deliverable.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • internet access for research purposes • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of fault finding
	• observation of working prototypes
	• verbal questioning or interview concerning aspects of development, including:
	  • creation of advanced simulated effects
	  • design and choice of advanced simulated effects
	• review of reports and logbooks
	• review of working polished deliverable.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Particle systems may include:	• 3-D or 2-D system that simulates effects, such as:
	  • blood
	  • clouds
	  • dust
	  • explosions
	  • falling leaves
	  • fire
	  • fog
	  • fur
	  • grass
	  • hair
	  • light
	  • meteor trails
	  • moving water
	  • rain
	  • snow
	  • sparks
	  • splashing water
	• 3-D or 2-D system that creates abstract effects, such as:
	  • glowing trails
	  • magic effects.

© Commonwealth of Australia, 2025 Future Skills Organisation

Fluids may include:	• 3-D or 2-D simulation of effects, such as:
	  • blood
	  • gas
	  • lava
	  • oil
	  • plasma
	  • water.

Bodies may include:	• soft or rigid • fluids • primitives • solids.

Brief and documents may include:	• concept drawings, such as:
	  • illustrations
	  • models
	  • sketches
	• designer notes
	• development environment description
	• game design document
	• game-play designs
	• help notes
	• information design
	• operating manual
	• storyboard
	• style and design principles
	• style and medium
	• target market information
	• technical design document
	• technical design review process.

Advanced simulated effects may include:	• fluids • particle systems • rigid bodies • soft bodies.
Media may include:	• designs • games • images • movies • videos.
3-D environments may include:	• 3-D animations • 3-D games.
Design considerations	• aesthetics

© Commonwealth of Australia, 2025 Future Skills Organisation

may include:	• genre • target market • cultural context • resource limitations and constraints.
Personnel may include:	• animators • concept artists • game-play designers • graphic designers • instructional designers • modellers • motion capture technicians • other specialist staff • other technical staff • producers • programmers • project manager • sound engineers • team members • technical director • writers.

Feedback may involve:	• accepting and responding to comment, critique and suggestions from:
	  • target audience representatives
	  • clients
	  • colleagues.

Programming languages may include:	• 3-D software embedded software language • C++ • Java • Ruby on Rails.
Code may include:	• code libraries • code objects • control loops • scripts.

Toolsets may include:	• integrated development environments, such as:
	  • Code::Blocks
	  • Eclipse
	  • Microsoft Visual Studio
	  • Net Beans
	• game assets, such as:
	  • current work files
	  • development kits

© Commonwealth of Australia, 2025 Future Skills Organisation

	• existing digital product libraries, e.g. character models, environments, motion capture data and sound effects • game engines, including customised game engines • 3-D modelling and animation software, such as: • 3ds Max • Blender • Cinema 4D • Houdini • Lightwave • Maya • Modo • XSI • ZBrush • compositing software, such as: • after effects • digital fusion • flame • nuke • premier • smoke.
Creating prototype may involve:	• bug fixing, bug databases, creating stable code bases and game tuning • building flexible systems, configurable by others • code review and test harnesses • designing and implementing tests and incorporating feedback from quality assurance • knowledge of games as dynamic systems: • applying advanced simulated effects strategies in light of feedback from relevant personnel • working with quality assurance and understanding test feedback • use of appropriate tools and skills for fast, interactive development.
Testing may include:	• unit • integration • system.
Polish may involve enhancing:	• game play • graphics • speed.
Requested form may	• 3-D application executable • 3-D game executable

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• 3-D rendered sequence.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM516A Animate a 3-D character for digital games

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to animate a 3-D character for digital games.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information*

© Commonwealth of Australia, 2025 Future Skills Organisation

	is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Determine 3-D character model animation requirements	1.1 Study production documentation animation requirements for 3-D character 1.2 Determine the ***target environments*** for 3-D digital character animation 1.3 Establish required level of detail for 3-D character model animation 1.4 Determine work flow sequences to ensure that production schedule deadlines are met 1.5 Select ***software tools*** that best suit the production pipeline and the target ***game engine*** and ***platform*** for final export of 3-D digital character modelling and animations
2. Create required animations using a variety of animated tools	2.1 Determine the most efficient animation methodology 2.2 Animate first pass, applying animation principles and experimenting with techniques to produce the required movements 2.3 Submit first pass for approval to ***relevant personnel*** 2.4 Make adjustments as required and refine animation in passes until storyboard requirements are achieved 2.5 Animate facial features with lip-syncing to match audio and design requirements of approved storyboard 2.6 Create ***primary animations*** as required
3. Finalise animations	3.1 Submit character animations for final check to relevant personnel 3.2 Finalise projects according to production procedure
4. Export animations	4.1 Export animation and 3-D character model to required game engine 4.2 Test character animations in game engine 4.3 Submit final character animations to relevant personnel

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse documentation and images to inform implementation of game specifications
  - interpret briefs, work instructions, and technical and conceptual information
- communication skills to:
  - check and confirm design requirements
  - collect, interpret and communicate in visual and written forms effectively for various audiences, including engineers and artists
  - communicate clearly using speech and text
  - communicate complex designs in a structured format drawn from industry standards, styles and techniques
  - communicate technical requirements related to software development, graphics requirements and code development to supervisors and other team members
  - provide practical advice, support and feedback to colleagues and management
  - translate design requirements into specifications
- initiative and enterprise skills to exercise a high level of creative ingenuity in 3-D design and innovation
- literacy and numeracy skills to develop 3-D design and technical design documents
- planning and organisational skills to:
  - refer decisions to a higher project authority for review and endorsement
  - balance talent, experience and budget
  - delegate tasks and responsibility appropriately
  - establish clear roles and goals to achieve required game development outcomes
  - meet project deadlines
  - organise equipment and resources to achieve required outcomes
  - organise own time to meet milestones
- problem-solving skills to recognise and address potential quality issues and problems at design development stage
- technical skills to:
  - use correct file formats and archiving procedures
  - resolve basic hardware, software and other technical issues associated with game production.

Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

- 3-D animation
- 3-D modelling
- anatomy and physical movement
- budgeting and scheduling considerations for game design
- capabilities and constraints of game engines
- client communication
- computer game development, including specific terminology
- current game-play hardware and software products
- environmental impact and sustainability considerations
- graph curve editor
- human resources required in the process of creating a game, and their respective skills and technology requirements
- methods for using reference material
- OHS requirements for:
  - ergonomics
  - electrical safety
- physical attributes to create effects, such as weight and anticipation
- risk and critical path management
- scheduling production components
- shading and texturing
- techniques for applying concept development skills
- techniques for applying concept visualisation skills
- techniques for using storyboard and script production
- time management
- transfer methodology, including rotoscope, hand key and motion capture.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • select correct tools to work with target game engine and platform • apply animation principles • develop an animated character model • export animated character model to game engine • test character animations in game engine.

© Commonwealth of Australia, 2025 Future Skills Organisation

Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of nominated techniques applied to selected subject matter • direct observation of the learner using 3-D animation software • review of work activities that show research and reference sourcing to gain best modelling effect • written and verbal reports or documentation showing modelling plan • evaluation of functional animated 3-D character in game engine.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

Target environments may include:	• alien environments
	• fantasy environments
	• foreign environments
	• historical environments
	• natural environments, for example:
	  • mountainous
	  • jungle
	  • desert
	  • arctic
	• post-apocalyptic environments
	• urban environments.

Software tools may include:	• 3ds Max • Blender • Cinema 4D • Houdini • Lightwave • Maya • Modo • XSI • ZBrush.

Game engine may include:	• BigWorld
	• Blender3D
	• game engine custom-built with rendering engine, such as:
	  • OGRE
	  • Irrlicht
	• Dunia
	• Half Life
	• Jade
	• Quake
	• Riot
	• Scimitar
	• Second Life
	• Unreal.

Platform may include:	• arcade
	• console platforms:
	  • Microsoft Xbox 360
	  • Nintendo DS (hand-held)
	  • Nintendo Wii
	  • Sony PlayStation
	• hand-held digital device platforms:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Apple IIe/c/c+ • Apple IIGS • Blackberry • BREW • Flashlite • Google Android • Java • J2ME • Palm OS • Sidekick • Symbian • WAP • Windows Mobile • personal computer (PC) • web.
Relevant personnel may include:	• animators • concept artists • game-play designers • graphic designers • instructional designers • modellers • motion capture technicians • other specialist staff • other technical staff • producers • programmers • project manager • sound engineers • team members • technical director • writers.
Primary animations may include:	• attacking • crouching • defending • dying • idle • jumping • running • shooting • standing • throwing

© Commonwealth of Australia, 2025 Future Skills Organisation

	• walking.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM517A Produce a digital animation sequence

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to produce a digital animation sequence for the 3-D and digital effects environment, involving the completion of a digital editing project.

Application of the Unit

This unit applies to concept artists, games designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

	italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Develop or source story or concept	1.1 Research ideas for animation sequence 1.2 Produce treatment of animation sequence
2. Develop plan and determine components required for animation sequence	2.1 Produce and work according to production plan 2.2 Develop a ***storyboard*** detailing the 3-D animation 2.3 Create concept drawings for 3-D models 2.4 Show evidence of reference material used for storyboard and concept drawings
3. Produce animation sequence using 3-D software	3.1 Use the production plan to create animation 3.2 Select ***appropriate frames per second*** to use for the animation 3.3 Use references to create ***assets*** 3.4 Create a 3-D animation project using ***3-D modelling and animation software*** 3.5 Animate components of the 3-D environment to reflect planned animation sequence 3.6 Using 3-D modelling and animation software, produce ***high-end lighting techniques***
4. Render and finalise 3-D animation sequence	4.1 Select appropriate ***resolution and aspect ratio*** 4.2 Employ 3-D modelling software to render the animated sequence 4.3 Review the rendered frames against the initial storyboard concept

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- analytical skills to:
  - analyse documentation and images to inform implementation of editing techniques
  - interpret briefs, work instructions, and technical and conceptual information
- communication skills to:
  - check and confirm design requirements
  - collect, interpret and communicate in visual and written forms effectively for various audiences, including engineers and artists
  - communicate complex designs in a structured format drawn from industry standards, styles and techniques
  - communicate technical requirements related to software development, graphics requirements and code development to supervisors and other team members
  - provide practical advice, support and feedback to colleagues and management
  - translate design requirements into specifications
- initiative and enterprise skills to exercise a high level of creative ingenuity in games design and innovation
- literacy and numeracy skills to:
  - develop games design and technical design documents
  - write instructions for the normal and competent operation and testing of all games features and permutations
- management skills to manage teams in order to effectively extract useful feedback
- planning and organisational skills to:
  - appropriately refer decisions to a higher project authority for review and endorsement
  - delegate tasks and responsibility appropriately
  - establish clear roles and goals to achieve required games development outcomes
  - meet project deadlines
  - organise equipment and resources to achieve required outcomes
  - organise own time to meet milestones
- problem-solving skills to recognise and address potential quality issues and problems at design development stage
- research skills to undertake practical, technical and desktop research into editing for the 3-D environment
- self-management skills to:
  - deliver required tasks without specific guidance
  - prioritise and manage own work against project plan or schedule
- teamwork skills to contribute to and work in a collaborative team
- learning skills to accept peer and client feedback and make improvements
- technical skills to:
  - use correct file formats and archiving procedures

© Commonwealth of Australia, 2025 Future Skills Organisation

- resolve basic hardware, software and other technical issues associated with video editing and production
- visualise and develop concepts.

Required knowledge

- digital editing and rendering processes and techniques
- capabilities and constraints of digital editing and rendering software
- human resources required in the process of creating games, and their respective skills and technology requirements
- OHS requirements for:
  - ergonomics, such as lifting
  - electrical safety
  - materials handling
  - physical hazards
- risk and critical path management
- technical constraints that hardware imposes on software development, graphics requirements, code development and creative visual design.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • apply a variety of strategies in creating an animation sequence using a 3-D environment • develop a finalised frame of the animation in an appropriate resolution.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • internet access for research purposes • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of a completed animation in frames • evaluation of work samples or simulated workplace activities • observation of games document development activities • evaluation of storyboard of sequence frames and design concepts • evaluation of a verbal or written report on industry standard animation techniques using 3-D software.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Storyboard may include:	• animatics (technical pre-visualisation) • computer-generated illustrations • existing comic strips, comic books and graphic novels • hand-drawn illustrations • illustrations or images displayed in sequence for the purpose of pre-visualising a motion picture, animation, motion graphic or interactive media sequence, including website interactivity • photomatic (photographic storyboard)

© Commonwealth of Australia, 2025 Future Skills Organisation

	• thumbnails.
Appropriate frames per second may include:	• 23.976 (NTSC or dslr - Digital Video or Digital TV) • 24p • 25p (PAL) • 29.97 (NTSC) • 30p • 50i • 50p or 60p (HDTV) • 60i • 72p.
Assets may include:	• 3-D models • characters • environments • lighting • shading • textures • UV maps.
3-D modelling and animation software may include:	• 3ds Max • Blender • Cinema 4D • Houdini • Lightwave • Maya • Modo • XSI • Z Brush.
High-end lighting techniques may include:	• ambient illumination • global illumination • indirect illumination • refraction • specular illumination • sub-surface scattering.

Resolution and aspect ratios may include:	• 16:9:
	  • 854x480
	  • 1280x720 (HD 720)
	  • 1366x768
	  • 1920x1080 (HD 1080)
	• 16:10:
	  • 320x200
	  • 1280x800
	  • 1440x900

© Commonwealth of Australia, 2025 Future Skills Organisation

	• 1680x1050 • 1920x1200 • 4:3: • 320x240 (QVGA) • 640x480 (VGA) • 768x576 (PAL) • 800x600 (SVGA) • 1024x768 • 1280x960 • 1400x1050 • 1600x1200.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM518A Animate physical attributes of models and elements

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to animate appropriate physical attributes of models and elements.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

	italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Collect and use reference material	1.1 Create storyboard sequence of required animation 1.2 Determine animation attribute sequence of objects as per the storyboard 1.3 Select ***3-D modelling and animation software*** tools that best suit the type of production and ***target platform*** for which 3-D digital animations are being created 1.4 Research and gather ***reference material*** to inform the animation process
2. Prepare 3-D digital models using a variety of manipulating techniques	2.1 Determine the most efficient animation methodology 2.2 Ensure that the models topology allows appropriate deformation of objects and its parts as per storyboard animation brief 2.3 Apply a variety of ***manipulation techniques*** 2.4 Progressively refine animation attributes and check integrity of models and elements over time until storyboard requirements are met 2.5 Submit pre-models animation to relevant personnel for comment on whether storyboard objectives have been met and make final adjustments as required
3. Create required animations using a variety of animated tools	3.1 Determine the most efficient animation methodology from the required models 3.2 Animate object, applying animation principles and techniques to produce the required motions 3.3 Submit animation for approval 3.4 Make adjustments as required and refine animation in passes until storyboard requirements are achieved
4. Use lighting to evaluate texture, quality and performance	4.1 Use nominal lighting to render component for testing purposes 4.2 Test against plan

© Commonwealth of Australia, 2025 Future Skills Organisation

	4.3 Continue manipulation process until effect achieved
5. Render 3-D digital model using appropriate render engine	5.1 Evaluate the final render, taking steps to satisfy any further client requirements 5.2 Prepare render passes if any 5.3 Render component 5.4 Present edited material to the relevant personnel as well as ***brief and documents***, including ***concept art*** in an appropriate format for evaluation
6. Back up work	6.1 Make backup copies of files and complete workplace documentation according to chosen predetermined procedures

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse documentation and images to inform implementation of game specifications
  - interpret briefs, work instructions, and technical and conceptual information
- communication skills to:
  - check and confirm design requirements
  - collect, interpret and communicate in visual and written forms effectively for various audiences, including engineers and artists
  - communicate complex designs in a structured format drawn from industry standards, styles and techniques
  - communicate technical requirements related to software development, graphics requirements and code development to supervisors and other team members
  - provide practical advice, support and feedback to colleagues and management
  - translate design requirements into specifications
- initiative and enterprise skills to exercise a high level of creative ingenuity in 3-D design and innovation
- literacy and numeracy skills to develop 3-D design and technical design documents
- planning and organisational skills to:
  - appropriately refer decisions to a higher project authority for review and endorsement
  - balance talent, experience and budget
  - delegate tasks and responsibility appropriately

© Commonwealth of Australia, 2025 Future Skills Organisation

  - establish clear roles and goals to achieve required game development outcomes
  - meet project deadlines
  - organise equipment and resources to achieve required outcomes
  - organise own time to meet milestones
- problem-solving skills to recognise and address potential quality issues and problems at design development stage
- technical skills to:
  - develop and visualise concepts
  - use correct file formats and archiving procedures
  - resolve basic hardware, software and other technical issues associated with game production.

Required knowledge

- 3-D animation
- 3-D lighting
- 3-D modelling
- anatomy and physical movement
- budgeting and scheduling considerations for game design
- capabilities and constraints of game engines
- client communication
- computer game development, including specific terminology
- current game-play hardware and software products
- environmental impact and sustainability considerations
- dope sheets
- graph curve editor
- human resources required in the process of creating a game and their respective skills and technology requirements
- methods for using reference material
- OHS requirements for:
  - ergonomics
  - electrical safety
- physical attributes to create effects, such as weight and anticipation
- rendering
- risk and critical path management
- scheduling production components
- shading
- texturing
- techniques for using storyboard and script production
- time management
- transfer methodology, e.g. rotoscope, hand key, motion capture.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • use 3-D software toolsets to animate models with correct movement and weight • undertake reference and transfer methods to copy real physical attributes.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal questioning regarding reasons for use of hardware and software to create physical attributes effects • direct observation of the learner using 3-D animation software • review of project or work activities that show research and reference sourcing to gain best physical attributes effects • review of written and verbal reports or documentation showing research and production plan • review of third-party workplace reports of skills and performance of the learner • evaluation of completed rendered image or sequence.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking

© Commonwealth of Australia, 2025 Future Skills Organisation

	background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

3-D modelling and animation software may include:	• 3-D Max • Blender • Cinema 4D • Houdini • Lightwave • Maya • Modo • XSI • Z Brush.

Target platform may include:	• arcade
	• console platforms:
	  • Microsoft Xbox 360
	  • Nintendo DS (hand-held)
	  • Nintendo Wii
	  • Sony PlayStation
	• hand-held digital device platforms:
	  • Apple Iie/C/C+
	  • Apple IIGS
	  • Blackberry
	  • BREW
	  • Flashlite
	  • Google Android
	  • J2ME
	  • Java
	  • Palm OS
	  • Sidekick

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Symbian • WAP • Windows Mobile • personal computer (PC) • web.
Reference material may include:	• blueprints • developmental drawings • internet research • museum information • orthographic images • photographs • schematics • video footage.
Manipulation techniques may include:	• cloning • deforming • exploding • melting • moving • point and face deformation • rotating • scaling.
Brief and documents may include:	• concept drawings • designer's notes • development environment description • game design document • game-play designs • help notes • information design • operating manual • storyboard • style and design principles • style and medium • target market information • technical design document • technical design review process.
Concept art may include:	• illustrations • models • settings • sketches • storyboards.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM519A Manage technical art and rigging in 3-D animation

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manage technical art and rigging in 3-D animation.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

	italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Use reference or source materials to assess rig requirements	1.1 Use ***production documentation*** as developed by learners or trainer to determine model rigging requirements 1.2 Maintain ***portfolio of reference*** 1.3 Discuss the range of software features available when using various rigging technologies
2. Plan rig suitable for animation/movement	2.1 Analyse inner workings of object to select appropriate skeletal or ***structural systems*** 2.2 Analyse required bones or joints behaviours to select correct orientations 2.3 Examine object geometry topologies to select correct bone and joint placement 2.4 Analyse critical object movement to select FK or IK requirements or a hybrid solution 2.5 Journal results for use at rigging implementation phase
3. Implement character skeleton requirements	3.1 Use ***3-D software*** to place bones and joints according to rigging plan 3.2 Use 3-D software to orientate bones and joints according to rigging plan 3.3 Use 3-D software to construct FK or IK requirements in adherence to rigging plan 3.4 Use 3-D software to construct hierarchies and pivotal sets 3.5 Trial and refine rotations and movement attributes
4. Employ character movement and implement character attributes and control handles	4.1 Use 3-D software to construct specific driven attributes for manipulation purposes 4.2 Use 3-D software to create and place control handles with appropriate attributes 4.3 Use 3-D software to link control handles to improve animation procedures

© Commonwealth of Australia, 2025 Future Skills Organisation

	4.4 Trial and refine controls and attributes 4.5 Negotiate modification where appropriate 4.6 Use 3-D software toolsets to skin/bind object geometry to created skeletal systems or mechanical structures
5. Test and refine rig integrity	5.1 Use 3-D software to test and refine object rig interaction 5.2 Use 3-D software toolsets to test and refine geometry skeleton systems or mechanical structure interaction 5.3 Negotiate modification where appropriate
6. Produce animated sequences of rigged object	6.1 Create ***3-D animations*** of rigged models using animation and rigged modelling techniques to suit ***design specifications*** 6.2 Render completed animated sequences 6.3 Save and store animated sequences using appropriate output file formats, standard naming conventions and version control protocols 6.4 Present 3-D animated sequences of rigged models to ***relevant personnel*** for evaluation by agreed deadlines

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with clients
- literacy and numeracy skills to:
  - source and use reference material
  - use a storyboard and script production plan
- planning and organisational skills to schedule production components
- self-management and planning skills to:
  - meet deadlines
  - prioritise work tasks
  - seek expert assistance when problems arise
- technical skills to:
  - manage files and directories using standard naming conventions and version control protocols
  - output 3-D animated sequences in appropriate file formats for a range of delivery platforms

© Commonwealth of Australia, 2025 Future Skills Organisation

- use industry-current animation software to develop and manage rigged models in digitally animated sequences.

Required knowledge

- basic 3-D digital animation techniques
- features of a range of delivery platforms
- geometry topology analysis skills
- identification of physical attributes
- OHS standards as they relate to working for periods of time on computers
- rigged 3-D modelling techniques
- theory of anatomy/structural systems.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design, implement and manage rigs for objects • use and refine skeleton/structural and animation controls for best performance • construct hierarchies to formulate specific controls • combine and refine object geometry to skeletal/structural rigs • creation of 3-D digital animated sequences of a rigged model • meet production deadlines.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of case studies

© Commonwealth of Australia, 2025 Future Skills Organisation

	• evaluation of work samples • direct observation of candidate working as part of a production team • verbal or written questioning of theory of anatomy and structural systems and how they relate to 3-D animation techniques.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Production documentation may include:	• animatics • brief • storyboard • technical specifications.
Portfolio of reference may include:	• mechanical structures • skeletal systems.
Structural systems may include:	• biped • mechanical • quadruped.
3-D software may include:	• 3ds Max • Blender • Cinema 4D

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Houdini • Lightwave • Maya • Modo • XSI • Z Brush.
3-D animations may include:	• 3-D elements • 3-D panoramas • basic games • buttons • characters • illustrations • logos • models • morphs and blend shapes • puzzles • simulated sequences • text • titles and credits.
Design specifications may include:	• characters and objects • delivery platform • hardware specifications, including memory size (RAM) • key frames • media form • objects • operating system • output file format • output file size • references • samples • script • storyboard • technical specifications, including version control protocols.
Relevant personnel may include:	• 3-D modeller • 3-D producer • animation director • audio-asset creator • director • graphic artist or designer • instructional designer • lead animator

© Commonwealth of Australia, 2025 Future Skills Organisation

	• matte painter • system support personnel • other technical and specialist personnel.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM520A Create and combine 3-D digital games and components

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to create and combine 3-D components.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators, modellers, artists and other personnel working in the game development industry.

From specific reference material and established parameters, modellers or artists are called to create moderately complex compound models with current recognised industry software applicable to the animation production process.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine model creation requirements	1.1 Analyse design requirements and ***production documentation*** 1.2 Select ***3-D modelling software tools*** that best suit the type of production for which ***3-D digital models*** are being created
2. Create 3-D digital models using a variety of modelling techniques	2.1 Determine most efficient modelling methodology 2.2 Apply a variety of ***modelling techniques*** 2.3 Create 3-D digital models 2.4 ***Progressively refine*** and check ***integrity*** of models
3. Combine 3-D models to create a scene	3.1 Combine 3-D models to create a scene based on design requirements 3.2 Submit models to relevant ***personnel*** for comment on whether production ***requirements*** have been met and make final adjustments if required
4. Render 3-D digital models using appropriate render engine	4.1 Test rendering scene and adjust settings 4.2 Render final 3-D scene 4.3 Submit final model renders to relevant personnel
5. Back up work	5.1 Make backup copies of files 5.2 Complete workplace documentation according to predetermined procedures

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - interpret briefs, work instructions, and technical and conceptual information
  - analyse documentation and images to inform implementation of game specifications
- communication skills to:
  - check and confirm design requirements
  - collect, interpret and communicate in visual and written forms effectively for various audiences, including engineers and artists
  - communicate clearly using speech and text
  - communicate complex designs in a structured format drawn from industry standards, styles and techniques
  - communicate technical requirements related to graphics requirements to supervisors and other team members
  - provide practical advice, support and feedback to colleagues and management
  - translate design requirements into specifications
- initiative and enterprise skills to exercise a high level of creative ingenuity in 3-D design and innovation
- literacy and numeracy skills to develop 3-D design and technical design documents
- planning and organisational skills to:
  - refer decisions to a higher project authority for review and endorsement
  - balance talent, experience and budget
  - delegate tasks and responsibility appropriately
  - establish clear roles and goals to achieve required game development outcomes
  - meet project deadlines
  - organise equipment and resources to achieve required outcomes
  - organise own time to meet milestones
- problem-solving skills to recognise and address potential quality issues and problems at design development stage
- technical skills to:
  - use correct file formats and archiving procedures
  - resolve basic hardware, software and other technical issues associated with game production
  - use reference material
  - use storyboard and script production.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required knowledge

- basic knowledge of 3-D software interfaces
- anatomy and physical movement
- budgeting and scheduling considerations for game design
- capabilities and constraints of game engines
- client communication
- computer game development, including specific terminology
- current game-play hardware and software products
- environmental impact and sustainability considerations
- graph curve editor
- human resources required in the process of creating a game and their respective skills and technology requirements
- OHS requirements for:
  - electrical safety
  - ergonomics
- physical attributes to create effects, such as weight and anticipation
- risk and critical path management
- scheduling production components
- shading and texturing
- techniques for applying concept development skills
- techniques for applying concept visualisation skills
- time management
- transfer methodology, e.g. rotoscope, hand key and motion capture.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • create and combine 3-D components to build a scene • produce final render of the scene.
Context of and specific resources for	Assessment must ensure access to:

© Commonwealth of Australia, 2025 Future Skills Organisation

assessment	• computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of the nominated techniques applied to selected subject matter • direct observation of the candidate using 3-D modelling software • review of work activities that show research and reference sourcing to gain best modelling effect • review of written and verbal reports or documentation showing modelling plan • evaluation of portfolios of evidence • evaluation of 3-D scene render.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Production	• animatics

© Commonwealth of Australia, 2025 Future Skills Organisation

documentation may include:	• concept art • storyboard • technical specifications.
3-D modelling software tools may include:	• 3ds Max • Blender • Cinema 4D • Houdini • Lightwave • Maya • Modo • XSI • ZBrush.
3-D digital models may include:	• any 3-D composite models within the used 3-D software space.
Modelling techniques may include:	• Array • Boolean • Cloning • Connect object • Extrude • Instance • Lathe • Loft • NURB • Sweep • Symmetry.
Progressively refine may include:	• achieving required object topology.
Integrity may include:	• combine • scale of models relative to other components in final required shape • transform.
Personnel may include:	• animators • concept artists • game-play designers • graphic designers • instructional designers • modellers • motion capture technicians • other specialist staff • other technical staff

© Commonwealth of Australia, 2025 Future Skills Organisation

	• producers • programmers • project manager • sound engineers • team members • technical director • writers.
Requirements may include:	• assets for integration • collaboration with other team members • creative expectations • design specifications • output format • technical specifications • time lines.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM521A Create interactive 3-D environments for digital games

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to create interactive 3-D environments for digital games.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

	italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Obtain design documents for the 3-D environment	1.1 Conceptualise design requirements based on ***project brief and other relevant documents***
	1.2 Identify requirements for the design of the ***3-D environment***
	1.3 Discuss ***design considerations*** and generate ***concept art*** for the final environment design
	1.4 Fill in any missing requirements
2. Identify software tools that can be used to create 3-D environments	2.1 Identify texturing tools, including ***painting, shading and texturing software***
	2.2 Identify audio tools
	2.3 Identify ***3-D modelling and animation software*** to be used
3. Document and justify the design decisions	3.1 Clearly document design decisions
	3.2 Explain and justify design decisions
	3.3 Make changes where necessary
4. Create the 3-D environment	4.1 Implement basic geometry, flow and layout
	4.2 Separate each section of the environment into key parts and choose a focal point for the environment
	4.3 Incorporate detail into the focal point of the level
	4.4 Use the focal points level of detail to set a target for the rest of the environment
	4.5 Integrate the geometry, texturing and place the models
	4.6 Carry out a detailed pass of the entire environment
	4.7 Set up exterior lighting and then interior lighting
	4.8 Incorporate any sound and particle effects, and perform optimisation if required
	4.9 Perform a final pass, finalising any elements

© Commonwealth of Australia, 2025 Future Skills Organisation

5. Present the finished 3-D environment to relevant personnel	5.1 Present the finished 3-D environment to relevant ***personnel***
	5.2 State how the design decisions have met the 3-D environment design requirements
	5.3 Justify why certain design decision where made
	5.4 Accept peer ***feedback*** and incorporate in final design

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse documentation and images to inform game specification creation
  - interpret briefs, work instructions, and technical and conceptual information
- communication skills to:
  - check and confirm design requirements
  - collect, interpret and communicate in visual and written forms effectively for various audiences, including engineers and artists
  - communicate clearly using speech and text
  - communicate complex designs in a structured format drawn from industry standards, styles and techniques
  - communicate technical requirements related to software development, graphics requirements and code development to supervisors and other team members
  - contribute to and work in a collaborative team
  - give and receive constructive feedback
  - provide practical advice, support and feedback to colleagues and management
- planning and organisational skills to:
  - appropriately refer decisions to a higher project authority for review and endorsement
  - delegate tasks and responsibility appropriately
  - establish clear roles and goals to achieve required game development outcomes
  - meet project deadlines
  - organise equipment and resources to achieve required outcomes
  - organise own time to meet milestones
  - prioritise work and meet critical milestones and deadlines
- problem-solving skills to recognise and address potential quality issues and problems at design development stage

© Commonwealth of Australia, 2025 Future Skills Organisation

- research skills to undertake practical, technical or desktop research into design requirements and software tools
- technical skills to:
  - realise a unified game-play vision
  - resolve basic hardware, software and other technical issues associated with game production
  - translate design requirements into specifications
  - use correct file formats and archiving procedures
  - visualise and develop concepts.

Required knowledge

- budgeting and scheduling considerations for game design
- capabilities and constraints of game engines
- computer game development, including specific terminology
- current game-play hardware and software products
- human resources required in the process of creating a game and their respective skills and technology requirements
- technical constraints that hardware imposes on software development, graphics requirements, code development and creative visual design.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • implement design requirements into a working 3-D environment • create interactions between the user and the environment • manage design requirements with technical requirements • deliver a 3-D environment with working interactions.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy

© Commonwealth of Australia, 2025 Future Skills Organisation

	• appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of:
	  • production of a 3-D environment with interactions
	  • response to fault-finding exercises
	  • simulated workplace activities
	  • work samples
	• written or verbal questioning to assess knowledge of interactive environments
	• review of:
	  • logbooks
	  • presentations
	  • reports.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Project brief and other relevant documents	• concept drawings • designer's notes

© Commonwealth of Australia, 2025 Future Skills Organisation

may include:	• development environment description • level design document • storyboard • style and design principles • style and medium • target market information • technical design document • technical design review process.

3-D environment may include:	• characters and environments, such as:
	  • backgrounds
	  • environments
	  • lighting
	  • scenery
	  • terrain
	  • textures
	• environment profiles, such as:
	  • alien
	  • fantasy
	  • foreign
	  • historical
	  • naturalistic:
	  • arctic
	  • desert
	  • jungle
	  • mountainous
	  • post-apocalyptic
	  • urban
	• game design, such as:
	  • concept illustrations or graphics that enhance the comprehension of the document
	  • design for all level missions
	  • game mechanics that affect level design decisions
	  • illustrations of level with all significant points of interest
	  • introduction and overview (one page synopsis)
	  • key selling points, including intended audience, genre and platforms
	  • production details
	  • scripts required for level
	  • synopsis and scripts for each level
	  • title and cover art (art must be colour and of a reasonable

© Commonwealth of Australia, 2025 Future Skills Organisation

	resolution for high quality printing) • walk through for at least one mission or level • game genre, such as: • adventure • alternative reality • ancient • casino • cyberpunk • educational • edutainment • fantasy • first person shooter • flight shooter • flight simulation • futuristic • god simulation • massively multi-player online game • massively multi-player online role-playing game • medieval • modern • multi-player • post-apocalyptic • puzzle • racing shooter • racing simulation • real-time strategy • role-playing game • science fiction • side-scrolling shooter • single player • sports • strategy, including action strategy and turn-based strategy • tactical combat • game mechanics, such as: • lists and illustrations of: • actions of a particular object (object dynamics) • environment actions (environment dynamics) • game objects organised into classes of object • possible environment and object interactions

© Commonwealth of Australia, 2025 Future Skills Organisation

	• possible object-to-object interactions • specific game-play elements that provide uniqueness and key point of difference • overview of the key factors influencing core game-play experience • game physics, such as: • collision • combat: • blood spots • debris • explosions • footprints • salvo • smoke and fire • sparks • water • wreckage • movement: • creaking floors • footfalls • puddle stepping • wading • wind • game-play elements, such as: • buildings • game flow • switches • terrain objects • transformations • transportation • traps • level specifications, such as: • level-specific components: • allies • base building and location • cinematic, such as cut scenes • colours • enemies • graphics • health

© Commonwealth of Australia, 2025 Future Skills Organisation

	• lighting • non-player characters • resources and their harvesting • sounds and music • weapons • location • stages • transportation devices: • buttons • doors • keys • teleporters • tunnels and passageways.
Design considerations may include:	• aesthetics • cultural context • genre • resource limitations and constraints • target market.
Concept art may include:	• illustrations • models • settings • sketches • storyboards.
Painting, shading and texturing software may include:	• 3-D paint • Illustrator • Mudbox • Photoshop • ZBrush.
3-D modelling and animation software may include:	• 3ds Max • Blender • Cinema 4D • Houdini • Lightwave • Maya • Modo • XSI • Z Brush.
Personnel may include:	• animators • concept artists • game-play designers

© Commonwealth of Australia, 2025 Future Skills Organisation

	• graphic designers • instructional designers • modellers • motion capture technicians • other specialist staff • other technical staff • producers • programmers • project manager • sound engineers • team members • technical director • writers.

Feedback may involve:	• accepting and responding to comment, critique and suggestions from:
	  • clients
	  • colleagues
	  • target audience representatives.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM522A Complete digital editing for the 3-D and digital effects environment

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to complete digital editing for the 3-D and digital effects environment, involving the completion of a digital editing project.

Application of the Unit

This unit applies to concept artists, games designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate*

© Commonwealth of Australia, 2025 Future Skills Organisation

unit of competency.	*achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Research digital editing techniques and software	1.1 Research industry standard digital editing techniques 1.2 Discuss suitable techniques to apply in various scenarios 1.3 Research available digital ***editing software*** used in the industry 1.4 Identify ***technical limitations and constraints*** of rendering and editing processes
2. Obtain or create 3-D animation sequence	2.1 Obtain or create a 3-D animation sequence in frames 2.2 Obtain or create a ***storyboard*** for the sequence 2.3 Use a suitable naming scheme for the rendered frames and organise the files into a folder structure
3. Apply digital editing techniques	3.1 Edit the rendered frames and any additional graphics into the sequence outlined in the storyboard 3.2 Apply program functions to create and insert graphics, transitions and special effects into the animation 3.3 Implement ***sounds and music*** at appropriate frame locations 3.4 Ensure efficient file management is maintained during the editing process
4. Finalise a digitally edited production	4.1 Use editing software to resolve sound or transition errors 4.2 Evaluate final edit 4.3 Present finalised edit to relevant ***personnel*** in an appropriate video format 4.4 Receive and incorporate ***feedback***

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse documentation and images to inform implementation of editing techniques
  - interpret briefs, work instructions, and technical and conceptual information
- communication skills to:
  - check and confirm design requirements
  - collect, interpret and communicate in visual and written forms effectively for various audiences, including engineers and artists
  - communicate complex designs in a structured format drawn from industry standards, styles and techniques
  - communicate technical requirements related to software development, graphics requirements and code development to supervisors and other team members
  - provide practical advice, support and feedback to colleagues and management
  - translate design requirements into specifications
- initiative and enterprise skills to exercise a high level of creative ingenuity in games design and innovation
- literacy and numeracy skills to:
  - develop games design and technical design documents
  - write instructions for the normal and competent operation and testing of all games features and permutations
- management skills to manage teams in order to effectively extract useful feedback
- planning and organisational skills to:
  - appropriately refer decisions to a higher project authority for review and endorsement
  - delegate tasks and responsibility appropriately
  - establish clear roles and goals to achieve required games development outcomes
  - meet project deadlines
  - organise equipment and resources to achieve required outcomes
  - organise own time to meet milestones
- problem-solving skills to recognise and address potential quality issues and problems at design development stage
- research skills to undertake practical, technical and desktop research into editing for the 3-D environment
- self-management skills to:
  - deliver required tasks without specific guidance
  - prioritise and manage own work against project plan or schedule
- teamwork skills to contribute to and work in a collaborative team

© Commonwealth of Australia, 2025 Future Skills Organisation

- technical skills to:
  - resolve basic hardware, software and other technical issues associated with video editing and production
  - use correct file formats and archiving procedures.

Required knowledge

- digital editing and rendering processes and techniques
- capabilities and constraints of digital editing and rendering software
- human resources required in the process of creating a games and their respective skills and technology requirements
- OHS requirements for:
  - ergonomics
  - electrical safety
  - materials handling
  - physical hazards, including lifting
- risk and critical path management
- technical constraints that hardware imposes on software development, graphics requirements, code development and creative visual design.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • apply a variety of strategies for editing a sequence using a 3-D environment • developa finalised edit in appropriate video format.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • internet access for research purposes • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of a completed animation production delivered in an accessible format • evaluation of work samples or simulated workplace activities • observation of games document development activities • evaluation of storyboard of sequence frames and design concepts • observation of use of techniques and editing software • evaluation of a verbal or written report on industry standard digital editing techniques and software.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Editing software may include:	• Final Cut Pro • Premier • Sony Vegas.
Technical limitations and constraints may include:	• current technology • future technology and release date • pixels • platforms

© Commonwealth of Australia, 2025 Future Skills Organisation

	• polygon count • software capability.
Storyboard may include:	• animatics (technical pre-visualisation) • computer-generated illustrations • existing comic strips, comic books and graphic novels • hand-drawn illustrations • illustrations or images displayed in sequence for the purpose of pre-visualising a motion picture, animation, motion graphic or interactive media sequence, including website interactivity • photomatic (photographic storyboard) • thumbnails.
Sounds and music may include:	• ambient sounds • cinematic soundtracks • event jingles • intellectual property protection • level themes • musical compositions • radio chatter • situational music • sound effects • voice • wind, rain and storms.
Personnel may include:	• animators • concept artists • game-play designers • graphic designers • instructional designers • modellers • motion capture technicians • other specialist staff • other technical staff • producers • programmers • project manager • sound engineers • team members • technical director • writers.
Feedback may involve:	• accepting and responding to comment, critique and suggestions from: • clients

© Commonwealth of Australia, 2025 Future Skills Organisation

	• colleagues • target audience representatives.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM523A Collaborate in the design of 3-D game levels and environments

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to work collaboratively with a production team in the design of interactive 3-D environments.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators and other personnel working as part of a team in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

	italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Research and plan the design process	1.1 Select a project planning methodology 1.2 Identify design practices and ***design considerations*** in collaboration with other team members 1.3 State the stages of the design process using ***project brief and documents*** 1.4 Identify team roles that relate to level creation and design 1.5 Plan and implement a design process using time-management principles
2. Conceptualise a 3-D environment design in collaboration with team	2.1 Identify key ***level specifications*** and purpose for the 3-D environment 2.2 Gather and analyse reference materials in collaboration to help with visualisation of 3-D environment, including ***environment profiles, game genre, game design*** and ***game-play elements*** 2.3 Catalogue required objects of the level environment 2.4 Identify appropriate ***3-D modelling and animation software*** and ***painting, shading and texturing software*** that can be used to create the 3-D environment 2.5 Document design decisions that are made before and during the design conceptualisation 2.6 Produce ***concept art*** of the designed environment
3. Present the conceptualised environment to peers	3.1 Present the conceptualised environment to peers and receive ***feedback*** 3.2 State how the design decisions have met the requirements for game-play elements 3.3 Justify why certain design decisions were made 3.4 Accept peer feedback
4. Refine the design	4.1 Implement quality assurance principles

© Commonwealth of Australia, 2025 Future Skills Organisation

	4.2 Incorporate user feedback to modify the design 4.3 Finalise the design decision documents in readiness for creating the 3-D environment

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - interpret briefs, work instructions, and technical and conceptual information
  - analyse documentation and images to inform design of environment specifications
- enterprise and initiative skills to visualise and develop the concept
- communication skills to:
  - check and confirm design requirements
  - collect, interpret and communicate in visual and written forms effectively for various audiences, including engineers and artists
  - communicate complex designs in a structured format drawn from industry standards, styles and techniques
  - communicate technical requirements related to software development, graphics requirements and code development to supervisors and other team members
  - contribute to and work in a collaborative team
  - give and receive constructive feedback
  - provide practical advice, support and feedback to colleagues and management
  - realise a unified game-play vision
  - translate design requirements into specifications
- planning and organisational skills to:
  - appropriately refer decisions to a higher project authority for review and endorsement
  - delegate tasks and responsibility appropriately
  - establish clear roles and goals to achieve required game development outcomes
  - meet project deadlines
  - organise equipment and resources to achieve required outcomes
  - organise own time to meet milestones
  - prioritise work and meet critical milestones and deadlines
- problem-solving skills to recognise and address potential quality issues and problems at design development stage
- research skills to undertake practical, technical or desktop research into design requirements and software tools

© Commonwealth of Australia, 2025 Future Skills Organisation

- learning skills to accept peer feedback and make improvements
- technology skills to:
  - use correct file formats and archiving procedures
  - resolve basic hardware, software and other technical issues associated with game production.

Required knowledge

- budgeting and scheduling considerations for game design
- capabilities and constraints of game engines
- computer game development, including specific terminology
- current game-play hardware and software products
- human resources required in the process of creating a game and their respective skills and technology requirements
- technical constraints that hardware imposes on software development, graphics requirements, code development and creative visual design.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • plan, collaborate and manage the design process for creating an interactive 3-D environment • incorporate design specifications into actual deliverable • produce and deliver design documents for the production of an interactive 3-D environment.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for

© Commonwealth of Australia, 2025 Future Skills Organisation

	this unit:
	• evaluation of candidate's work samples, such as 3-D models
	• observation of candidate working as part of a team
	• written or verbal questioning to assess candidate's knowledge of interactive 3-D environments
	• review of:
	  • 3-D design documents
	  • concept art
	  • logbooks
	  • presentations
	  • storyboards
	  • textures.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Design considerations may include:	• aesthetics • cultural context • genre • resource limitations and constraints • target market.
Project brief and	• concept drawings

© Commonwealth of Australia, 2025 Future Skills Organisation

documents may include:	• designer's notes • development environment description • level design document • storyboard • style and design principles • style and medium • target market information • technical design document • technical design review process.

Level specifications may include:	• level-specific components:
	  • allies
	  • base building and location
	  • cinematic (cut scenes)
	  • colours
	  • enemies
	  • graphics
	  • health
	  • lighting
	  • non-player characters
	  • resources and their harvesting
	  • sounds and music
	  • weapons
	• location
	• stages
	• transportation devices:
	  • buttons
	  • doors
	  • keys
	  • teleporters
	  • tunnels and passageways.

Environment profiles may include:	• alien
	• fantasy
	• foreign
	• historical
	• naturalistic, for example:
	  • arctic
	  • desert
	  • jungle
	  • mountainous
	• post-apocalyptic

© Commonwealth of Australia, 2025 Future Skills Organisation

	• urban.

Game genre may include:	• adventure
	• alternative reality
	• ancient
	• casino
	• cyberpunk
	• educational
	• edutainment
	• fantasy
	• first person shooter
	• flight shooter
	• flight simulation
	• futuristic
	• god simulation
	• massively multi-player online game
	• massively multi-player online role-playing game
	• medieval
	• modern
	• multi-player
	• post-apocalyptic
	• puzzle
	• racing shooter
	• racing simulation
	• real-time strategy
	• role-playing game
	• science fiction
	• side-scrolling shooter
	• single player
	• sports
	• strategy, including:
	  • action strategy
	  • turn-based strategy
	• tactical combat.

Game design may include:	• concept illustrations or graphics that enhance the comprehension of the document • design for all level missions • game mechanics that affect level design decisions • illustrations of level with all significant points of interest • introduction and overview (one page synopsis) • key selling points, including intended audience, genre and platforms • production details

© Commonwealth of Australia, 2025 Future Skills Organisation

	• scripts required for level • synopsis and scripts for each level • title and cover art (art must be colour and of a reasonable resolution for high quality printing) • walk through for at least one mission or level.
Game-play elements may include:	• buildings • game flow • switches • terrain objects • transportation • transformations • traps.
3-D modelling and animation software may include:	• 3ds Max • Blender • Cinema 4D • Houdini • Lightwave • Maya • Modo • XSI • Z Brush.
Painting, shading and texturing software may include:	• 3-D paint • Illustrator • Mudbox • Photoshop • Z Brush.
Concept art may include:	• illustrations • models • settings • sketches • storyboards.

Feedback may involve:	• accepting and responding to comment, critique and suggestions from:
	  • clients
	  • colleagues
	  • target audience representatives.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM524A Integrate multiple data sources into interactive 3-D environments

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to integrate multiple data sources into interactive 3-D environments.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Catalogue elements to integrate into the interactive 3-D environment	1.1 Research and identify ***data sources*** that can be integrated into interactive 3-D environments 1.2 Identify data sources that will be integrated to suit the environment, ***game design, game genre, game mechanics, game-play elements***, and ***level specifications*** 1.3 Obtain or create data sources for the interactive 3-D environment
2. Identify tools that can be used to integrate assets	2.1 Identify ***tools and libraries*** for integration of identified elements into the 3-D environment 2.2 Review and document how the tools work
3. Integrate sources into the interactive 3-D environment	3.1 ***Create prototypes*** and integrate elements into the interactive 3-D environment using the identified tools 3.2 Test the integration of the elements 3.3 Ensure the elements' integrity during implementation is maintained
4. Present and evaluate completed 3-D environment with all data sources included	4.1 Present the interactive 3-D environment to appropriate ***personnel*** 4.2 Review ***feedback*** from presentation 4.3 ***Evaluate*** and justify implementation using tools for the data sources

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

    - analyse multiple data sources to inform integration into interactive 3-D environment
    - interpret briefs, work instructions, and technical and conceptual information
- communication skills to:
    - catalogue, check and confirm data sources
    - collect, interpret and communicate in visual and written forms effectively for various audiences, including engineers and artists
    - communicate clearly using speech and text
    - communicate technical requirements related to integration tools to supervisors and other team members
    - contribute to and work collaboratively
    - provide practical advice, support and feedback to colleagues and management
- learning skills to accept peer feedback and make improvements
- planning and organisational skills to:
    - refer decisions to a higher project authority for review and endorsement
    - delegate tasks and responsibility appropriately
    - establish clear roles and goals to achieve required game development outcomes
    - meet project deadlines
    - organise equipment and resources to achieve required outcomes
    - organise own time to meet milestones
    - prioritise work and meet critical milestones and deadlines
- problem-solving skills to recognise and address potential quality issues and problems at prototype and completed stages
- research skills to undertake practical, technical and desktop research into multiple data sources
- technical skills to:
    - integrate data sources into the 3-D environment
    - resolve basic hardware, software and other technical issues associated with game production
    - use correct file formats and archiving procedures.

Required knowledge

- budgeting and scheduling considerations
- capabilities and constraints of game engines
- computer game development, including specific terminology
- current game-play hardware and software products
- human resources required in the process of creating a game and their respective skills and technology requirements
- technical constraints that hardware imposes on software development, graphics requirements, code development and creative visual design.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • integrate multiple data sources into a working interactive 3-D environment • manage design requirements with technical requirements • deliver an interactive 3-D environment with working interactions that implements the external data sources.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of:
	  • response to fault-finding exercises
	  • simulated workplace activities
	  • working interactions of 3-D environments
	• written or verbal questioning to evaluate knowledge of:
	  • data sources
	  • interactive 3-D environments
	  • integration
	• review of candidate's:
	  • presentations
	  • reports of completed 3-D environment
	  • documentation of 3-D environment specifications.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally

© Commonwealth of Australia, 2025 Future Skills Organisation

	appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Data sources may include:	• 3-D models • databases • images • music • particle libraries • scripts • sounds • text • textures.
Game design may include:	• concept illustrations or graphics that enhance the comprehension of the document • design for all level missions • game mechanics that affect level design decisions • illustrations of level with all significant points of interest • introduction and overview (one page synopsis) • key selling points, including intended audience, genre and platforms • production details • scripts required for level • synopsis and scripts for each level • synopsis of level • title and cover art (art must be colour and of a reasonable resolution for high quality printing)

© Commonwealth of Australia, 2025 Future Skills Organisation

	• walk through for at least one mission or level.

Game genre may include:	• adventure
	• alternative reality
	• ancient
	• casino
	• cyberpunk
	• educational
	• edutainment
	• fantasy
	• first person shooter
	• flight shooter
	• flight simulation
	• futuristic
	• god simulation
	• massively multi-player online game
	• massively multi-player online role-playing game
	• medieval
	• modern
	• multi-player
	• post-apocalyptic
	• puzzle
	• racing shooter
	• racing simulation
	• real-time strategy
	• role-playing game
	• science fiction
	• side-scrolling shooter
	• single player
	• sports
	• strategy, including:
	  • action strategy
	  • turn-based strategy
	• tactical combat.

Game mechanics may include:	• lists and illustrations of:
	  • actions of a particular object (object dynamics)
	  • environment actions (environment dynamics)
	  • game objects organised into classes of object
	  • possible environment and object interactions
	  • possible object-to-object interactions
	  • specific game-play elements that provide uniqueness and key point of difference

© Commonwealth of Australia, 2025 Future Skills Organisation

	• overview of the key factors influencing core game-play experience.
Game-play elements may include:	• buildings • game flow • switches • terrain objects • transformations • transportation • traps.

Level specifications may include:	• level-specific components:
	  • allies
	  • base building and location
	  • cinematic (cut scenes)
	  • colours
	  • enemies
	  • graphics
	  • health
	  • lighting
	  • non-player characters
	  • resources and their harvesting
	  • sounds and music
	  • weapons
	• location
	• stages
	• transportation devices:
	  • buttons
	  • doors
	  • keys
	  • teleporters
	  • tunnels and passageways.

Tools and libraries may include:	• Audierre • bass library • direct sound • FMOD • image importer libraries • LUA script • Open_AL • particle libraries • particle universe • SDL_Mixer

© Commonwealth of Australia, 2025 Future Skills Organisation

	• sound libraries • XML libraries.

Creating prototypes may involve:	• developing a comprehensive design for missions and levels, including concept visuals
	• developing a walkthrough for at least one mission or level
	• developing story synopsis and scripts for each level
	• knowledge of games as dynamic systems, such as:
	  • applying game-tuning strategies in light of feedback from actual play
	  • characteristics of a balanced game
	  • working with quality assurance and understanding play-test feedback
	• use of appropriate tools and skills for fast, interactive development.

Personnel may include:	• animators • concept artists • game-play designers • graphic designers • instructional designers • modellers • motion capture technicians • other specialist staff • other technical staff • producers • programmers • project manager • sound engineers • team members • technical director • writers.

Feedback may involve:	• accepting and responding to comment, critique and suggestions from:
	  • clients
	  • colleagues
	  • target audience representatives.

Evaluate completed 3-D environment may involve:	• examining and analysing the impact of decisions, after the fact, such as:
	  • integration decisions
	  • methodology and process decisions
	• product ‘post-mortems’, reviewing actual use of resources to achieve outcomes against initial project plan and schedule.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM525A Apply digital texturing for the 3-D environment in digital games

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to apply digital texturing for the 3-D environment in digital games, using industry standard tools.

Application of the Unit

This unit applies to concept artists, games designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Research common industry practices for texturing a 3-D environment	1.1 Research, identify and describe methods of texture creation and texture mapping 1.2 Choose suitable ***graphics software*** to create textures 1.3 Document ***design considerations*** for texturing a 3-D environment
2. Create a basic 3-D environment	2.1 Use ***3-D modelling and animation software*** 2.2 Create ***simple 3-D objects*** 2.3 Place objects in a 3-D environment 2.4 Apply inbuilt lighting effects to the 3-D environment
3. Create multiple textures to apply to the 3-D environment	3.1 Use graphics software 3.2 Apply industry standard methods to create textures 3.3 Create textures to establish look and feel of the 3-D environment
4. Apply multiple texture effects to a 3-D environment	4.1 Load textures into 3-D animation and modelling software 4.2 Apply textures to colour the 3-D objects and environment 4.3 Use ***texture-mapping techniques*** to create multiple texture effects for a single 3-D object 4.4 Employ 3-D animation and modelling software to render an image of the 3-D environment

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - analyse documentation and images to inform implementation of digital texturing for the 3-D environment
  - interpret briefs, work instructions, and technical and conceptual information
- communication skills to:
  - check and confirm design requirements
  - communicate clearly using speech and text
  - communicate technical requirements related to graphics creation
- initiative and enterprise skills to visualise and develop concepts
- literacy and numeracy skills to develop technical design documents
- research skills to undertake practical, technical and desktop research into industry standard methods for creating and applying textures
- self-management skills to:
  - deliver required tasks without specific guidance
  - prioritise and manage own work against project plan or schedule
  - technology skills to use file formats.

Required knowledge

- capabilities and constraints of graphics software for texturing
- human resources required in the process of creating textures for the 3-D environment and the technology requirements
- methods of texture creation and texture mapping
- technical constraints that hardware imposes on software development, graphics requirements, code development and creative visual design.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • research and select techniques and graphic software tools to create texturing for a 3-D environment • apply digital texturing to create multiple texture effects for a single 3-D object.
Context of and specific resources for	Assessment must ensure access to:

© Commonwealth of Australia, 2025 Future Skills Organisation

assessment	• computer hardware, software, games engines and file storage • internet access for research purposes • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of a sample of a 3-D environment with digital texturing applied • evaluation of work samples or simulated workplace activities • observation of use of techniques and texturing software • evaluation of a written or verbal report on industry standards for digital texturing of a 3-D environment • evaluation of sample 2-D textures suitable for a 3-D environment.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Graphics software may include:	• 3-D paint • Fireworks

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Illustrator • Mudbox • Photoshop • Z Brush.
Design considerations may include:	• aesthetics • cultural context • genre • resource limitations and constraints • target market.
3-D modelling and animation software may include:	• 3ds Max • Blender • Cinema 4D • Houdini • Lightwave • Maya • Modo • XSI • Z Brush.
Simple 3-D objects may include:	• cube • cylinder • pyramid • sphere • torus.
Texture-mapping techniques may include:	• bump • displacement • light • normal • parallax • UV.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM526A Create complex 3-D characters for games

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to create complex 3-D characters for games.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Clarify work requirements	1.1 Identify design requirements based on a ***project brief and documents*** 1.2 Using the design requirements, conceptualise appropriate characters for the ***game environments, design, level specifications*** and ***genre*** 1.3 Gather and analyse ***reference materials*** to help with design and visualisation of 3-D character models 1.4 Fill in any missing requirements
2. Conceptualise 3-D character design	2.1 Document design decisions that are made before and during the design conceptualisation 2.2 Outline the key attributes for the character 2.3 Discuss ***design considerations*** and generate ***concept art*** for 3-D characters
3. Identify software tools that can be used to create 3-D characters	3.1 Identify texturing tools, including ***painting, shading and texturing software*** and ***3-D modelling tools***
4. Create complex 3-D characters	4.1 Create base 3-D character models 4.2 Refine and polish the character models to a near finalised state 4.3 Create and map textures to apply to the 3-D character models 4.4 Refine the textures and apply ***shaders*** 4.5 Check integrity and modify the 3-D characters until they meet design requirements 4.6 Present model to relevant personnel
5. Present the finished 3-D characters to relevant personnel	5.1 Present the finished 3-D characters to relevant ***personnel*** 5.2 State how the design decisions have met the 3-D character's design requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - interpret briefs, work instructions, and technical and conceptual information
  - analyse documentation and images to inform design of environment specifications
- initiative and enterprise skills to visualise and develop concepts
- communication skills to:
  - check and confirm design requirements
  - collect, interpret and communicate in visual and written forms effectively for various audiences, including engineers and artists
  - communicate complex designs in a structured format drawn from industry standards, styles and techniques
  - communicate technical requirements related to software development, graphics requirements and code development to supervisors and other team members
  - contribute to and work in a collaborative team
  - give and receive constructive feedback
  - provide practical advice, support and feedback to colleagues and management
  - realise a unified game-play vision
  - translate design requirements into specifications
- planning and organisational skills to:
  - appropriately refer decisions to a higher project authority for review and endorsement
  - delegate tasks and responsibility appropriately
  - establish clear roles and goals to achieve required game development outcomes
  - meet project deadlines
  - organise equipment and resources to achieve required outcomes
  - organise own time to meet milestones
  - prioritise work and meet critical milestones and deadlines
- problem-solving skills to recognise and address potential quality issues and problems at design development stage
- research skills to undertake practical, technical and desktop research into design requirements and software tools
- learning skills to accept peer feedback and make improvements
- technical skills to:
  - resolve basic hardware, software and other technical issues associated with game production
  - use correct file formats and archiving procedures.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required knowledge

- budgeting and scheduling considerations for game design
- capabilities and constraints of game engines
- computer game development, including specific terminology
- current game-play hardware and software products
- human resources required in the process of creating a game and their respective skills and technology requirements
- technical constraints that hardware imposes on software development, graphics requirements, code development and creative visual design.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • plan and manage the design process for creating 3-D character models • incorporate design specifications and create complex 3-D character models • produce and deliver documentation showing evidence of concepts creation and design decisions.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of candidate's work samples, such as 3-D models or simulated workplace activities • written or verbal questioning to assess candidate's knowledge of interactive 3-D environments • review of:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• 3-D design documents • concept art • logbooks • presentations • storyboards • textures.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Project brief and documents may include:	• concept drawings • designer's notes • development environment description • level design document • storyboard • style and design principles • style and medium • target market information • technical design document • technical design review process.
Game environments may include:	• alien • fantasy

© Commonwealth of Australia, 2025 Future Skills Organisation

	• foreign
	• historical
	• naturalistic, for example:
	  • arctic
	  • desert
	  • jungle
	  • mountainous
	• post-apocalyptic
	• urban.

Game design may include:	• background story:
	  • full motion video (FMV) sequence
	  • storyboard for potential introductory
	• concept illustrations or graphics that enhance the comprehension of the document
	• design for all level missions
	• game mechanics
	• illustrations of level with all significant points of interest
	• introduction and overview (one page synopsis)
	• key selling points, including intended audience, genre and platforms
	• production details
	• scripts required for level
	• synopsis and scripts for each level
	• title and cover art (art must be colour and of a reasonable resolution for high quality printing)
	• walk through for at least one mission or level.

Level specifications may include:	• level-specific components:
	  • allies
	  • base building and location
	  • cinematic, such as cut scenes
	  • colours
	  • enemies
	  • graphics
	  • health
	  • lighting
	  • non-player characters
	  • resources and their harvesting
	  • sounds and music
	  • weapons
	• location
	• stages

© Commonwealth of Australia, 2025 Future Skills Organisation

	• transportation devices:
	  • buttons
	  • doors
	  • keys
	  • teleporters
	  • tunnels and passageways.

Game genre may include:	• adventure
	• alternative reality
	• ancient
	• casino
	• cyberpunk
	• educational
	• edutainment
	• fantasy
	• first person shooter
	• flight shooter
	• flight simulation
	• futuristic
	• god simulation
	• massively multi-player online game
	• massively multi-player online role-playing game
	• medieval
	• modern
	• multi-player
	• post-apocalyptic
	• puzzle
	• racing shooter
	• racing simulation
	• real-time strategy
	• role-playing game
	• science fiction
	• side-scrolling shooter
	• single player
	• sports
	• strategy, including:
	  • action strategy
	  • turn-based strategy
	• tactical combat.

Reference materials may include:	• 3-D animations • 3-D movies • games

© Commonwealth of Australia, 2025 Future Skills Organisation

	• magazines • media • movies • people • TV shows.
Design considerations may include:	• aesthetics • cultural context • genre • resource limitations and constraints • target market.
Concept art may include:	• illustrations • models • settings • sketches • storyboards.
Painting, shading and texturing software may include:	• 3-D paint • Illustrator • Mudbox • Photoshop • Z Brush.
3-D modelling tools may include:	• 3ds Max • Blender • Cinema 4D • Houdini • Lightwave • Maya • Modo • XSI • Z Brush.
Shaders may include:	• Art style • Blinn-Phong • Comic • Cook-Torrance • Drawn look • Gouraud • Lambert • Oren-Nayar • Phong • Toon • Ward anisotropic.

© Commonwealth of Australia, 2025 Future Skills Organisation

Personnel may include:	• animators • concept artists • game-play designers • graphic designers • instructional designers • modellers • motion capture technicians • other specialist staff • other technical staff • producers • programmers • project manager • sound engineers • team members • technical director • writers.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM527A Integrate database with online game

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to integrate a database with an online game, where the relationship between the game server and the database server is also considered a client-server relationship on a local area network.

Application of the Unit

This unit applies to programmers, analyst programmers and game programmers responsible for the development of code to connect a computer game to a database.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria

1. Install application programming interfaces (APIs) suitable to the game's data source provider	1.1 Research appropriate APIs 1.2 Identify specific APIs as suitable for the game architecture and ***data source provider*** 1.3 Install nominated APIs on game development computers
2. Define and use a connection to the data source	2.1 Define game data source connection parameters 2.2 Store connection parameters in ***external text-based configuration file*** 2.3 Open and close connection to the game data source
3. Configure and use connection pooling	3.1 Configure connection pooling in the database management system 3.2 Define connection pool parameters for minimum connections, maximum connections and idle connections 3.3 Minimise use of database resources through the use of connection pooling 3.4 Test and verify use of connection pooling
4. Pass embedded structured query language (SQL) to the database	4.1 Define database connection property 4.2 Compose SQL statement or command to be passed to the database 4.3 Test, debug and execute the SQL statement
5. Execute a stored procedure on a database	5.1 Call a stored procedure on the database using command callable statement 5.2 Define and pass ***parameters*** to the stored procedure 5.3 Test, debug and execute database stored procedure
6. Modify database data	6.1 Retrieve multi-row multi-column result sets from the database into the game application domain 6.2 Insert new records into the database 6.3 Update existing database records 6.4 Delete existing database records
7. Integrate data from the database with the game application domain	7.1 Integrate data from a ***forward-only and read-only cursor*** into the game application domain 7.2 Incorporate data from an ***updateable cursor*** into the game

© Commonwealth of Australia, 2025 Future Skills Organisation

	application domain
8. Test and debug database integration code	8.1 Test database integration code 8.2 Document test results 8.3 Determine errors and exceptions and document solutions 8.4 Debug all errors and exceptions 8.5 Assess all data modifications in the database and document any errors 8.6 Correct all causes to data modification errors

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse game application domain and game architecture and determine appropriate APIs as prescribed by the selected proprietary or database industry standards
  - determine appropriate connection pooling implementation requirements
  - determine appropriate development environments for the game architecture and database integration functionality
- communication skills to:
  - describe and evaluate data access and data modification architectures with game designers and game architects
  - negotiate game data requirements with project managers, game designers and game architects
  - propose data access and modify functionality to meet the needs of the online game
- initiative and enterprise skills to:
  - assess proposed database integration architectures within the context of existing game development technologies, development infrastructure and game industry standards
  - recommend solutions to difficulties or flaws identified with the integration of the database and the online game
- learning skills to:
  - acquire the skills and knowledge required to integrate a database with an online game
  - ensure the use of leading edge industry developments and industry standards
- literacy skills to:
  - delineate existing game architecture documentation

© Commonwealth of Australia, 2025 Future Skills Organisation

  - document database integration specifications for an online game
  - interpret and understand industry standards, game architecture standards, and database standards
- planning and organisational skills:
  - organise resources, documentation and infrastructure elements required for the integration of a database with an online game
  - plan the effective integration of a database with an online game
- problem-solving skills to:
  - debug code, identify code bugs and resolve all code exceptions
  - identify and implement solutions to problems with the integration of a database with an online game
  - identify problems with SQL and stored procedures and implement solutions
- research skills to:
  - enhance knowledge of industry standards and trends related to the integration of a database with an online game
  - identify and locate sources of information that provide solutions to technical problems
  - identify sources of information and documentation required to plan and implement the integration of a database with an online game
- technical skills to:
  - implement complex code algorithms required for the integration of a database with an online game
  - implement exception handling routines in code
  - improve the efficiency of code by refactoring
  - use an integrated development environment to build database integration code
  - write code to integrate a database with an online game.

Required knowledge

- relational database theory, including:
  - how to create and test stored procedures
  - how to create ‘embedded’ SQL and assign parameters in code for filtering
  - how and why tables are related and how relationships between tables are implemented
  - how SQL is used to retrieve data from multiple tables
  - how inserts to tables in parent/child relationships can be implemented using artificial (auto-generated) primary key values
  - how to implement cascading updates and deletes
- game development
- integrated development environments, including:
  - data access APIs and associated classes required for the integration of a database with an online game

© Commonwealth of Australia, 2025 Future Skills Organisation

  - online help and documentation required for research and debugging code
  - user authentication and authorisation management
- methodologies and techniques required for effective and well-factored object-oriented program (OOP) code, including:
  - class implementation
  - control of logic flow
  - use of collections and lists
  - use of OOP concepts, such as inheritance, encapsulation and overloading
- web development.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • add database functionality to an online game • display and modify the database data provided by game-play input.
Context of and specific resources for assessment	Assessment must ensure access to: • game design specification and requirements documentation • game server • database server • integrated development environment software and hardware • browsers for browser-based games • game consoles for console-based games • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of an online game that can access, display and update game state data stored in a database • verbal and written questioning to assess the knowledge associated with the integration of a database with an online game.

© Commonwealth of Australia, 2025 Future Skills Organisation

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Data source provider may include:	• DB2 • Infomix • Ingres • Microsoft Access • Microsoft SQL (MS SQL) server • Mini SQL (mSQL) • MySQL • Oracle • Sybase.
External text-based configuration file may include:	• any text-based file format that will not require re-compilation if properties of the connection to the database change • in ASP.Net, framework the web configuration (web.config) file and machine configuration (machine.config) file • files formatted as eXtensible markup language (XML) files or documents • traditional ASCII-based text files with file extension of .ini.
Parameters may include:	• data type property appropriate to the data source provider • direction property defining either input or output • value property derived from the actual game play.

© Commonwealth of Australia, 2025 Future Skills Organisation

Forward-only and read-only cursor may include:	• data-reader object • forward-only record set • Java forward-only result set.
Updateable cursor may include:	• data-set object • record-set object • result-set object.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM528A Create games for mobile devices

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to create games for mobile devices.

Application of the Unit

This unit applies to concept artists, games designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Research and document mobile gaming device technologies	1.1 Research, identify and describe current ***mobile devices*** suitable for games 1.2 Identity a suitable mobile device 1.3 Identify ***technical limitations and constraints*** of the mobile gaming device 1.4 Research and identify ***tools and technology*** for creating applications for the mobile device 1.5 Identify a suitable tool for the mobile gaming device 1.6 Research, identify and describe market successful mobile game devices
2. Plan the project	2.1 Create or obtain ***project brief and documents*** 2.2 Identify ***game production assets*** required to meet creative and production requirements and ***technical specifications*** 2.3 Define developer roles and skills 2.4 Create a ***schedule*** for production and testing 2.5 Determine strategies for ***monitoring production progress*** against schedule
3. Create game assets	3.1 Create graphics assets using 3.2 Create music and sound assets
4. Develop game prototype	4.1 ***Develop game prototype*** using a ***programming language*** 4.2 Create and ***check game-play elements*** according to creative and technical requirements 4.3 Test and run game play on mobile device 4.4 Identify if the game meets creative, production and technical requirements
5. Evaluate game prototype	5.1 Demonstrate initial prototype to relevant ***personnel*** 5.2 ***Evaluate*** against criteria, including achievement of a creative and user-friendly product 5.3 Discuss and agree on required changes

© Commonwealth of Australia, 2025 Future Skills Organisation

	5.4 Assist if required in ***tests and user trials***
	5.5 Evaluate feedback from user trials
	5.6 Confirm endorsement from relevant personnel to develop prototype into complete product
6. Transform prototype into final proof of concept prototype	6.1 Make necessary changes as indicated by user trials
	6.2 Integrate all game elements as required by specifications
	6.3 ***Polish*** the game

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to evaluate documentation and images to inform implementation of game specifications
- communication skills to:
  - check and confirm design requirements
  - collect, interpret and communicate in visual and written forms effectively for various audiences, including engineers and artists
  - communicate complex designs in a structured format drawn from industry standards, styles and techniques
  - communicate technical requirements related to software development, graphics requirements and code development to supervisors and other team members
  - provide practical advice, support and feedback to colleagues and management
- initiative and enterprise skills to exercise a high level of creative ingenuity in game design and innovation
- literacy and numeracy skills to:
  - develop game design and technical design documents
  - read briefs, work instructions, and technical and conceptual information
  - write instructions for the normal and competent operation and testing of all game features and permutations
- management skills to coordinate teams in order to effectively extract useful feedback
- planning and organisational skills to:
  - balance talent, experience and budget
  - delegate tasks and responsibility appropriately
  - establish clear roles and goals to achieve required game development outcomes
  - meet project deadlines

© Commonwealth of Australia, 2025 Future Skills Organisation

  - organise equipment and resources to achieve required outcomes
  - organise own time to meet milestones
- problem-solving skills to recognise and address potential quality issues and problems at design development stage
- research skills to undertake practical, technical and desktop research
- teamwork skills to:
  - contribute to and work in a collaborative team
  - realise a unified game-play vision
- technical skills to:
  - resolve basic hardware, software and other technical issues associated with game production
  - translate design requirements into specifications
  - use correct file formats and archiving procedures.

Required knowledge

- basic programming techniques
- budgeting and scheduling considerations for game design
- computer game development, including specific terminology
- current game-play hardware and software products
- risk and critical path management
- technical constraints that hardware imposes on software development, graphics requirements, code development and creative visual design
- techniques for concept visualisation and development.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • apply a variety of strategies for game trialling and testing • demonstrate original and innovative approaches to the creative development of a game • implement game development and production strategies • maintain integrity of the design brief and game design document

© Commonwealth of Australia, 2025 Future Skills Organisation

	• undertake risk assessment and critical path planning • produce a working game on a mobile device.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of a working, original game on a mobile device
	• direct observation of candidate participating in game document development activities
	• verbal questioning or interview concerning aspects of game development, including:
	  • capability of game engines and software tools to meet the requirements of the brief
	  • evaluating game prototypes from technical, design and game-play perspectives
	  • game testing and trialling procedures
	  • maintaining integrity of the design brief and game design document
	  • risk assessment and critical path planning
	  • translating design and technical specifications into working game prototypes.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Mobile devices may include:	• mobile phones • personal digital assistants (PDAs) • tablets.
Technical limitations and constraints may include:	• current technology • future technology and release date • graphics capabilities • memory • pixels • platforms • polygon count • processor speed • software capability • storage space.
Tools and technology may include:	• compilers • debugging software • development software • efficiency • flexible systems suitable for non-programmers • graphics • graphics system design • integrated development environments • middleware • operating systems • plug-in tools • programming for game integration • rendering • sound • system architecture for real time game environments and simulations • tools for designers and play analysis.
Project brief and documents may include:	• concept drawings • designer’s notes • development environment description

© Commonwealth of Australia, 2025 Future Skills Organisation

	• game design document • game-play designs • help notes • information design • operating manual • storyboard • style and design principles • style and medium • target market information • technical design document • technical design review process.

Game production assets may include:	• current work files
	• development kits
	• existing digital product libraries:
	  • character models
	  • environments
	  • motion capture data
	  • sound effects
	• game engines, including customised game engines
	• personnel.

Technical specifications may include:	• backup procedures
	• delivery platform
	• difficulty levels
	• disc or memory space
	• format for final product
	• navigation design
	• pixel size
	• polygon count
	• specifications for phases of game development:
	  • alpha version - pre-production
	  • beta version - playable prototype
	  • gold version - completed game
	  • trialling and testing
	• systems and workplace standards for documentation, including:
	  • computer file management
	  • job lists
	  • progress reports
	• source code and game assets archiving
	• target market.

© Commonwealth of Australia, 2025 Future Skills Organisation

Schedule may involve:	• allocating work tasks in consultation with other team members
	• analysing key requirements of the brief
	• assessing concept viability against resource availability
	• conducting risk assessment regarding possible issues and constraints and potential solutions
	• creating an overall project plan and schedule
	• determining workflow with consideration to available resources
	• identifying key milestones and associated deliverables:
	  • alpha version - pre-production
	  • beta version - playable prototype
	  • gold version - completed game
	  • trialling and testing
	• identifying stakeholders and devising strategies to meet stakeholder needs
	• identifying the critical path
	• researching background information
	• setting project objectives against achievable timeframes.

Monitoring production progress may involve:	• balancing quality and scheduling requirements
	• coordinating the efforts of development, quality assurance, sales, marketing, public relations and finance
	• ensuring the timely production of assets to brief requirements, including:
	  • animation components
	  • graphic
	  • images
	  • interfaces
	  • text
	  • video
	• identifying and applying testing procedures
	• monitoring workload allocated to individual personnel
	• progressive game testing to ensure playability
	• renegotiating variations and schedule slippage ahead of milestone dates
	• sound identifying and applying contingency strategies.

Developing game prototypes may involve:	• bug fixing, bug databases, creating stable code bases and game tuning • building flexible systems configurable by others • code review and test harnesses • designing and implementing tests and incorporating feedback from quality assurance • developing a comprehensive design for all missions and

© Commonwealth of Australia, 2025 Future Skills Organisation

	levels, including concept visuals
	• developing a walkthrough for at least one mission or level
	• developing story synopsis and scripts for each level
	• knowledge of games as dynamic systems:
	  • applying game tuning strategies in light of feedback from actual play
	  • characteristics of a balanced game
	  • working with quality assurance and understanding play-test feedback
	• use of appropriate tools and skills for fast, interactive development
	• user-guide development.

Programming language may include:	• ActionScript • C • C# • C++ • Flash Lite • Java • Object Pascal • Objective-C • Pascal • Python • VB.NET.
Check game-play elements may involve:	• chance • fun • logic • playability • rules • skill • strategy.
Personnel may include:	• animators • concept artists • game-play designers • graphic designers • instructional designers • modellers • motion capture technicians • producers • programmers • project manager • sound engineers • team members

© Commonwealth of Australia, 2025 Future Skills Organisation

	• technical director • writers • other specialist or technical staff.

Evaluating game prototypes may involve:	• examining and analysing the impact of decisions, after the fact:
	  • business decisions
	  • design decisions
	  • methodology and process decisions
	• product 'post-mortems', reviewing actual use of resources to achieve outcomes against initial project plan and schedule.

Tests and user trials may involve play test procedures:	• determining criteria for measurement of success with a given audience • play testing to monitor player frustration, progress and enjoyment • selecting test subjects • testing game with target market and other diverse populations.
Polish may involve enhancing:	• game play • graphics • user control • user interface.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM529A Analyse business opportunities in the digital games environment

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to analyse business opportunities in the digital games environment.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Describe the Australian digital games industry and development companies	1.1 Identify the ***large and small organisations in the Australian digital games industry***
	1.2 Identify recent projects undertaken by small and large organisations in the Australian digital games industry
	1.3 Identify resources required for the production of a digital game in a small business environment
	1.4 Describe the process of subcontracting various production elements to other small businesses
2. Describe the structure of a game-development team	2.1 Identify the roles of ***engineers, artists, game designers,*** producers and ***additional staff***
	2.2 Describe the skills required to occupy each role in a game-development team
	2.3 Describe the interaction and collaboration between roles
3. Investigate the process of starting an independent game development business	3.1 Identify the ***major factors involved in starting a small business*** in the digital games industry
	3.2 Identify the ***legal requirements*** and ***financial management*** of operating a small business
	3.3 Identify the legal protection of the small business operator and the dissolution procedures for a small business
4. Evaluate the role of the Australian government and other organisations related to digital game production	4.1 Identify the role of the ***Australian government*** and other organisations affecting the digital games industry
	4.2 Identify the influence of the Australian government related to game production and marketing
	4.3 Discuss the effect of rating standards on digital game production and ***marketing***
5. Review copyright and intellectual property laws	5.1 Discuss copyright and intellectual property laws related to digital game development
	5.2 Undertake a review of the current state of national and international copyright pertaining to ***digital game assets***
	5.3 Incorporate the conventions of copyright related to the

© Commonwealth of Australia, 2025 Future Skills Organisation

	production of a digital game project

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse documentation and images to the digital games environment
  - interpret briefs, work instructions, and technical and conceptual information
- communication skills to:
  - check and confirm design requirements
  - collect, interpret and communicate in visual and written forms effectively for various audiences
  - communicate technical requirements related to structuring a game development team to supervisors and other team members
  - provide practical advice, support and feedback to colleagues and management
- literacy and numeracy skills to:
  - document research
  - produce analytical documents
- management skills to manage teams in order to effectively extract useful feedback
- planning and organisational skills to:
  - meet project deadlines
  - organise equipment and resources to achieve required outcomes
  - organise own time to meet milestones
- problem-solving skills to recognise and address potential quality issues when creating documentation
- research skills to:
  - undertake practical, technical and desktop research into current business practice in the digital games environment
  - identify crucial components of a digital game development team
- self-management skills to organise research tasks and document findings
- teamwork skills to contribute to and work in a collaborative team
- technical skills to:
  - use correct file formats and archiving procedures
  - resolve basic hardware, software and other technical issues associated with game production.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required knowledge

- computer game development, including specific terminology
- current game-play hardware and software products
- environmental impact and sustainability considerations
- human resources required in the process of creating a game and their respective skills and technology requirements
- OHS requirements for:
  - ergonomics
  - electrical safety
  - materials handling
  - physical hazards, including lifting
- risk and critical-path management
- technical constraints that hardware imposes on software development, graphics requirements, code development and creative visual design.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • demonstrate research skills to identify key roles for a game development team • document skills related to business opportunities in the digital games industry • undertake risk assessment and critical path planning • conceptualise a business plan for an independent games development business.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • internet access for research purposes • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• review of work samples or simulated workplace activities
	• verbal questioning or interview concerning aspects of game document development, including:
	  • industry standards for the game development process
	  • resources required for game development
	• evaluation of game documentation related to game development activities.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Large and small organisations in the Australian digital games industry may include:	• animation production companies • digital effects companies • games and gaming companies • pre- and post-production houses • television stations • training and simulation training organisation.
Engineers may include:	• game-play programmers • sound engineers

© Commonwealth of Australia, 2025 Future Skills Organisation

	• tools programmers.
Artists may include:	• 3-D modellers • animators • concept artists • lighting artists • motion capture acting • sound designers • texture artists • voice acting.
Game designers may include:	• game-play designers • level designers • writers.
Additional staff may include:	• administrative • managers • marketing • technical support.

Major factors involved in starting a small business may include:	• business capital and types of finance
	• business plans: 5 year or 10 year
	• business structures: sole trader, partnerships, limited partnership, proprietary, and limited company
	• contingency planning
	• financial plans
	• insurance, such as:
	  • personal
	  • equipment and contents
	  • public liability
	• rationale for starting a small business
	• registration of a business name
	• selecting a business location
	• setting-up procedures for small business.

Legal requirements may include:	• copyright and intellectual property legislation • workplace legislation and requirements • acknowledging the authorship of others who have collaborated in project activities • avoiding any types of conflict of interest • being honest about professional experience and capabilities • maintaining a commitment to the development of innovative design work of the highest quality • maintaining confidentiality of all client information • observing safe and healthy working practices at all times and encouraging others to do so • refusing any form of hidden compensation outside agreed

© Commonwealth of Australia, 2025 Future Skills Organisation

	contractual arrangements • respecting the work of other designers in fair and open competition.
Financial management may include:	• budgets • business confidentiality • business ethics • conflict of interest concerns • financial control systems • record keeping.
Australian government may include:	• Australian Taxation Office • NSW Film and Television Office • NSW Government Small Business Services • NSW Office of Fair Trading.
Marketing may include:	• game trailers • magazine publications • online reviews • television advertisements • word of mouth.
Digital game assets may include:	• 2-D art • 3-D characters • 3-D environments • audio • concept art • game designs • game engine • textures.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM530A Develop and implement physics in a 3-D digital game

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to integrate a physics and rendering engine into a 3-D digital game.

Application of the Unit

This unit applies to game engine developers, gameplay programmers and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Develop a game world system	1.1 ***Develop code*** using a ***programming language*** and create instances of the ***rendering engine***, the scene manager and ***physics engine's*** world objects 1.2 Constrain the frame rate to a ***desired frame rate***
2. Develop components to support game world creation using physics	2.1 Create and implement ***game physics system*** 2.2 Implement game object ***primitives*** 2.3 Use or develop a physics debugger to show collision frames
3. Develop an understanding of constraint dynamics	3.1 Generate game objects or physics bodies constrained by ***joints*** 3.2 Build a ragdoll using the ***game physics system***
4. Develop an understanding of physics interactivity	4.1 Use the game physics system to ray cast the scene 4.2 Implement a player controlled model 4.3 Implement and develop ***game physics system models***
5. Develop an interactive scene	5.1 Use primitives to build a scene 5.2 Use trigger volumes to fire off events 5.3 Capture collision events with call-backs 5.4 Use a toggle for collision frames
6. Compile a report	6.1 Build class diagrams for all objects 6.2 Describe techniques used to create interactivity 6.3 Describe the objects and when they were used 6.4 Document the libraries used

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- analytical skills to:
  - interpret briefs, documents and conceptual information
  - analyse design requirements for game physics systems
- communication skills to:
  - check and confirm design requirements
  - collect, interpret and communicate in visual and written forms effectively for various audiences, including engineers and artists
  - communicate complex designs in a structured format drawn from industry standards, styles and techniques
  - communicate technical requirements related to software development, graphics requirements and code development to supervisors and other team members
  - provide practical advice, support and feedback to colleagues and management
  - translate design requirements into specifications
- initiative and enterprise skills to exercise a high level of creative ingenuity in creating a simulated physics environment with innovation
- literacy and numeracy skills to:
  - develop technical design documents
  - read briefs, work instructions, and technical and conceptual information
  - write instructions for the normal and competent operation and testing of all features and permutations
  - understand basic physics
  - understand game mathematics
- management skills to manage teams in order to effectively extract useful feedback
- planning and organisational skills to:
  - appropriately refer decisions to a higher project authority for review and endorsement
  - balance talent, experience and budget
  - delegate tasks and responsibility appropriately
  - establish clear roles and goals to achieve required game development outcomes
  - meet project deadlines
  - organise equipment and resources to achieve required outcomes
  - organise own time to meet milestones
- problem-solving skills to recognise and address potential quality issues and problems at design development stage
- research skills to undertake practical, technical and desktop research into advanced effects
- self-management skills to complete assigned tasks
- teamwork skills to:
  - realise a unified game-play vision
  - contribute to and work in a collaborative team
- technology skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

- use correct file formats and archiving procedures
- resolve basic hardware, software and other technical issues associated with 3-D game environments.

Required knowledge

- basic programming techniques
- object-orientated language skills
- computer game development, including specific terminology
- current game-play hardware and software products
- environmental impact and sustainability considerations
- human resources required in the process of creating a game and their respective skills and technology requirements
- OHS requirements for:
  - ergonomics
  - electrical safety
  - materials handling
  - physical hazards, including lifting
- risk and critical path management
- technical constraints that hardware imposes on software development, graphics requirements, code development and creative visual design
- techniques for applying concept development skills
- techniques for applying concept visualisation skills.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop an interactive game that implements game physics • identify, evaluate and use a physics library.
Context of and specific resources for assessment	Assessment must ensure access to: • computer terminal • integrated development environment

© Commonwealth of Australia, 2025 Future Skills Organisation

	• word-processing application • the internet • physics libraries • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of working executable that implements game physics • review of work samples or simulated workplace activities • review of fault-finding exercises • evaluation of reports and logbooks.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Develop code may involve use of:	• code libraries • code objects • control loop

© Commonwealth of Australia, 2025 Future Skills Organisation

	• operating system code • programming language.
Programming language may include:	• ActionScript • C • C# • C++ • Flash Lite • Java • Object Pascal • Objective-C • Pascal • Python • VB.NET.

Render engine may include:	• game engines, such as:
	  • BigWorld
	  • Blender3D
	  • Dunia
	  • Half Life (Source)
	  • Jade
	  • Quake
	  • Riot
	  • Scimitar
	  • Second Life
	  • Unreal
	  • Unity
	• OGRE
	• Irrlicht.

Physics engine may include:	• Ageia PhysX • Bullet • Havok physics • Newton game dynamics • open dynamics engine (ODE).
Desired frame rate may include:	• 120 fps • 30 fps • 60 fps.

Game physics system may include:	• call-backs, such as:
	  • on collision effect game play
	• collision
	• combat:
	  • bullets

© Commonwealth of Australia, 2025 Future Skills Organisation

	• debris • explosions • water • wreckage • gravity • movement: • attacking • dying • jumping • movement • swimming.
Primitives may include:	• 3-D models • animated 3-D models or characters • characters • compound shapes • convex hulls • serialisation.
Joints may include:	• ball and socket • corkscrew • hinge • slides • universal.
Game physics system models may include:	• player control, such as: • attacking • dying • jumping • movement • swimming • spline movement • wandering AI body.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAGAM531A Complete compositing to create elements for the 3-D and digital effects environment

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to composite photographic, 3-D and digital effects elements.

Application of the Unit

This unit applies to compositors, matte painters, concept artists, modellers, animators, game designers, directors and other personnel working in the film, television and game development industries.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Confirm compositing requirements	1.1 Undertake consultation with the client to develop the compositing brief 1.2 ***Plan and schedule*** compositing work 1.3 Identify appropriate ***software tools, equipment and media*** for compositing work 1.4 Consult with relevant ***personnel*** in regard to technical aspects of proposed compositing 1.5 Confirm compositing requirements with client prior to work commencement
2. Prepare elements for compositing	2.1 Select resolution and aspect ratio for final composited output 2.2 Create digitised ***elements*** through non-digital means 2.3 Identify and obtain source plates or layers, images and other elements for compositing 2.4 Modify or repair elements that are problematic or inconsistent with desired outcomes 2.5 Undertake colour correction of plates and elements 2.6 Create additional elements where required 2.7 Generate mattes
3. Composite images to achieve an integrated result	3.1 Track and stabilise images to be composited 3.2 Match cameras, lighting and shadows, and add motion blur as required to finalise composite 3.3 Integrate plates, layers or elements in the correct sequence using compositing software 3.4 Incorporate grain where required 3.5 Present test composites to client for approval
4. Render composited images and save files	4.1 ***Optimise composited images for rendering*** 4.2 Undertake rendering process using efficient levels of resources

© Commonwealth of Australia, 2025 Future Skills Organisation

	4.3 Store or archive rendered files in the specified ***output format*** 4.4 Review completed render to ensure quality and compliance with system requirements and client brief
5. Present composite to client for final approval	5.1 Present final composited images for client approval 5.2 Make adjustments to composited images where required to meet client requirements

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to communicate and negotiate effectively with suppliers, colleagues and clients
- planning and organisational skills to:
  - manage time and resources
  - optimise equipment and resources to achieve desired technical outcomes
  - prepare hardware and software resources for compositing
- problem-solving skills to solve technical problems associated with compositing
- safety awareness skills to demonstrate safe and healthy workplace practices
- technical skills to:
  - composite a range of elements using computer software
  - efficiently render composited scenes
  - interpret client compositing briefs
  - use advanced computer graphics software
  - use compositing techniques to develop and realise client vision.

Required knowledge

- 3-D modelling, animation and visual effects development
- aspect ratios for image output
- camera, lighting and shadow matching
- efficient sizes and appropriate formats for composited files
- game development
- post-production scheduling and sequencing
- range of compositing software available

© Commonwealth of Australia, 2025 Future Skills Organisation

- rendering principles
- safe and healthy workplace practices associated with use of computer applications.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • adhere to design brief requirements • complete compositing tasks to the required level of quality according to the brief • use and refine elements for consistency, best image quality and visual impact • adhere to system requirements related to file size, format and storage for efficient retrieval • apply safe and healthy work methods while undertaking compositing work.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • compositing and output briefs • elements to be composited • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • case studies • work samples or simulated workplace activities • observation of the learner observing appropriate and safe work practices, and maintaining and organising their work space • verbal questioning or interview to confirm knowledge of compositing processes, and methods used to resolve issues and problems • informal individual presentations demonstrating progress toward resolving issues arising in a composite

© Commonwealth of Australia, 2025 Future Skills Organisation

	• written or interactive computer-based test or quiz • fault-finding exercises • reports and logbooks.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Plan and schedule may include:	• booking facilities • checking availability of resources for compositing • discussions with team members and stakeholders • production or pipeline planning • scheduling and balancing a range of compositing activities to meet client time line • undertaking technical and design research.
Software tools may include:	• After Effects • Avid • Blender • Combustion • D2 Nuke • Digital Fusion • Final Cut Pro • Flame • Flint

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Fusion • Illustrator • Inferno • Inferno • Lustre • Photoshop • Premier • Renderman • Shake.
Equipment and media may include:	• compositing software • computer workstation • ergonomic furniture • hubs • input device, such as stylist tablet, keyboard and mouse • output device, such as monitor, TV, printer and speakers • render farm • render network distribution software • rendering software • switches.
Personnel may include:	• animator • compositor • designer • director • manager • matte painter • modeller • production assistant • programmer • render wrangler • supervisor • systems administrator • technical director • texturer • visual effects designer.
Elements may include:	• background plates • CGI characters or objects • filmed characters • layers • matte paintings • visual effects.
Optimisation of	• assessing options with key personnel

© Commonwealth of Australia, 2025 Future Skills Organisation

composited images for rendering may involve:	• deleting any unnecessary geometry and components • optimising and refining for best render performance • organising output • preparing layer or pass control • preparing opacity mattes and alpha channels • preparing renderer attributes • rendering • selection of most appropriate renderers for specific outcomes • testing and diagnosing rendering issues.
Output format may include:	• 35mm • 65mm • Cinemascope • DVD • HDTV • IMAX • NTSC • PAL • Quicktime • Super 35.

Unit Sector(s)

Game development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT101A Operate a personal computer

Modification History

Version	Comments
ICAICT101A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to operate a personal computer (PC) in a home or small office environment.

This entry level unit provides the learner with information technology (IT) literacy skills in setting up a personal computer, accessing files with application programs, sending and retrieving emails, using the internet, using peripheral devices, such as printers, scanners, webcams and data projectors, applying basic security procedures and power-management settings, and backing up and shutting down a personal computer.

Application of the Unit

This unit applies to workers who require the IT literacy skills to operate a personal computer in a small office environment, such as hospitality industry, real estate office, medical centre and school office.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Prepare to use the personal computer	1.1 Identify ***physical components*** and associated ***peripheral devices*** of the ***personal computer*** to become familiar with the available network 1.2 Check physical ***connectivity*** of devices to ensure correct operation and performance 1.3 Boot up and follow ***procedures*** to activate the computer
2. Manage computer configurations	2.1 Alter the computer ***settings*** to best suit the user 2.2 Configure ***power-management settings*** to minimise power consumption as an environmentally sustainable measure 2.3 Identify ***operating system*** and the ***application programs*** loaded on the computer to determine computer capability 2.4 Conduct basic software installation and removal to improve computer capability 2.5 Navigate and manipulate desktop environment to create and customise desktop icons and access application programs
3. Access and use basic application programs	3.1 Open a folder with file documents containing ***basic office applications***, make ***minor changes*** and save in a different folder 3.2 Send and retrieve a simple email message using the desktop icon to communicate with other parties 3.3 Access the internet using the web browser to view and

© Commonwealth of Australia, 2025 Future Skills Organisation

	conduct basic web information search 3.4 Use firewall and antivirus and malware scans to reduce ***security risks and threats*** in the system
4. Access and use basic peripheral devices	4.1 Access external storage devices to retrieve, copy, move and save information in different mediums and locations 4.2 Use ***printer settings*** on an installed printer to print a document 4.3 Access ***audiovisual (AV) devices*** to view and play a multimedia file
5. Shut down computer	5.1 Back up important documents and programs to minimise risk of data loss 5.2 Save any work to be retained and close open application programs 5.3 Shut down computer and switch off any unused peripheral devices

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - communicate with peers and supervisors
  - read and write basic workplace documents
  - seek assistance and expert advice
- literacy skills to interpret user manuals and help functions
- technical skills to:
  - apply basic keyboarding skills
  - apply power-management settings
  - back up and save information
  - input user-access details for accessing a PC
  - install and remove software
  - manage mouse for different applications
  - save and retrieve files to and from various locations
  - send and retrieve emails
  - use peripheral and storage devices
  - use the internet.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required knowledge

- basic parts of a computer and various hardware components
- basic software operation and application packages
- basic computer functions, including security functions
- peripheral devices
- storage devices.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • use hardware and software • navigate around the desktop • use system features to perform tasks • save results of work.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • personal computer, including printer, mouse, keyboard and monitor • use of basic software currently used in industry. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of PC operations • direct observation of candidate performing basic PC operations • direct observation of candidate performing a sequence of routine tasks following clear directions.
Guidance information	Holistic assessment with other units relevant to the

© Commonwealth of Australia, 2025 Future Skills Organisation

for assessment	industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Physical components may include:	• keyboard • monitor • mouse • processor.

Peripheral devices may include:	• AV device
	• external memory device
	• multicard reader and writer
	• network element:
	  • broadband router
	  • digital subscriber line (DSL) and cable modem
	  • hub
	  • wireless device
	• personal digital assistant (PDA) and MP3 player
	• printer
	• scanner
	• smartphone
	• tablet
	• uninterruptible power supply (UPS)
	• universal serial bus (USB) dongle, such as:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Bluetooth • flash memory • wireless device.
Personal computer may include:	• communications system • desktop • laptop • server • workstation.

Connectivity may include:	• AV connection
	• cable, wireless, infra-red or Bluetooth connection
	• internal connection or USB dongle
	• network or stand-alone computer
	• ports:
	  • firewire
	  • high definition multimedia interface (HDMI)
	  • printer
	  • USB.

Procedures may include:	• fingerscan • smartcard • user name and password.

Settings may include:	• monitor settings:
	  • brightness
	  • colour
	  • contrast
	• mouse settings:
	  • buttons
	  • speed.

Power-management settings after a period of non-use may include:	• automatic power off • hibernation settings • monitor power-saver settings.

Operating system may include:	• open source
	• proprietary:
	  • Mac
	  • Unix or Linux
	  • Windows.

Application programs may include:	• email • instant messaging • internet or web browsers • internet protocol (IP) voice applications, such as

© Commonwealth of Australia, 2025 Future Skills Organisation

	Skype • media players • office applications • power-management software • search engines • Windows Explorer.
Basic office applications may include:	• media files • PowerPoint • spreadsheets • word processor.
Minor changes may include:	• altering basic text • renaming documents.

Security risks and threats may include:	• security threats:
	  • cookies media used for backup
	  • pop-ups
	  • screen visibility
	• spam
	• trojan horses
	• unauthorised access:
	  • adware
	  • hackers
	  • identity fraud
	  • malware
	  • phishing
	  • spyware
	• viruses
	• web browser risks
	• worms.

Storage devices may include:	• disks:
	  • CD
	  • DVD
	  • blu-ray
	• flash drives
	• server
	• solid state hard drives
	• virtual devices.

Printer settings may include:	• cartridge type • layout • number of copies • orientation

© Commonwealth of Australia, 2025 Future Skills Organisation

	• paper size • paper tray.
Audiovisual devices may include:	• data projector • external monitor • headset • microphone • speakers • webcam or digital camera.

Unit Sector(s)

General ICT

Custom Content Section

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT102A Operate word-processing applications

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to operate word-processing applications and perform basic operations, including creating and formatting documents, creating tables and printing labels.

Application of the Unit

This unit applies to workers who perform a range of routine tasks in the workplace using fundamental knowledge of word processing under direct supervision or with limited responsibility.

Operating a word-processing application is a core function and essential skill for most businesses.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Apply OHS practices	1.1 Use workplace ***ergonomic work practices*** and strategies 1.2 Organise work area ensuring an ***ergonomic work environment***
2. Create documents	2.1 Open word-processing application, create document and add data according to ***information requirements*** 2.2 Use document templates as required 2.3 Use simple ***formatting tools*** when creating the document 2.4 Save document to directory
3. Customise basic settings to meet page layout conventions	3.1 Adjust page layout to meet information requirements 3.2 Open and view different toolbars 3.3 Change ***font format*** to suit the purpose of the document 3.4 Change alignment and line spacing according to document information requirements 3.5 Modify margins to suit the purpose of the document 3.6 Open and switch between several documents
4. Format documents	4.1 Use ***formatting features*** and styles as required 4.2 Highlight and copy text from another area in the document or from another active document 4.3 Insert headers and footers to incorporate necessary data 4.4 Save document in another ***file format***

© Commonwealth of Australia, 2025 Future Skills Organisation

	4.5 Save and close document to ***a storage device***
5. Create tables	5.1 Insert standard table into document 5.2 Change cells to meet information requirements 5.3 Insert and delete columns and rows as necessary 5.4 Use formatting tools according to style requirements
6. Add images	6.1 Insert appropriate ***images*** into document and customise as necessary 6.2 Position and resize images to meet document formatting needs
7. Print documents	7.1 Preview document in print preview mode 7.2 Select basic ***print settings*** 7.3 Print document or part of document from printer

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - communicate with peers and supervisors
  - seek assistance and expert advice
- literacy skills to:
  - interpret user manuals and help functions
  - read and write basic workplace documents
- problem-solving skills to address common operational problems when using word-processing applications
- technical skills to:
  - operate a personal computer (PC)
  - use a keyboard to enter text and numerical data.

Required knowledge

- formatting styles and their effect on formatting, readability and appearance of documents
- organisational requirements for ergonomics, such as work periods and breaks

© Commonwealth of Australia, 2025 Future Skills Organisation

- organisational style guide
- purpose, use and function of word-processing software.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • follow OHS requirements • create, open and retrieve documents • customise basic settings • format documents • create tables • add text, objects and images • save and print documents.
Context of and specific resources for assessment	Assessment must ensure access to: • personal computer and printer • word-processing software currently used in industry • documents detailing organisational style guide or policy and OHS requirements • data suitable for use with word-processing packages • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of word-processing operations • direct observation of candidate creating and formatting documents • review of documents prepared by candidate demonstrating word-processing skills, including formatting, tables and images.
Guidance information	Holistic assessment with other units relevant to the industry sector,

© Commonwealth of Australia, 2025 Future Skills Organisation

for assessment	workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Ergonomic work practices may include:	• pause exercises
	• personal strategies:
	  • chair height
	  • footrests
	  • monitor and keyboard alignment
	  • monitor reflection angle
	• task and postural variety.

Ergonomic work environment may relate to:	• air quality • furniture and storage • lighting • noise • temperature.
Information requirements may include:	• agendas • letters • memos • minutes • other business documents required by the organisation.

Formatting tools may include:	• menu commands within the application:
	  • borders
	  • copy, cut and paste

© Commonwealth of Australia, 2025 Future Skills Organisation

	• help • find and replace • shading • spell check • undo.

Font format may include:	• combination of typeface and other attributes:
	  • pitch and spacing
	  • size.

Formatting features may include:	• bold • hyphenation • italics • underline.
File format may include:	• CSV files • doc files • HTML pages • PDF files • SXW (star office) files • RTF files • text files.
Storage device may include:	• CD • DVD • external hard drive, including universal serial bus (USB) flash drive • internal hard drive • web storage space.
Images may include:	• clip art • graphics • pictures.
Print settings may include:	• layout • number of copies • orientation • paper size • sides.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT103A Use, communicate and search securely on the internet

Modification History

Version	Comments
ICAICT103A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to connect to the internet, securely send and receive emails, search the internet using web browsers and interact securely and in a socially responsible manner with a range of different internet sites.

Application of the Unit

This unit applies to individuals who use business technology to perform a range of routine tasks in the workplace or home office. They use fundamental knowledge of internet connection requirements, email and web browsers to perform tasks under direct supervision or with limited responsibility.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Connect to and access the internet	1.1 Connect to the internet through the existing ***internet connection*** and confirm functionality 1.2 Open an ***internet browser*** and set a home page of personal choice by setting ***internet options*** 1.3 Ensure internet ***browser software security*** 1.4 Adjust the display of the internet browser to suit personal requirements 1.5 Modify toolbar to meet user and internet browser needs 1.6 Access a particular website, note privacy and other conditions of use and retrieve data 1.7 Use ***socially responsible behaviour*** when sharing information on the internet 1.8 Enter uniform resource locator (URL) in address line of internet browser
2. Use email for communications	2.1 Open email application package, create new email message and add addressees 2.2 Compose the text of an email message according to ***organisational guidelines*** and spell check and edit text as required 2.3 Create and add an automatic signature for the user 2.4 Attach ***files*** to the email message where required 2.5 Determine and set a priority and send the email message 2.6 Reply to and forward a received message using available features 2.7 Open and save an attachment to the relevant folder

© Commonwealth of Australia, 2025 Future Skills Organisation

	2.8 Search for, sort and save email message using available settings 2.9 Adjust email accounts to restrict and quarantine possible ***email security*** problems 2.10 Print an email message as required
3. Search the internet	3.1 Review organisational guidelines on internet access 3.2 Open an internet application and locate and access a ***search engine*** on the internet and define search expressions based on the data required 3.3 Enter appropriate key words into the search engine to locate the desired information 3.4 Refine a search depending on outcomes of the original search 3.5 Save search expression results and present them in a report according to the information requirements 3.6 Create a bookmark within the internet browser or a link for the required web page for the key results 3.7 Save the key results in a bookmark folder 3.8 Modify the internet browser options for printing and print a web page 3.9 Close the internet browser
4. Access and use consumer-specific sites on the internet	4.1 Identify, access and review information-specific sites to gain consumer information 4.2 Identify and use ***internet application sites*** to lodge details and gain access and information 4.3 Access and use online forms on the internet
5. Undertake online transactions	5.1 Access an online transaction site 5.2 Ensure security of transaction site 5.3 Enter required information into fields on merchant's website 5.4 Ensure that pop-up dialog boxes, prompts or feedback mechanisms are completed

© Commonwealth of Australia, 2025 Future Skills Organisation

	5.5 Enter, check and make changes to preferred ***transaction options***
	5.6 Complete online transaction
	5.7 Record and archive receipts according to business processes
	5.8 Close down and leave transaction process
6. Conduct an advanced search	6.1 Use search tools and advanced search features
	6.2 Use ***Boolean search*** techniques when required to enhance the search
	6.3 Use multiple or meta-search tools with a range of key words
	6.4 Use search engines particular to a field of knowledge to refine the outcome
	6.5 Access related virtual community sites and newsgroups and note their objectives and operational arrangements
	6.6 Conduct a search with domain names to refine the search
7. Use information that has been located	7.1 Cross-reference information found by using several websites to determine accuracy of information obtained
	7.2 Check date that website was last updated or properties of website to determine currency of information
	7.3 Determine website authority by looking at copyright statements, privacy statements and organisational information
	7.4 Save and print information found in different file forms

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - communicate with peers and supervisors
  - seek assistance and expert advice
  - undertake online transactions

© Commonwealth of Australia, 2025 Future Skills Organisation

- literacy skills to:
  - compose email messages
  - interpret user manuals and help functions
  - read and interpret basic online documents
  - read and write basic workplace documents
- problem-solving skills to address common operational problems when using web browsers
- research skills to locate varied sources of information online
- technical skills to use:
  - digital device
  - email applications
  - internet search functions
  - peripheral hardware
  - keyboard to enter text into web browsers and email applications.

Required knowledge

- basic technical terminology related to reading help files and prompts
- basic knowledge of copyright and privacy statements
- different types of messages that occur, such as:
  - error messages
  - message to install plug-ins
- different types of search engines
- procedures for using email applications
- procedures for evaluating and assessing the authority, reliability and authenticity of information
- internet search functions
- internet speed, traffic loads related to times of accessing the internet
- internet web browsers
- makeup and structure of internet addresses
- organisational guidelines on internet and email use (web etiquette or netiquette)
- different internet search techniques
- web browser update techniques
- use of key words and bookmarks.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • connect to and access the internet • send and receive emails • secure internet access and email communications • use search tools to locate information • research and select appropriate website • undertake online interactions • make an informed assessment of the accuracy, currency, authority and reliability of the site and information located.
Context of and specific resources for assessment	Assessment must ensure access to: • use of PC or digital device with internet • search engines currently used in industry • organisational policies on internet usage • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of internet access requirements, email features and search engine attributes • direct observation of candidate accessing the internet, using email, and searching and interacting with consumer sites using advanced search features • direct observation of candidate undertaking online interactions • review of search results, including assessment of the accuracy, currency and reliability of the site and information located.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Internet connection may include:	• 3G or high-speed downlink packet access (HSDPA) cellular network • 4G cellular network • broadband • cable • dial-up • digital subscriber line (DSL) • fibre to the 'x' (FTTx) • high-speed digital subscriber line (HSDSL) • integrated services digital network (ISDN) network terminating unit (NTU) • satellite • wireless modem • worldwide interoperability for microwave access (WiMAX).
Internet browser may include:	• Firefox • Galleon • Google Chrome • Internet Explorer • Konqueror • Lynx • Mozilla • Netscape Navigator • Opera • Phoenix.

Internet options may include:	• configuring:
	  • history
	  • home page
	  • location of temporary files
	  • privacy level
	  • security level
	  • type of connection.

© Commonwealth of Australia, 2025 Future Skills Organisation

Browser software security may include:	• application enabling • cookie handling • pop-up blocking • privacy levels • security zones • trusted sites.
Socially responsible behaviour may relate to:	• not using obscene, profane, lewd, vulgar, rude, inflammatory or threatening language • not publishing information that, if acted upon, could cause damage to property or persons, nor publish deliberately false or defamatory information about a person or organisation • not engaging in personal attacks, including prejudicial or discriminatory attacks, not harass (distress or annoy) another person • not accessing material that is profane, obscene, pornographic or paedophilic, that promotes illegal acts, or that advocates violence or discrimination • not sending inappropriate emails • taking responsibility for protecting personal information by not revealing personal information, including names, addresses, photographs, credit card details and telephone numbers.
Organisational guidelines may include:	• content of emails • downloading information and accessing particular websites • opening mail with attachments • personal use of emails and internet access • virus risk (MS Windows OS and Mac OS only).
Files may include:	• email messages • HTML pages • music • PDF files • pictures • text files.

Email security may relate to:	• taking steps to restrict:
	  • malware
	  • phishing
	  • spam.

Search engine may include:	• Alexa Internet • AllTheWeb • AltaVista

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Bing • Cuil • Excite • Galaxy • GigaBlast • Go.com • Google • HotBot • Live Search • Lycos • search.AOL • specific search engines • Yahoo.

Internet application sites may include:	• consumer:
	  • banking
	  • shopping
	• education and training
	• government
	• health
	• interest groups
	• news
	• travel.

Transaction options may include:	• currency • delivery address • freight • invoice address.
Boolean search may include terms:	• AND • OR • NOT • NAND • NOR • NE • GE • LE • GT • LT.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

Custom Content Section

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT104A Use digital devices

Modification History

Version	Comments
ICAICT104A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use digital devices in a home or small office environment.

Application of the Unit

This unit applies to workers who require the information technology (IT) literacy skills to use a digital device, such as a digital camera, video camera, or personal digital assistant (PDA) device to support their work in a home office or to work in a small office environment.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

	italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Prepare to use the digital device	1.1 Review instruction manual and ensure identified components are available 1.2 Identify the ***physical components*** of the ***digital device*** 1.3 Boot up and follow ***access procedures*** to activate the digital device 1.4 Alter the digital device ***settings*** to best suit intended use 1.5 Configure ***power-management settings*** where appropriate to minimise power consumption as an environmentally sustainable measure
2. Set up and use the digital device	2.1 Identify and set the basic operating and menu settings 2.2 Navigate and manipulate the screen environment 2.3 Customise screen icons and access to applications where applicable 2.4 Use the digital device, and save and edit output where applicable 2.5 Identify more ***advanced features*** available and use as required
3. Access and use basic connectivity devices	3.1 Connect to external digital devices, such as ***computer devices*** or ***storage devices***, to retrieve, copy, move and save information 3.2 Check physical ***connectivity*** of computer devices or storage devices to ensure operation and performance 3.3 Connect to a printer either through a computer device or directly and use ***printer settings*** and print data 3.4 Access ***audiovisual devices*** to view and play a multimedia file
4. Shut down digital device	4.1 Save current work and back up important data 4.2 Close open programs on the digital device and any computer device or storage device

© Commonwealth of Australia, 2025 Future Skills Organisation

	4.3 Shut down digital devices, according to manufacturer instructions

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - communicate with peers and supervisors
  - read and write basic workplace documents
  - seek assistance and expert advice
- literacy skills to interpret user manuals and help functions
- technical skills to:
  - access and use audiovisual devices
  - apply power-management settings
  - back up and save information
  - connect and use peripheral devices
  - input user access details for accessing a personal computer (PC), possibly a networked environment
  - manage mouse (button usage) for different applications
  - navigate a digital graphical user interface (GUI)
  - save and move files to various locations
  - use a keyboard.

Required knowledge

- audiovisual devices
- basic security functions
- basic software operation and associated applications
- digital device functions
- digital device settings
- peripheral devices
- storage devices.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • use a digital device • use menu features and navigate around a GUI interface • use device features to perform tasks • save results of work.
Context of and specific resources for assessment	Assessment must ensure access to: • digital device • computer device • storage device • printer • use of device-specific application currently used in industry • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of digital device operations • direct observation of candidate performing basic device-relevant practical skills • direct observation of candidate performing a sequence of routine tasks following clear directions.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required

© Commonwealth of Australia, 2025 Future Skills Organisation

	knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Physical components may include:	• attachable keyboard • attachable monitor • batteries • casings • lens • memory card • mouse • stylus pen.
Digital device may include:	• audiovisual device • digital camera • external memory device • multi-card reader and writer • PDA and MP3 player • Smartphone • tablet • video camera.
Access procedures may include:	• fingerscan • smartcard • user name and password.

Settings may include:	• automated versus manual settings
	• screen settings:
	  • brightness
	  • colour
	  • contrast
	• shortcut keys or modes
	• standard versus configured settings.

Power-management settings after a period of	• automatic power off • hibernation settings

© Commonwealth of Australia, 2025 Future Skills Organisation

non-use may include:	• monitor power saver settings.
Advanced features may include:	• advanced operations • customising standard settings • integrating with other devices.
Computer devices may include:	• tablet • laptop • notebook • PDA • PC.

Storage devices may include:	• disks:
	  • CD
	  • DVD
	  • blu-ray
	• flash drives
	• server
	• solid-state hard drives
	• virtual devices.

Connectivity may include:	• audiovisual
	• cable, wireless, infra-red or Bluetooth
	• internal or via universal serial bus (USB) dongle
	• network or stand-alone computer
	• ports:
	  • Firewire
	  • high definition multimedia interface (HDMI)
	  • printer
	  • USB.

Printer settings may include:	• cartridge type • layout • number of copies • orientation • paper size • paper tray.
Audiovisual devices may include:	• data projector • external monitor • headset • microphone • speakers • webcam or digital camera.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

General ICT

Custom Content Section

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT105A Operate spreadsheet applications

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to operate spreadsheet applications and perform basic operations, including creating and formatting spreadsheet data, incorporating charts and objects, and customising and printing spreadsheets.

Application of the Unit

This unit applies to individuals who perform a range of routine tasks in the workplace using a fundamental knowledge of spreadsheets under direct supervision or with limited responsibility.

The use of spreadsheets for business and mathematical applications is widespread. In some cases, spreadsheets can operate as sophisticated computerised ledgers and enable the collation, manipulation and presentation of complex data.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Create spreadsheets	1.1 Open spreadsheet application, create spreadsheet files and enter numbers, text and symbols into cells according to information requirements 1.2 Enter ***simple formulas and functions*** using cell referencing where required 1.3 Correct formulas when error messages occur 1.4 Use a range of common tools during spreadsheet development 1.5 Edit columns and rows within the spreadsheet 1.6 Use the auto-fill function to increment data where required 1.7 Save spreadsheet to directory or folder
2. Customise basic settings	2.1 Adjust page ***layout*** to meet user requirements or special needs 2.2 Open and view different ***toolbars*** 2.3 Change ***font settings*** so that they are appropriate for the purpose of the document 2.4 Change ***alignment*** options and line spacing according to spreadsheet ***formatting features*** 2.5 ***Format*** cell to display different styles as required 2.6 Modify margin sizes to suit the purpose of the spreadsheets 2.7 View multiple spreadsheets concurrently
3. Format spreadsheet	3.1 Use formatting features as required 3.2 Copy selected formatting features from another cell in the spreadsheet or from another active spreadsheet 3.3 Use ***formatting tools*** as required within the spreadsheet 3.4 Align information in a selected cell as required

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.5 Insert headers and footers using formatting features 3.6 Save spreadsheet in another format 3.7 Save and close spreadsheet to ***storage device***
4. Incorporate object and chart in spreadsheet	4.1 Import an object into an active spreadsheet 4.2 Manipulate imported ***object*** by using formatting features 4.3 Create a chart using selected data in the spreadsheet 4.4 Display selected data in a different chart 4.5 Modify chart using formatting features
5. Print spreadsheet	5.1 Preview spreadsheet in print preview mode 5.2 Select basic printer options 5.3 Print spreadsheet or selected part of spreadsheet 5.4 Submit the spreadsheet to ***appropriate person*** for approval or feedback

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - communicate with peers and supervisors
  - seek assistance and expert advice
- literacy skills to:
  - interpret user manuals and help functions
  - read and write basic workplace documents
- numeracy skills to enter simple formulas into spreadsheet
- problem-solving skills to address common operational problems when using spreadsheet applications
- technical skills to:
  - operate a personal computer (PC)
  - use a keyboard to enter text and numerical data.

Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

- basic technical terminology related to reading help files and prompts
- formatting styles and their effect on formatting, readability and appearance of spreadsheets
- log-in procedures relating to accessing a PC
- purpose, use and function of spreadsheet application.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • create spreadsheets • customise basic settings • format spreadsheets • create basic formulas • work with objects and charts in spreadsheets • save and print spreadsheets.
Context of and specific resources for assessment	Assessment must ensure access to: • use of PC and printer • use of spreadsheet software currently used in industry • documents detailing organisational style guide and policy • documents or information containing data suitable for creating spreadsheets • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of spreadsheet operations • direct observation of candidate creating and formatting spreadsheets • review of spreadsheets, including formatting, formulas, objects and images.
Guidance information	Holistic assessment with other units relevant to the industry

© Commonwealth of Australia, 2025 Future Skills Organisation

for assessment	sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Simple formulas and functions may include:	• addition • division • multiplication • subtraction • application of the above to a series of cells.
Tools may include:	• help • search and replace • simple formatting tools • spell check • undo.
Edit may relate to:	• adding • copying • deleting • moving • pasting • selecting.
Data may include:	• symbols added to the document • text added to the document.
Layout may include:	• display modes • orientation

© Commonwealth of Australia, 2025 Future Skills Organisation

	• size.
Toolbars may contain:	• buttons • menus • a combination of both.
Font settings may include:	• colour • size • type.
Alignment may refer to:	• centred • justified • left • right.
Formatting features may include:	• bold • hyphenation • italics • underline.

Format may refer to:	• saving the spreadsheet as another type of document:
	  • comma separated values or text
	  • HTML
	  • XML.

Formatting tools may include:	• menu commands within the application:
	  • copy
	  • cut
	  • help
	  • paste
	  • search and replace
	  • spell check
	  • undo.

Storage device may include:	• disks:
	  • CD
	  • DVD
	  • blu-ray
	• external hard drive, such as universal serial bus (USB) flash drive
	• internal hard drive
	• web storage area.

Object may include:	• items that can be inserted into the spreadsheet, such as:
	  • other documents
	  • pictures
	  • sound.

© Commonwealth of Australia, 2025 Future Skills Organisation

Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT106A Operate presentation packages

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to operate presentation applications and perform basic operations, including creating, formatting and adding effects to presentations.

Application of the Unit

This unit applies to individuals employed in a range of work environments who create electronic presentations.

Presentations are an important form of communication and marketing used by organisations to convey information. They may be formal or informal.

An individual demonstrating this competency will be able to present a set range of data in a simple and direct format using a presentation package.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Create presentations	1.1 Open a presentation package application and create a simple design for a presentation according to organisational requirements 1.2 Open a blank presentation and add text and graphics 1.3 Apply existing styles within a presentation 1.4 Use presentation template and slides to create a presentation 1.5 Use various ***tools*** to improve the look of the presentation 1.6 Save presentation to directory
2. Customise basic settings	2.1 Adjust display to meet ***user requirements*** 2.2 Open and view different ***toolbars*** to view options 2.3 Ensure ***font settings*** are appropriate for the purpose of the presentation 2.4 View multiple slides at once
3. Format presentations	3.1 Use and incorporate organisational charts and bulleted lists, and modify as required 3.2 Add ***objects*** and manipulate to meet presentation purposes 3.3 Import objects and modify for presentation purposes 3.4 Modify slide layout, including text and colours, to meet presentation requirements 3.5 Use ***formatting tools*** as required within the presentation 3.6 Duplicate slides within and across a presentation 3.7 Reorder the sequence of slides and delete slides for presentation purposes 3.8 Save presentation in another ***format*** 3.9 Save and close presentation to ***storage device***

© Commonwealth of Australia, 2025 Future Skills Organisation

4. Add slide show effects	4.1 Incorporate preset animation and multimedia effects into presentation as required to enhance the presentation 4.2 Add slide transition effects to presentation to ensure smooth progression through the presentation 4.3 Test presentation for overall effect 4.4 Use onscreen navigation tools to start and stop slide show or move between different slides as required
5. Print presentation and notes	5.1 Select appropriate ***print format*** for presentation 5.2 Select preferred slide orientation 5.3 Add notes and slide numbers 5.4 Preview slides and run spell check before presentation 5.5 Print the selected slides and submit presentation to ***appropriate person*** for feedback

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - communicate with peers and supervisors
  - seek assistance and expert advice
- literacy skills to:
  - interpret user manuals and help functions
  - read and write basic workplace documents
- problem-solving skills to address common operational problems when operating a presentation package
- technical skills to operate a personal computer (PC).

Required knowledge

- basic technical terminology to read help files and prompts
- different types of:
  - formal and informal presentations
  - audience types

© Commonwealth of Australia, 2025 Future Skills Organisation

- effect of design features on readability and appearance of electronic presentations
- presentation pitfalls
- use of suitable presentation effects for different audiences.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • create, format and prepare presentations for distribution and display • customise basic settings • add slide show effects.
Context of and specific resources for assessment	Assessment must ensure access to: • use of PC and printer • use of presentation software currently used in industry • documents detailing organisational style guide and policy • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of presentation software functions • direct observation of candidate creating and formatting presentations • review of presentations, including formatting and slide show effects.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Tools may include:	• available templates • help • search and replace • simple formatting tools • spell check.

User requirements may refer to:	• appearance and type of:
	  • application
	  • computer
	  • desktop
	  • document.

Toolbars can contain:	• buttons • menus • a combination of both.
Font settings may include:	• colour • size • type.
Objects may include:	• animations • other documents • pictures • sound • tables.

Formatting tools may include:	• menu commands within the application:
	  • copy
	  • cut
	  • help

© Commonwealth of Australia, 2025 Future Skills Organisation

	• paste • search and replace • spell check • undo.
Format may include:	• saving the presentation as another type of document: • comma separated values or text • HTML • XML.
Storage device may include:	• disks: • CD • DVD • blu-ray • external hard drive, such as universal serial bus (USB) flash drive • internal hard drive • web storage.
Print format may include:	• colour or black and white • layout • thumbnails • number of copies • quality.
Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT107A Use personal productivity tools

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use the features and components of a personal productivity tool, including personal digital assistants (PDAs) or computerised personal organisers.

Application of the Unit

This unit applies to individuals who perform a range of routine tasks in the workplace. They use fundamental knowledge and skills to perform tasks using personal productivity tools under direct supervision or with limited responsibility.

Personal productivity tools facilitate communication and personal time management. Email applications, calendars and appointment books are examples of personal productivity tools that facilitate time management.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Use calendar features	1.1 Navigate within the calendar of the ***personal productivity tool*** and schedule ***events and appointments***
	1.2 Set a reminder and if necessary customise the reminder
	1.3 Customise the calendar ***views*** and, where necessary, menus and ***toolbars***, and work within different views
	1.4 Delete events and appointments
	1.5 Customise the calendar's ***print options*** and print the calendar according to format requirements
2. Use contact management	2.1 Create, edit and delete contacts as required, recording information in the appropriate fields
	2.2 Use ***contact information*** for email purposes according to organisational policies related to privacy
	2.3 Group contacts into categories that are consistent and meaningful
3. Use additional features	3.1 Link activities and contacts when required
	3.2 Use expense sheets, search facilities, notes and email when appropriate
	3.3 Integrate the above features with other applications or the calendar and contacts list

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- basic data entry skills to enter data into personal productivity tool
- communication skills to:
  - communicate with peers and supervisors
  - seek assistance and expert advice
- literacy skills to:
  - interpret user manuals and help functions
  - read and interpret basic workplace documents
- problem-solving skills to address common operational problems when using personal productivity tool.

Required knowledge

- organisational guidelines regarding:
  - email use
  - internet connection and usage policy
  - web etiquette
- calendar and scheduling tools.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • use the calendar of the personal productivity tool to schedule events and appointments • create, edit and delete contacts • use the additional features of a particular personal productivity tool.
Context of and specific resources for assessment	Assessment must ensure access to: • use of PDA • use of organising software currently used in industry • organisational policies on internet usage • appropriate learning and assessment support when required.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of organisational guidelines on internet and email use and web etiquette • direct observation of candidate scheduling events and appointments using personal productivity tool • review of calendar prepared by candidate according to format requirements.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Personal productivity tool may include:	• applicable personal productivity software applications
	• hardware:
	  • hand-held personal computers (PCs) with various operating systems
	  • high-end mobile phones
	  • PDAs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Events and appointments may include:	• jobs • meetings • visits.
Views may include for a calendar:	• day to a page • week to a page • month to a page • year to a page.
Toolbars may contain:	• buttons • menus • a combination of both.
Print options may include:	• layout • number of copies • orientation • paper size.
Contact information may include:	• address • email • name • nickname • phone number.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT108A Use digital literacy skills to access the internet

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to safely and securely use the internet to undertake basic interactive communication.

It involves a working knowledge of current industry standard technologies and the ability to apply these technologies to a number of digital literacy situations.

Application of the Unit

This unit applies to individuals who locate, organise, understand, evaluate and analyse information using digital technology in the areas of entertainment, communication, internet searching, online participation, networking and commercial transactions.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Operate hardware at a basic level	1.1. Identify ***hardware components*** required to connect to the internet 1.2 Set up and check physical ***connectivity of devices*** 1.3 Use hardware components in an ***OHS compliant*** way
2. Ensure safe and secure online access	2.1 Connect and access ***relevant internet sites*** 2.2 Provide an appropriate level of personal information to maintain privacy and security 2.3 Comply with ***copyright and intellectual property*** legislation 2.4 Ensure an understanding of ***socially responsible behaviour*** 2.5 Assess the legitimacy of online requests to make an informed decision 2.6 Interpret and respond to security notifications that display due to ***browser software security*** settings or internet use 2.7 Assess email status and determine ***email security*** 2.8 Provide appropriate information to manage ***digital footprint*** 2.9 Assess the security of payments 2.10 Back up data as required through downloading to an ***external backup device***
3. Research and analyse online information	3.1 Identify and use search engines to access ***relevant internet sites*** 3.2 Search and find relevant information or content 3.3 Refine search to increase relevance of information or content 3.4 Navigate a website to access the information or content required 3.5 Assess payment requirements to make sound financial decisions

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.6 Analyse the usefulness and accuracy of located information
4. Make transactions and participate online	4.1 Create, register, manage and secure an account 4.2 Observe appropriate user protocol online 4.3 Make ***secure transactions and identify methods of internet fraud*** 4.4 Identify and invite relevant friends, groups and pages to own website
5. Use applications and manipulate files	5.1 Use ***basic application*** skills 5.2 Incorporate attachments to documents 5.3 Back up files to ***external storage devices*** 5.4 Upload relevant components to a website 5.5 Download pictures and videos to an external device

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - communicate with peers and supervisors
  - seek assistance and expert advice
  - undertake online transactions
- keyboarding skills to enter text into web browsers and email applications
- literacy skills to:
  - compose email messages
  - read and interpret basic online content
  - read and write at a basic level
- problem-solving skills to address common operational problems when using web browsers
- research skills to locate varied sources of information online
- technical skills to:
  - operate a digital device
  - use email applications
  - use internet search functions
  - use peripheral hardware.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required knowledge

- types and basic components of hardware and storage devices
- types of online entertainment
- types of online communication
- basic research and analysis theory
- basic copyright legislation
- digital footprint and basic security, safety and legal issues
- OHS, including basic ergonomics of keyboard and computer use
- types of online participation
- types of online transactions
- device interface
- desk top icons
- basic principles of web browser search engines
- internet
- features of basic applications.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • connect to and access the internet • send and receive emails • secure internet access and email communications • use search tools to locate information or content • research and select appropriate websites • undertake online interactions • make an informed assessment of the accuracy, currency, authority and reliability of the site and information located.
Context of and specific resources for assessment	Assessment must ensure access to: • hardware with internet assess • search engines currently used in industry. Where applicable, physical resources should include equipment

© Commonwealth of Australia, 2025 Future Skills Organisation

	modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • oral or written questioning to assess candidate's knowledge of internet access requirements, email features and security or safety issues • direct observation of candidate accessing the internet, using email, and searching and interacting with consumer sites using correct netiquette • direct observation of candidate undertaking online interactions • review of search results prepared by candidate, including assessment of the accuracy, currency and reliability of the site and information located.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Hardware components may include:	• Bluetooth device • fax and modem • keyboard • laptop • mobile phone

© Commonwealth of Australia, 2025 Future Skills Organisation

	• monitor • mouse • multimedia kit • personal computer • personal digital assistant (PDA), such as palmtop • printer • scanner • speaker • tape cartridge • universal serial bus (USB) device • wi-fi router.
Connectivity of devices may include:	• Bluetooth device • hard drive • keyboard • laptop • mobile phone • modem • mouse • multimedia kit • pen • PDA, such as palmtop • printer • scanner • speaker • tape cartridge • touch pad • USB device • wireless fidelity (wi-fi) router • headphone and microphone • web camera.

OHS compliant may include:	• electrical safety
	• ergonomics in the workplace:
	  • correct posture
	  • style and adjustment of chair
	  • type of desk
	  • type of monitor
	  • working position
	  • length of time in front of computer
	  • lighting level
	  • placement of light fittings
	  • repetitive strain injury (RSI) prevention

© Commonwealth of Australia, 2025 Future Skills Organisation

	• safe lifting methods • ventilation • social problems associated with internet and computing addictions.

Relevant internet sites may be used for:	• entertainment:
	  • internet TV
	  • games
	  • videos and podcasts
	  • music
	• communication:
	  • email
	  • Skype
	  • instant messaging
	• finding using and storing information:
	  • searching to enhance personal knowledge and interest and to make informed decisions
	  • participating online
	  • online consultation, forum and discussion
	  • posting photos and videos
	  • applying for jobs
	• networking and collaboration:
	  • social networking
	  • online dating
	  • transactions
	• banking
	• government services, including registrations
	• buying and selling:
	  • travel
	  • paying bills
	  • trading shares.

Copyright and intellectual property may relate to:	• copyright infringement legislation • electronic resources usage policies • ethical use of digital technologies • ethical decision making when facing inappropriate acts of technology use.
Socially responsible behaviour may relate to:	• not using obscene, profane, lewd, vulgar, rude, inflammatory or threatening language • not publishing information that, if acted upon, could cause damage to property or persons, nor publish deliberately false or defamatory information about a person or organisation • not engaging in personal attacks, including prejudicial or

© Commonwealth of Australia, 2025 Future Skills Organisation

	discriminatory attacks • not harassing, distressing or annoying another person • not accessing material that is profane, obscene or pornographic, that promotes illegal acts, or that advocates violence or discrimination • not sending inappropriate emails • taking responsibility for protecting personal information and not revealing personal information, including names, addresses, photographs, credit card details and telephone numbers.
Browser software security may include:	• application enabling • cookie handling • pop-up blocking • privacy levels • security zones • trusted sites.

Email security may relate to:	• taking steps to restrict:
	  • malware
	  • phishing
	  • spam
	  • scams.

Digital footprint may include:	• tracking of internet usage, such as:
	  • system login and logouts
	  • visits to a web page
	  • accessed or created files
	  • email messages
	  • chat messages.

External backup devices may include:	• DVDs • memory cards • memory sticks • USB drives • hard drives.
Secure transactions may include:	• web browser - secure socket layer (SSL) • security verified sites • digital certificates - VeriSign • online payment services - PayPal • stored-value cards • smart cards • point-of-sale devices • digital cash • e-wallets.

© Commonwealth of Australia, 2025 Future Skills Organisation

Methods of internet fraud may include:	• invalid internet sites • credit card fraud • identification theft • impulse buying strategies.
Basic applications may include:	• databases • email • internet browsers • spreadsheets • system browsers • word processing.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT201A Use computer operating systems and hardware

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to select, configure and use computer operating systems and basic computer hardware.

Application of the Unit

This unit applies to workers who require the information and communications technology (ICT) skills to select and install operating system software on to a specific hardware configuration. This includes configuring the operating system to work with a variety of hardware peripherals and types of ICT equipment.

The ability to communicate effectively, simplify and solve technical incompatibility conflicts and problems are key components of this ICT support role.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Identify operating system and hardware components	1.1 Determine ICT ***organisational requirements*** and specifications 1.2 Identify and select ***operating system*** 1.3 Identify appropriate ***external hardware components*** 1.4 Identify ***internal hardware components***
2. Install and configure operating system and application software with hardware components	2.1 Install and configure operating system to meet organisational requirements 2.2 Identify the functions associated with the operating system and associated boot process 2.3 Configure ***power-management settings*** to minimise power consumption as an environmentally sustainable measure 2.4 Use both the graphical user interface and the command line interface to perform basic tasks 2.5 Install or upgrade ***application software*** onto the operating system and hardware configuration 2.6 Determine the relationship between an application program, the operating system and hardware 2.7 Identify general differences between the different ***computer platforms*** and their respective operating systems
3. Optimise operating system and hardware components	3.1 Optimise operating system using included tools or ***third-party utilities*** 3.2 Customise the graphical user interface 3.3 Use techniques unique to the command line interface 3.4 Set up and configure external hardware components and check functionality

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.5 Install drivers as appropriate and check functionality

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - communicate with peers and supervisors
  - seek assistance and expert advice
- literacy skills to:
  - interpret user manuals and help functions
  - read and write basic workplace documents
- problem-solving skills to address common operational problems when using computer operating systems and operating computer hardware
- technical skills to:
  - apply user changes for a multi-user operating system
  - configure, use and optimise operating system
  - create users for a multi-user system
  - install and support peripheral devices
  - operate a personal computer (PC)
  - set passwords for different users
  - use PC peripheral hardware.

Required knowledge

- basic knowledge of current industry-accepted operating system, hardware and software products
- compatibility of an operating system, in respect to other versions
- function of single-user and multi-user operating systems
- interoperability between operating systems
- OHS principles and responsibilities, including ergonomic principles to avoid injury associated with using computer systems.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• use an operating system in a variety of scenarios and across functions, including:
	  • scheduling, loading, initiating, and supervising the execution of programs
	  • allocating storage
	  • initiating and controlling input and output operations
	  • handling errors
	• identify and install suitable hardware components
	• install and upgrade application software.

Context of and specific resources for assessment	Assessment must ensure access to: • use of PC • use of hardware components • OHS standards and organisational policy and procedures • use of operating system currently used in industry • software configuration guides • documents detailing operating system control panel and configuration data • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of concepts and procedures related to configuring operating systems and application software to different hardware platforms
	• direct observation of candidate:
	  • setting up, configuring and optimising operating system,
	  • setting up input and output devices and checking functionality

© Commonwealth of Australia, 2025 Future Skills Organisation

	• setting up and configuring hardware components.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Organisational requirements may include:	• maintenance procedures • OHS procedures • security procedures.
External hardware components may include:	• Bluetooth device • fax • modem • keyboard • laptop • mobile phone • monitor • mouse • multimedia kit • PC • personal digital assistant (PDA), such as palmtop • printer • scanner • speaker

© Commonwealth of Australia, 2025 Future Skills Organisation

	• tape cartridge • universal serial bus (USB) device • wi-fi router.
Internal hardware components may include:	• cabling • central processing unit (CPU) • memory chip • motherboard • network interface card • sound card • video display card.
Power-management settings after a period of non-use may include:	• automatic power off • hibernation settings • monitor power-saver settings.
Application software may include:	• databases • email • internet browsers • spreadsheets • system browsers • word processing.
Computer platforms may include:	• Macintosh • PC • operating systems used on each.
Third-party utilities may include:	• backing up data • diagnostic tools • disk scanning • partitioning and defragmenting • recovery.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT202A Work and communicate effectively in an IT environment

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to work and communicate effectively within organisational policies and governance arrangements using information technology (IT) systems, equipment and software.

Application of the Unit

This unit applies to individuals undertaking an information and communications technology (ICT) user-support role in a small office environment.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Prepare to communicate and work effectively within an IT organisation	1.1 Gather input from ***sources of information*** to develop, refine and document the ICT roles and services in an organisation 1.2 Develop clear knowledge of ***enterprise policies, procedures*** and ***organisational requirements*** 1.3 Document IT policy and procedures and determine whether they are applied in practice 1.4 Determine ***key players*** within the organisation and their role and importance
2. Use positive and varied communication strategies with ICT clients	2.1 Receive requests and enquiries regarding the use of ICT ***equipment, operating systems*** and ***software*** from clients and colleagues in a polite and appropriate manner 2.2 ***Respond appropriately*** to ***client*** and colleague requirements and identify options 2.3 Present ***written information*** and ideas in clear and concise language to ensure the intended meaning is understood 2.4 Record information or messages and refer client requests to the ***appropriate person*** according to organisational procedures 2.5 Inform client of the progress of their request or enquiry and advise them of the organisational process for answering their request or enquiry 2.6 Escalate inquiries that cannot be satisfied immediately 2.7 Supply follow-up information to client as required in a timely manner 2.8 Accommodate ***cultural differences*** in the workplace

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- communication skills to:
  - clarify the needs of customers
  - deliver required level and quality of customer service
  - relate to people from diverse backgrounds and people with diverse abilities
  - request advice, receive feedback and work with a team
- literacy skills to interpret:
  - relevant organisational policies and governance documentation
  - technical information, such as maintenance requirements for equipment
- planning and organisational skills to plan work priorities and arrangements
- technical skills to:
  - match equipment service requirements with maintenance processes
  - use IT equipment, operating systems and software.

Required knowledge

- current industry-accepted hardware and software:
  - products, with broad knowledge of features and capabilities
  - product directions
- operational environment:
  - customer base
  - company products
  - services
- organisational policies and procedures that cover:
  - code of conduct
  - mission statement
  - routine work processes
  - systems, management structure and governance arrangements
- principles of EEO and anti-discrimination
- role and positioning of IT within the overall business objectives of the organisation.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • process internal and external requests according to organisational policies and requirements • respond promptly to client enquiries and requests from colleagues.
Context of and specific resources for assessment	Assessment must ensure access to: • a workstation • a range of IT equipment, operating systems, software and technical information • organisational policies, procedures and governance documents • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate responding to clients' requests and enquiries relating to the organisation's IT systems, equipment and software • review of candidate's collection of documented written messages and records • verbal or written questioning to assess candidate's knowledge of organisational key roles, and technical capability and requirements.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Sources of information may include:	• brochures and pamphlets • campaign briefs • internet and intranet • instruction or product manuals • supervisors and other staff.
Enterprise policies and procedures may include:	• financial and decision-making delegations • referral and escalation paths • scope of the services to be provided.
Organisational requirements may include:	• access and equity principles and practice • business and performance plans • defined resource parameters • ethical standards • goals, objectives, plans, systems and processes • legal and organisational policies, guidelines and requirements • OHS policies, procedures and programs • quality and continuous improvement processes and standards • quality assurance and procedures manual.
Key players may include:	• employer organisations • industry publications and government departments involved in IT industry promotion • IT organisations • IT professional bodies • relevant unions • vendors of IT products and services.
Equipment may include:	• hard drives • hubs • modems and other connectivity devices, such as digital subscriber line (DSL) modems • monitors • personal computers (PCs) • personal digital assistants (PDAs) • printers • switches

© Commonwealth of Australia, 2025 Future Skills Organisation

	• workstations • other peripheral devices.

Operating systems may include:	• GNU and Linux
	• Mac OS X
	• Microsoft Windows
	• Unix-like operating systems:
	  • HP-UX
	  • IBM AIX
	  • Silicon Graphics IRIX
	  • Sun Solaris.

Software may include:	• commercial software applications • organisation-specific software.
Respond appropriately may relate to:	• answering enquiries promptly and appropriately • discussing, agreeing and recording supply arrangements with client • recording details in enterprise system • using appropriate questioning and active listening techniques to understand client needs and determine support requirements • using clear, simple and easy to understand language • ensuring responses are comprehensive.
Client may include:	• employees • external organisations • individuals • internal departments • work colleagues.
Written information may include:	• briefing notes • electronic mail • fax • general correspondence • handwritten and printed materials • internal memos • telephone messages.
Appropriate person may include:	• authorised business representative • client • supervisor.
Cultural differences may relate to:	• content of emails and business documents • customer service • design of templates • policies relating to safety standards • quality • security

© Commonwealth of Australia, 2025 Future Skills Organisation

	• the way people interact with each other.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT203A Operate application software packages

Modification History

Version	Comments
ICAICT203A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to identify, select and operate three commercial software packages, including a word-processing and a spreadsheet application package.

The unit identifies the requirement to use a word-processing, spreadsheet and third software application package to ensure that the individual develops the skills required to cover a range of basic office software requirements.

Application of the Unit

This unit applies to information and communications technology (ICT) personnel who need to use several different software applications to produce diverse documents within a small to large office environment.

The ability to use and present a variety of key software application packages is a key component of any ICT business or office environment.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Use appropriate OHS office work practices	1.1 Use safe work practices to ensure ***ergonomic, work organisation, energy and resource conservation requirements*** are addressed 1.2 Use wrist rests and document holders where appropriate 1.3 Use monitor anti-glare and radiation reduction screens where appropriate
2. Use appropriate word-processing software	2.1 Select ***word-processing software*** appropriate to perform activity 2.2 Identify ***document*** purpose, audience and presentation requirements, and clarify with personnel as required 2.3 Identify ***organisational requirements*** for text-based business documents and design ***document structure and layout*** to ensure consistency of style and image 2.4 Match document requirements with software functions to provide efficient production of documents 2.5 Use ***technical functions, other data and formatting*** to finalise documents 2.6 Ensure the ***naming and storing of documents*** in appropriate directories or folders and the ***printing*** of documents to the required specifications
3. Use appropriate spreadsheet software	3.1 Select ***spreadsheet software*** appropriate to perform activity 3.2 Identify document purpose, audience and presentation requirements, and clarify with personnel as required

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.3 Enter ***simple formulas and functions*** using cell referencing where required 3.4 Customise ***spreadsheet settings*** to meet requirements 3.5 Ensure the naming and storing of documents in appropriate directories or folders and the printing of documents to the required specifications
4. Use a third application software package	4.1 Select ***software application package*** appropriate to perform activity 4.2 Identify purpose, audience and presentation requirements, and clarify with personnel as required 4.3 Use ***technical functions***, other data and formatting to finalise documents 4.4 Ensure documents are named and stored in appropriate directories or folders and printed to required specifications

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - communicate with peers and supervisors
  - seek assistance and expert advice
- literacy skills to:
  - interpret user manuals and help functions
  - read and write basic workplace documents
- numeracy skills to enter simple formulas into spreadsheet
- problem-solving skills to manage applications and use help functions
- technical skills to:
  - operate a personal computer (PC) and printer
  - operate a keyboard to enter text and numerical data
  - use application software packages.

Required knowledge

- application software packages used by the organisation
- basic technical terminology related to reading help files and responding to system help prompts

© Commonwealth of Australia, 2025 Future Skills Organisation

- basic knowledge of system usage
- current business practices related to using software to prepare reports
- features and functions of commercial computing packages
- import and export software functions
- linking documents
- OHS principles and responsibilities for ergonomics, such as work periods and breaks
- purpose, use and functions of applications
- use of input and output devices.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • produce workplace documents using a minimum of three different software application packages • open, amend and save files and documents according to organisational requirements • use OHS principles and responsibilities for ergonomics, such as work periods and breaks • use help manuals and online help.
Context of and specific resources for assessment	Assessment must ensure access to: • use of PC and printer • use of software currently used in industry • documents detailing organisational style guide and policy • documents or information containing data suitable for developing software application documents • appropriate learning and assessment when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of OHS, application usage for specific

© Commonwealth of Australia, 2025 Future Skills Organisation

	tasks, and use of different application functions • direct observation of candidate using a minimum of three different software applications • review of workplace documents prepared by candidate demonstrating a wide range of features from different software application packages.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Ergonomic, work organisation, energy and resource conservation requirements may include:	• avoiding radiation from computer screens • chair height, seat and back adjustment • document holder • equipment that is reasonably adjusted to meet personal needs, in appropriate circumstances • exercise breaks • footrest • keyboard and mouse position • lighting • mix of repetitive and other activities • noise minimisation • posture • rest periods

© Commonwealth of Australia, 2025 Future Skills Organisation

	• screen position • workstation height and layout.
Word-processing software may include:	• Apple iWork • Microsoft Word • Open Office.
Document may include:	• captions • different odd and even pages • document protection • drawing • hyperlinks • linked and embedded objects • mail-merge data documents • master documents • MS WordArt • templates.
Organisational requirements may include:	• company colour scheme • company logo • consistent corporate image • content restrictions • established guidelines and procedures for document production • house styles • observing copyright legislation • organisation name, time, date, document title and filename in header or footer • templates.
Document structure and layout may include:	• annotated references • borders • boxes • bullet or number lists • captions • colour • columns • consistency with other business documents • cropping • drawing • footnotes • endnotes • graphics • headings • indentations • layout

© Commonwealth of Australia, 2025 Future Skills Organisation

	• page numbers • position related to other text • size • spacings • typeface styles and point size.
Technical functions, other data and formatting may include:	• alignment • clip art • comments • data from other software applications • digital photographs • digital signatures • display features • embedding • exporting • fields • fills or shading • formulas • graphics • importing • lines and borders • linking • merge cells • page and section breaks • permissions • reviewing • sharing • sort criteria • sorting contents • split cell • table of contents • templates • text direction • versioning.
Naming and storing documents may include:	• authorised access • filenames according to organisational procedure • filenames that are easily identifiable related to the content • file or directory names which identify the operator, author, section and date • filing locations • organisational policy for backing up files and filing hard copies of documents

© Commonwealth of Australia, 2025 Future Skills Organisation

	• security
	• storage in folders and sub-folders
	• storage on:
	  • hard disk drives
	  • CD-ROM
	  • tape backup.

Printing may include:	• comments • drawing objects • field codes • hidden text • print merge • print to file • to fit a specific number of pages.
Spreadsheet software may include:	• Apple iWorks, such as Numbers • Gnumeric • Microsoft Excel • Open Office.
Simple formulas and functions may include:	• addition • conditional logic • conditional summation • division • lookup • multiplication • subtraction • summation • application of the above to a series of cells.
Spreadsheet settings may include:	• cell alignment • charts • font settings • formatting tools • graphics • objects • page layout • print • share • simple formulas and functions • sort • toolbars • views • worksheets.
Software application	• database

© Commonwealth of Australia, 2025 Future Skills Organisation

package may include:	• email • graphics • spreadsheet • word processing.
Technical functions may include:	• animations • arranging slides • charts • customising masters • illustrations • linking content • sharing • SmartArt • tables.

Unit Sector(s)

General ICT

Custom Content Section

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT204A Operate a digital media technology package

Modification History

Version	Comments
ICAICT204A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to identify, select and use a digital media package and supporting technologies.

Application of the Unit

This unit applies to information and communications technology people who need to use a digital media package to produce a variety of media rich documents within a small to large office environment.

The ability to incorporate and use digital media for a variety of business presentation purposes is a key component of any business or office environment.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes	*Performance criteria describe the*

© Commonwealth of Australia, 2025 Future Skills Organisation

of a unit of competency.	*performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Use appropriate OHS office work practices	1.1 Use safe work practices to ensure ***ergonomic, work organisation, energy and resource conservation requirements*** are addressed 1.2 Use wrist rests and document holders where appropriate 1.3 Use monitor anti-glare and radiation reduction screens where appropriate
2. Identify and select appropriate digital media package	2.1 Identify the basic requirements of a ***design brief***, including user environment 2.2 Research and review suitable available ***digital media packages*** 2.3 Select an appropriate digital media package to meet design brief requirements
3. Use digital media package	3.1 Procure or create suitable ***data*** to meet requirements of the brief 3.2 Manipulate data using digital media package tools 3.3 Ensure ***naming and storing of documents*** in appropriate ***file format*** in directories or folders
4. Review digital media design	4.1 Evaluate design for creative, dramatic and technical quality, file size, and suitability to meet the brief 4.2 Test and run any incorporated graphics, video or sound as part of a digital media presentation and present designs in the appropriate format 4.3 Review final product against design brief

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - communicate with peers and supervisors
  - seek assistance and expert advice
- literacy skills to:
  - interpret user manuals and help functions
  - read and write basic design briefs
- numeracy skills to apply graphical measurements
- problem-solving skills to manage applications and use help functions
- research skills to review and select appropriate digital media packages and technologies
- technical skills to:
  - operate a PC and printer
  - manipulate digital photographs, images, videos and sound
  - use digital media packages
  - use digital media technologies
  - use a keyboard to enter text, data and graphics.

Required knowledge

- basic principles of visual design
- functions and features of digital media packages and technologies
- graphic design and stylistic language conventions
- OHS principles and responsibilities for ergonomics, such as work periods and breaks
- principles of digital imaging and file formats, video and sound file formats, file management and transfer systems
- vendor product directions in digital media hardware and software
- visualisation and interpreting creative information, scripts (text) and images.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and	Evidence of the ability to:

© Commonwealth of Australia, 2025 Future Skills Organisation

evidence required to demonstrate competency in this unit	• identify basic requirements of a design brief • use digital media package to meet organisational requirements • use OHS principles and responsibilities for ergonomics, such as work periods and breaks • use help manuals and online help when appropriate • use digital media technologies to support design brief requirements.
Context of and specific resources for assessment	Assessment must ensure access to: • use of PC, printer and digital media technologies • use of digital media package currently used in industry • documents detailing organisational style guide and policy • digital media focused design brief. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of OHS, application usage for specific tasks and use of different digital media technologies • direct observation of candidate using a digital media package • review final digital media product prepared by candidate against design brief.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Ergonomic, work organisation, energy and resource conservation requirements may include:	• avoiding radiation from computer screens • chair height, seat and back adjustment • document holder • equipment that is reasonably adjusted to meet personal needs, in appropriate circumstances • exercise breaks • footrest • keyboard and mouse position • lighting • mix of repetitive and other activities • noise minimisation • posture • rest periods • screen position • workstation height and layout.
Design brief may include:	• approval sign-off • background • budget • deliverables • mandatory elements • objectives • target audience • time line.

Digital media packages may include:	• 3-D computer graphics software
	• animation software
	• commercial software applications
	• graphic arts software
	• hypermedia editing software, such as web development software
	• image editing software:
	  • raster graphics
	  • vector graphics
	• music sequencer or score writer

© Commonwealth of Australia, 2025 Future Skills Organisation

	• open-source software • organisation-specific software • sound editing software, such as digital-audio editor • video-editing software.
Data may include:	• graphics • icons • images • screenshots • sound • text • video.

Naming and storing documents may include:	• authorised access
	• filenames according to organisational procedure
	• filenames that are easily identifiable related to the content
	• file and directory names which identify the operator, author, section, date
	• filing locations
	• organisational policy for:
	  • backing up files
	  • filing hard copies of documents
	• security
	• storage in folders and sub-folders
	• storage on hard or floppy disk drives, CD-ROM, tape backup.

File format may include:	• HTML pages • music • PDF files • pictures • text files • video.

Unit Sector(s)

General ICT

Custom Content Section

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT205A Design basic organisational documents using computing packages

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to produce basic organisational documents using application software within organisational guidelines, procedures and policies.

Application of the Unit

This unit applies to individuals undertaking the design, creation and presentation of basic documents to meet organisational requirements in a small office environment.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Design documents to meet organisational needs	1.1 Determine basic design guidelines and requirements 1.2 Select appropriate ***application software*** 1.3 Use ***application software*** to design and configure document templates for use in a business environment
2. Use application software to develop documents	2.1 Use ***application software*** as per specifications to develop documents 2.2 Access, retrieve, manipulate and save ***document files*** 2.3 Amend designs according to ***organisational requirements*** 2.4 Store documents for wider access and editing as required
3. Evaluate and incorporate feedback	3.1 Obtain document sign-off from ***appropriate person*** 3.2 Incorporate feedback and update document

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - interact with clients and internal staff
  - provide customer service to internal customers
- literacy and numeracy skills to design, use and develop basic workplace documentation
- technical skills to:
  - undertake basic application troubleshooting
  - use a computer, scanners, laser printers and specific software.

Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

- broad knowledge of features of application packages
- current business practices related to preparing organisational documents
- industry standard input and output devices
- OHS principles and responsibilities for ergonomics
- organisational documentation and style guides
- organisational storage and retrieval procedures.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • access and employ a range of features of presentation software applications to produce a workplace document • develop several workplace documents with minimal instruction on their design from end user or supervisor.
Context of and specific resources for assessment	Assessment must ensure access to: • organisational requirements and a template for the documents • personal computer, scanner and laser printer • word-processing facilities • presentation software applications • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate designing and configuring document templates using applications • review of documents prepared by candidate aligning to organisational requirements • verbal or written questioning to assess candidate's knowledge of organisational requirements for documents.
Guidance information	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where

© Commonwealth of Australia, 2025 Future Skills Organisation

for assessment	appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Application software may include:	• commercial software applications • communication packages • graphics packages • organisation-specific software • presentation applications • word-processing packages.
Document files may include:	• database files • email messages • hypertext markup language (HTML) pages • pictures • portable document format (PDF) files • spreadsheet files • Word files.
Organisational requirements may relate to:	• consistent corporate image • content restrictions • established guidelines and procedures for document production • house styles • templates.
Appropriate person may	• authorised business representative • client

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• supervisor.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT206A Install software applications

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to select, install or upgrade basic commercial software applications.

Application of the Unit

This unit applies to workers who require the information and communications technology (ICT) skills to select, install and upgrade basic commercial software applications within a small to large office environment. Communicating effectively and supporting software application packages are key components of any ICT business or office environment.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine software or software upgrade requirements	1.1 Document ***client*** requirements and report to ***appropriate person*** 1.2 Act on instructions to meet client requirements, according to ***organisational requirements***
2. Obtain software or software upgrade	2.1 Investigate and select a ***software application program*** that best conforms to requirements and organisational policies 2.2 Obtain application program under instruction from appropriate ***person*** 2.3 Determine ***licensing requirements*** and record, according to organisational guidelines 2.4 Ensure target ***computer*** conforms to the minimum hardware and ***operating system*** requirements of the ***application program***
3. Install or upgrade software	3.1 Install new or upgraded ***software application program*** according to ***appropriate person*** or organisational instructions 3.2 Complete the installation process efficiently and effectively to minimise disruption 3.3 Carry out testing and acceptance, according to corporate guidelines, paying particular attention to possible ***effect*** on other systems 3.4 Ensure client requirements are satisfied 3.5 Refer outstanding ***client*** issues to ***appropriate person*** as necessary

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- communication skills to:
  - communicate with peers and supervisors
  - support software application deployment
- literacy skills to:
  - interpret user manuals and help functions
  - make decisions about licensing requirements
  - read and write basic workplace documents
  - seek assistance and expert advice
- technical skills to:
  - carry out testing
  - upload and install software
  - use computer hardware.

Required knowledge

- broad general knowledge of:
  - client business domain
  - hardware storage devices
  - input and output devices
  - licensing arrangements and responsibilities
  - operating systems supported by the organisation
  - organisational guidelines for purchasing
  - software application packages
  - software copyright responsibilities.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • install software applications through operating system instructions • configure computer to accept new software or upgrade

© Commonwealth of Australia, 2025 Future Skills Organisation

	• carry out testing and acceptance according to corporate guidelines.
Context of and specific resources for assessment	Assessment must ensure access to: • PC where software installation may be performed • use of application software currently used in industry • documents detailing organisational testing and acceptance policy and procedures • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's underpinning knowledge of software upgrade requirements, current industry standard application software and acceptance testing procedures • direct observation of candidate upgrading or installing new software.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

Client may include:	• employees • external organisations • individuals • internal departments.
Appropriate person may include:	• authorised business representative • client • supervisor.
Organisational requirements may include:	• budget • corporate purchasing • guidelines • licensing arrangements.
Software application program may include:	• database programs • email programs • internet browsers • spreadsheets • system browsers • word processing.
Licensing requirements may include:	• cost of licence • number of licences required • support provided • type of licence.
Computer may include:	• laptops • servers • workstations.
Operating system may include:	• Mac OS X • Linux • Windows.
Effect may relate to:	• data entry • effect on normal business • installation time • problems.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT207A Integrate commercial computing packages

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manipulate, convert and integrate data between two or more different commercial software applications.

Application of the Unit

This unit applies to information and communications technology (ICT) personnel who need to combine several different software applications to produce an integrated document within a small office or larger similar environment. The integration of software packages and their presentation are key components of any ICT business or office environment.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine work requirements	1.1 Identify the task requirement 1.2 Select appropriate ***software*** and file formats to perform required work 1.3 Obtain organisational documentation, such as procedures, manuals and guides and use when appropriate
2. Integrate data across different software application packages	2.1 Create a mailing list using a database, spreadsheet or address book, and merge mailing list with another document 2.2 Use ***software application package*** conversion tool to convert data from one ***format*** to another to enable additional work on the converted data 2.3 Save data to a new file format 2.4 Import ***objects*** from another software application package and modify as required to produce a required outcome 2.5 Export data to another ***software application package*** to produce a required outcome 2.6 Create a link between one ***software application package*** and another, and use this to update information to a document
3. Save and retrieve data with the aid of help functions	3.1 Save data to ***disk*** 3.2 Convert data to a new file ***format*** 3.3 Re-access data and check information 3.4 Access user help documentation or other resources for basic difficulties with ***software application package***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- communication skills to:
  - communicate with peers and supervisors
  - seek assistance and expert advice
- literacy skills to:
  - interpret user manuals and help functions
  - read and write basic workplace documents
- OHS awareness skills:
  - desktop layout
  - keyboard techniques
  - monitor and chair positioning
  - mouse usage
- problem-solving skills to address application management and help function usage issues when using applications
- technical skills to:
  - operate a personal computer (PC) and printer
  - use commercial computing packages
  - use a keyboard to enter text and numerical data
  - link documents.

Required knowledge

- current business practices related to preparing reports
- features and functions of commercial computing packages
- import and export software functions
- processes for linking documents
- OHS principles and responsibilities for ergonomics
- software packages used by the organisation
- strategies for integrating commercial computing packages
- use of input and output devices.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

© Commonwealth of Australia, 2025 Future Skills Organisation

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • select appropriate software and file formats • create mailing list and merge with another document • manipulate, convert and integrate data between commercial application software following organisational procedures.
Context of and specific resources for assessment	Assessment must ensure access to: • use of PC and printer • use of software currently used in industry • documents detailing organisational style guide and policy • documents or information containing data suitable for use with multiple computing packages • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of required software applications • direct observation of candidate converting and integrating data between commercial software applications • review of data or documents prepared by candidate demonstrating a wide range of features from integrated packages.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Software may include:	• commercial software applications • organisation-specific software.
Software application package may include:	• database • email • graphics • spreadsheet • Word.

Format may include:	• saving the document as another type of document, such as:
	  • comma separated values
	  • HTML
	  • text
	  • XML.

Objects may include:	• graphics • other documents • pictures • sound.

Disk may include:	• CD, DVD or blu-ray
	• storage devices:
	  • external, such as universal serial bus (USB) flash drive
	  • internal.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT208A Operate accounting applications

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to operate common accounting software packages in order to maintain enterprise financial records.

Application of the Unit

This unit applies to information and communications technology (ICT) personnel who need to understand and use commercial accounting tools and packages to support the financial area within a small to large office environment. A variety of commercial accounting tools and packages are readily available. A basic knowledge of double-entry accounting and the ability to read financial reports are considered an advantage for this unit.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Customise software	1.1 Select ***accounting software*** to meet business requirements 1.2 Load, register and configure accounting software according to ***operating instructions***
2. Create enterprise data	2.1 Establish chart of accounts according to ***business and legislative requirements*** 2.2 Create and add data on customers and sales 2.3 Create and add data on suppliers and purchases 2.4 Create and add payroll details 2.5 Create and add inventory details 2.6 Add required or suitable tax codes
3. Record and track transactions	3.1 Generate invoices and track their progress 3.2 Record customer payments and update customer details 3.3 Record and track purchases 3.4 Record payment of wages, ***allowances***, taxation and superannuation 3.5 Update business data as required
4. Save and back up data	4.1 Save accounting data to ***disk*** 4.2 Make a regular backup of ***accounting data*** and store in a safe location
5. Generate reports	5.1 Reconcile accounts 5.2 Generate and print ***financial reports*** based on accounting data 5.3 Check financial reports for errors and discrepancies 5.4 Discuss errors with ***appropriate person*** and rectify as required

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - communicate with peers and supervisors
  - seek assistance and expert advice
- literacy skills to:
  - interpret user manuals and help functions
  - read and write basic workplace documents
- numeracy skills to use mathematical ideas and techniques related to recording and analysing basic financial data
- problem-solving skills to address common operational problems when using accounting applications
- technical skills to operate a personal computer (PC) and peripherals.

Required knowledge

- basic accounting concepts:
  - assets
  - cost of sales
  - creditors
  - debtors
  - equity
  - expenses
  - income
  - liabilities
- basic accounting devices:
  - accounts
  - chequebook register
  - general ledger
  - invoices
  - purchases
  - sales journals
  - transaction journals
- current legislative requirements relating to enterprise requirements:
  - goods and services tax

© Commonwealth of Australia, 2025 Future Skills Organisation

  - income tax rates
  - pay as you go
  - superannuation
- features and functions of common accounting reports:
  - balance sheet
  - business activity statements
  - chart of accounts
  - profit and loss
  - features and functions of common accounting software.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • load and configure accounting software • create and maintain enterprise financial records, meeting business and legislative requirements • record and track transactions • back up data • reconcile accounts and generate reports.
Context of and specific resources for assessment	Assessment must ensure access to: • use of printer and PC with appropriate specifications to run the software • use of industry standard commercial accounting applications • documents detailing business requirements • legislative requirements if required • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of accounting operations

© Commonwealth of Australia, 2025 Future Skills Organisation

	• direct observation of candidate creating and maintaining enterprise financial records • review of reports, including reconciliation and discrepancy checks.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Accounting software may include:	• commercial accounting software applications:
	  • Microsoft Money
	  • MYOB
	  • Phoenix
	  • Quickbooks
	  • Quicken
	• organisation-specific accounting software.

Operating instructions may include:	• help desk • user manual • verbal request • written instructions from meetings.
Business and legislative requirements may include:	• customer • inventory • payroll • supplier

© Commonwealth of Australia, 2025 Future Skills Organisation

	• tax requirements of the organisation and the taxation department.

Disk may include:	• internal and external storage devices, such as:
	  • CD
	  • DVD
	  • blu-ray
	  • universal serial bus (USB) flash drive.

Accounting data may include:	• balance sheets • expenses • profit and loss statements • revenue.
Financial reports may include:	• balance sheets • business activity statements • profit and loss statements.
Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT209A Interact with ICT clients

Modification History

Version	Comments
ICAICT209A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to provide routine information and communications technology (ICT) client support in a professional manner.

Application of the Unit

This unit applies to frontline technical support personnel who interact with clients in an ICT support role. Communicating effectively and simplifying technical problems are key components of client support roles.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Deliver support to ICT clients	1.1 Provide support for ***ICT clients*** in a courteous and professional manner according to organisational policy 1.2 Establish and confirm nature of ***client's*** ICT concerns using active listening and questioning 1.3 Maintain ***client*** contact and provide progress information until the problem is resolved
2. Respond to ICT client complaints	2.1 Respond to ICT clients concerns and issues demonstrating a positive, sensitive and helpful attitude 2.2 Escalate and refer ***client*** concerns to ***support person*** if required, explaining the nature of issues involved 2.3 Resolve ICT ***client*** complaint using recommendations from the ***support person*** 2.4 Document and record ICT ***client*** concerns and solutions, according to ***organisational guidelines***
3. Evaluate received ICT client complaints	3.1 Analyse recent ICT register 3.2 Propose proactive training to appropriate person

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communications skills to:
  - establish and confirm nature of client concerns
  - liaise with clients and ICT support
  - respond to clients from diverse cultural and other backgrounds
- customer-service skills to provide support for clients in a courteous and professional manner

© Commonwealth of Australia, 2025 Future Skills Organisation

- decision-making skills applied to a limited range of options
- problem-solving skills to resolve client complaints.

Required knowledge

- current industry-accepted hardware and software products, with broad knowledge of general features and capabilities
- general knowledge of the ICT client business domain and business-critical functions
- general knowledge of organisational systems and working environment
- organisational policies for external and internal client contact.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of ability to: • provide routine ICT client support in a professional manner • refer client concerns to support person if required, according to escalation procedures • resolve client complaints • document and record client concerns and solutions, according to organisational guidelines.
Context of and specific resources for assessment	Assessment must ensure access to: • personal computer • relevant organisational guidelines • relevant documentation • site where routine ICT client support may be demonstrated • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate interacting with and providing support for clients • direct observation of candidate escalating client concerns to

© Commonwealth of Australia, 2025 Future Skills Organisation

	support person • verbal or written questioning to assess candidate's knowledge of enterprise escalation procedures • review of documentation of client concerns and solutions.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

ICT clients may include:	• external organisations • ICT administrators • ICT users • individuals • internal departments • vendors.
Support person may include:	• help-desk person • subject matter expert • supervisor • vendor business representative.
Organisational guidelines may include:	• access to software • communication methods • content of emails • dispute resolution • document procedures and templates

© Commonwealth of Australia, 2025 Future Skills Organisation

	• downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access • virus risk.

Unit Sector(s)

General ICT

Custom Content Section

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT210A Operate database applications

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to operate database applications and perform basic operations.

Application of the Unit

This unit applies to individuals who create and design databases using pre-existing data (e.g. documents, spreadsheet data, and data from database tables) or create new data when creating and manipulating databases and tables.

They may provide administrative support working under direct supervision or with limited responsibility.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Create database	1.1 Open a database application and design a two-table simple relational database incorporating basic ***design principles***
	1.2 Develop a table with fields and ***attributes*** according to database usage, as well as user requirements
	1.3 Create a primary key and establish an index for each table
	1.4 Modify table layout and field ***attributes*** as required
	1.5 Create a ***relationship*** between the two tables
	1.6 Add and modify data in a table according to information requirements
	1.7 Add and delete records as required
	1.8 Save and close down database to ***storage area***
2. Customise basic settings	2.1 Adjust ***page layout*** to meet user requirements
	2.2 Open and view different ***toolbars***
	2.3 Format ***font*** as appropriate for the purpose of the database entries
3. Create reports	3.1 Design reports to present data in a logical sequence
	3.2 Modify reports to include or exclude additional requirements
	3.3 Distribute reports to ***appropriate person*** in a suitable format
4. Create forms	4.1 Use a wizard to create a simple form
	4.2 Open existing database and modify records through a simple form
	4.3 Rearrange ***objects*** within the form to accommodate information requirements
5. Retrieve information	5.1 Access existing database and locate required records
	5.2 Create simple query and retrieve required information

© Commonwealth of Australia, 2025 Future Skills Organisation

	5.3 Develop query with multiple criteria and retrieve required information 5.4 Select data and display appropriately

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - communicate with peers and supervisors
  - seek assistance and expert advice
- literacy skills to:
  - interpret user manuals and help functions
  - read and write basic workplace documents
- numeracy skills to create simple queries
- problem-solving skills to address inconsistencies in data and issues in database
- technical skills to create a simple database.

Required knowledge

- basic database design
- forms, reports and queries for retrieving and displaying information
- relationships between tables (cardinality)
- purpose, use and function of database software.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and	Evidence of the ability to: • design and develop a simple database using a standard

© Commonwealth of Australia, 2025 Future Skills Organisation

evidence required to demonstrate competency in this unit	database package • add data • use queries • create forms and reports.
Context of and specific resources for assessment	Assessment must ensure access to: • use of PC and printer • use of database software currently used in industry • documents detailing organisational style guide and policy • documents or information containing data suitable for creating a database • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of database operations • direct observation of candidate creating and manipulating databases and retrieving information • review of forms and reports prepared that demonstrate database application skills.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Design principles may include:	• data layout • formatting • naming conventions.
Attributes may include:	• data type • name • size.
Relationship may be:	• one-to-one • one-to-many • many-to-many.
Storage area may include:	• CD • DVD • external hard drive, such as universal serial bus (USB) flash drive • internal hard drive • web area.
Page layout may include:	• landscape • portrait.
Toolbars may contain:	• buttons • menus • a combination of both.

Font may include:	• combination of typeface and other attributes:
	  • pitch
	  • size
	  • spacing character
	  • symbol.

Appropriate person may include:	• authorised business representative • client • supervisor.
Objects may include:	• buttons • checkboxes • drop down lists • option buttons

© Commonwealth of Australia, 2025 Future Skills Organisation

	• text boxes.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT211A Identify and use basic current industry-specific technologies

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use industry-specific technologies to meet identified industry standards.

Application of the Unit

This unit applies to individuals engaged in basic ongoing review and research in order to identify and apply industry technologies or techniques to improve aspects of the organisation's activities. The unit provides evidence of the application of basic industry-enabling technologies.

The unit emphasises the importance of constantly reviewing and demonstrating work processes, skills and techniques to ensure that the quality of the entire business process is maintained at the highest level possible through the appropriate application of industry-specific technologies.

Licensing/Regulatory Information

Users should confirm licensing, legislative, regulatory, or certification requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Prepare to use basic industry-specific technologies	1.1 Identify technologies specific to an ***industry sector***
	1.2 Acquire and use the ***industry-specific technologies***
	1.3 Identify, classify and use industry-specific technologies for the benefit of the organisation
2. Use basic industry-specific technologies to assist in solving organisational problems	2.1 Conduct testing of industry-specific technologies
	2.2 Use features and functions of industry-specific technologies within an organisational context
	2.3 Demonstrate depth of knowledge of enabling technologies to an accepted industry standard
	2.4 Access and use ***sources of information*** relating to the industry-specific technologies
3. Evaluate performance of basic industry-specific technology	3.1 Evaluate industry-specific technologies for performance, usability and benefit to the organisation
	3.2 Determine ***environmental considerations*** involved when using the technology
	3.3 Seek ***feedback*** from users where appropriate

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - communicate with peers and supervisors
  - seek assistance and expert advice
  - seek feedback from users
- basic research skills to locate appropriate sources of information regarding industry-specific technology
- literacy skills to interpret technical documentation, equipment manuals and specifications
- safety awareness skills to work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- technical skills to:
  - identify features of the industry-specific technology
  - test and evaluate the industry-specific technology
  - use the industry-specific technology.

Required knowledge

- broad awareness of current technology trends, directions in IT and specifically of the major industry technology standards used in the specified area
- broad knowledge of vendor product directions
- current industry hardware and software products, with broad knowledge of general features and capabilities and their application
- information-gathering techniques.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify basic new and emerging industry-specific technologies • use basic features and functions of identified industry-specific technologies to an industry standard.
Context of and specific resources for assessment	Assessment must ensure access to: • site where industry-specific technologies may be used • industry-specific technologies currently used in industry • documents detailing OHS standards, environmental guidelines and organisational requirements.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess knowledge of features and functions of industry-specific technologies • direct observation using basic industry-specific technologies • simulation of industry-specific uses of the basic industry-specific technologies.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Industry sector may include:	• business services or information worker • information and communications technology • telecommunication.

Industry-specific technologies may include:	• vendor-specific:
	  • hardware
	  • integrated services
	  • internet access

© Commonwealth of Australia, 2025 Future Skills Organisation

	• mobile communication devices • networks • peripherals • software.
Sources of information may include:	• appliances • software • technical connections guidance and other outputs supplied by vendors and manufacturers • documents • test pages • vendor and manufacturer guidance regarding requisite depth of knowledge of industry-specific technologies • web pages.

Environmental considerations may include:	• correct disposal by an authorised body of redundant hardware:
	  • circuit boards
	  • hard drives
	  • motherboards
	• recycling
	• safe disposal of packaging:
	  • cardboard
	  • paper
	  • plastic
	  • polystyrene.

Feedback may include:	• competency skill level • industry-validated demonstration of competency through certification • interviews • meetings.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT212A Incorporate Indigenous needs and perspectives into IT environment

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use information technology (IT) to meet the specific needs of Indigenous learners.

Note: delivery and assessment against this unit of competency must comply with Indigenous community protocols and guidelines and be supported by Elders or custodians of Country.

Application of the Unit

This unit applies to people working with Indigenous people and communities requiring the information and communications technology (ICT) skills to use the communication technologies, software applications and hardware solutions being used, and to research and discuss possible alternative IT solutions.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Identify the use of IT systems in the Indigenous community	1.1 Identify local community organisations, including ***Indigenous community organisations*** and other ***relevant Indigenous and related agencies***, that use IT 1.2 Determine specific ***Indigenous learning styles*** and ***knowledge systems*** that impact on the use of IT in an Indigenous community 1.3 Identify the most common ***communication technologies, software applications*** and ***hardware solutions*** used in the local community 1.4 Describe the use of IT in local community organisations, including Indigenous community organisations and other relevant bodies
2. Identify and use specific IT resources relevant to Indigenous people	2.1 Identify a range of methods of accessing Indigenous and non-Indigenous electronic resources for research and learning 2.2 Identify and access relevant ***Indigenous and IT websites*** and other online resources 2.3 Following community consultation, discuss and compare the relevance of a range of Indigenous websites to Indigenous communities
3. Identify appropriate IT resources to meet the needs of Indigenous people and communities	3.1 Use the most common local communication technologies, software applications and hardware solutions 3.2 Research and identify possible alternative communication technologies, software applications and hardware solutions 3.3 Discuss most appropriate IT resources with local Indigenous community, to meet Indigenous individual and community needs

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- basic research skills to identify alternative communication, software and hardware solutions
- communication skills to:
  - communicate with peers and supervisors
  - seek assistance and expert advice
- literacy skills to:
  - read and write at a basic level
  - use computer or online help functions
- problem-solving skills to address basic computer problems
- technical skills to:
  - access and use the internet
  - operate a personal computer (PC)
  - use basic application packages
  - use PC peripheral hardware.

Required knowledge

- basic knowledge of operating system, hardware and software products
- ergonomic principles to avoid back, wrist and eye strain
- OHS principles and responsibilities relating to IT specific to Indigenous community customs and practices.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate	Evidence of the ability to: • identify common communication technologies, software applications and hardware solutions used in the local

© Commonwealth of Australia, 2025 Future Skills Organisation

competency in this unit	Indigenous community • identify specific Indigenous customs and practices that impact on the use of IT within the community • use current communication technologies, software applications and hardware solutions • identify and discuss possible alternative IT solutions.
Context of and specific resources for assessment	Assessment must ensure access to: • PC • relevant hardware components • OHS standards and organisational policies and procedures • relevant software applications • common communication technologies • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal questioning of candidate to assess knowledge of common communication technologies, software applications and hardware solutions used in the local Indigenous community • direct observation of candidate using common communication technologies, software applications and hardware solutions used in the local Indigenous community.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Indigenous community organisations may include:	• Aboriginal businesses • Aboriginal Land Councils • educational groups • Indigenous Coordination Centres (ICC) • multi-purpose centres • Tribal Councils.
Relevant Indigenous and related agencies may include:	• Australian Bureau of Statistics • Centrelink • Department of Housing • education • government departments • internet providers.
Indigenous learning styles are generally characterised by cultural learning practices, including:	• emphasis on looking, listening and learning • learning independently or in a family group • observation, imitation and participation • practical exercises • privately or in small groups • ensuring collective progression • using procedural questions • visual interpretation.
Indigenous knowledge systems may include:	• being only available according to gender • being only available according to societal roles • ceremony • expression through cultural practices • knowledge of astronomy • lore or law • being maintained via Dreaming and creation stories • oral language transference • organisation through relationship and kinship ties • sacred and secret sites • social relationships • specific detail of Country • the Dreaming

© Commonwealth of Australia, 2025 Future Skills Organisation

	• ways that knowledge is maintained, such as through gatherings.

Communication technologies may include:	• cable connections
	• internet service provider (ISP) connection properties
	• satellite connections
	• wireless system (wi-fi), such as a combination of:
	  • digital subscriber line (DSL) modems
	  • wi-fi network cards
	  • wireless routers.

Software applications may include:	• databases • email • graphics packages • internet browsers • spreadsheets • system browsers • word-processing.
Hardware solutions may include:	• Bluetooth device • fax and modem • keyboard • laptop • mobile phone • monitor • mouse • multimedia kit • PC • personal digital assistant (PDA), such as palmtop • printer • scanner • speaker • tape cartridge • universal serial bus (USB) device • wi-fi router.
Indigenous and IT websites may include:	• Aboriginal Affairs NSW Department of Human Services • Australian Apprenticeship Training Information Service • Australian Computer Society, ICT careers portal • Australian PC Authority • Department of Education, Employment and Workplace Relations, Indigenous portal • Department of Education, Employment and Workplace Relations, training skills for Indigenous students • Indigenous portal - Australian government services for Indigenous people

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Koori Mail newspaper • National Indigenous Times newspaper • NSW Aboriginal Education Consultative Group Incorporated website • National Aboriginal Torres Strait Islander website • NSW Department of Aboriginal Affairs • PC World Australia.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT301A Create user documentation

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to create user documentation that is clear to the target audience and easy to navigate.

Application of the Unit

This unit applies to individuals in a range of information and communications technology (ICT) areas who are required to provide documentation to users of their system.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Determine documentation standards and requirements	1.1 Determine ***documentation*** requirements 1.2 Investigate documentation and industry ***standards*** for requirements and determine appropriate application to ***user documentation*** 1.3 Design documentation templates using appropriate software and obtain approval from ***appropriate person***
2. Produce user documentation	2.1 Conduct a review of the subject system, program, network or application in order to understand its functionality 2.2 Gather existing technical, design or user specifications and supporting documentation 2.3 Create user documentation based on template to record the operation of the subject system, program, network or application
3. Review and obtain sign-off	3.1 Submit user documentation to target audience for review 3.2 Gather and analyse feedback 3.3 Make changes to user documentation 3.4 Submit user documentation to appropriate person for approval

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to interact with clients and internal staff
- literacy skills to:
  - identify content
  - write content
- research skills to:
  - analyse audience needs

© Commonwealth of Australia, 2025 Future Skills Organisation

  - identify target audiences
- technical skills to:
  - determine appropriate content, formats and styles
  - select and use appropriate software and tools.

Required knowledge

- content features, including clarity and readability
- document design, web design and usability
- functions and features of templates and style guides
- instructional design principles.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to create user documentation that: • meets business requirements • caters for a diverse readership • is clear to the target audience • is easy to navigate.
Context of and specific resources for assessment	Assessment must ensure access to: • documentation standards • software tools for effecting documentation • information about system, platform, network or application being documented • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate producing documents for users using appropriate software • review of candidate's changes to user documentation based on user feedback

© Commonwealth of Australia, 2025 Future Skills Organisation

	• verbal or written questioning to assess candidate's knowledge of functionality of the system.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Documentation may include:	• design specifications • electronic copy • internet and intranet • online help • training materials in either hard copy • user manuals and procedure manuals.
Standards may include:	• International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • organisational standards • project standards • policy relating to cataloguing, sign-off, storage, distribution and revision.
User documentation may include:	• brochures • help references • online help • project specifications

© Commonwealth of Australia, 2025 Future Skills Organisation

	• reports • training materials and self-paced tutorials • user guides • user manuals.
Software may include:	• commercial software applications • graphics packages • help file creation software • multimedia authoring tools • organisation-specific software • presentation applications • word-processing packages.
Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT302A Install and optimise operating system software

Modification History

Version	Comments
ICAICT302A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit defines the performance outcomes, skills and knowledge required to install operating system (OS) software and to make adjustments as a means of optimising the system to accommodate business and client needs.

Application of the Unit

This unit applies to individuals in a technical support role who are required to identify the most suitable OS to meet organisational requirements. The unit develops the ability to install, configure and optimise the OS to identified vendor specifications.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine function of operating system	1.1 Identify and demonstrate understanding of the purposes of ***operating system***
	1.2 Distinguish between batch system, real-time system, multi-tasking system
	1.3 Compare and contrast different operating systems and their features
	1.4 Identify and demonstrate knowledge of the basic functions of operating system, including file system, memory management, process scheduling
	1.5 Identify and demonstrate management of virtual memory
2. Obtain operating system	2.1 Contact operating system vendors to obtain technical specifications and system requirements
	2.2 Identify the process and steps required to install and configure the operating system using ***installation components***
	2.3 Document adjustment recommendations and provide to ***appropriate person***
	2.4 Determine and apply knowledge of licensing, hardware and security requirements
3. Install, configure and optimise operating system	3.1 Install, configure and test operating system using installation components and ***boot-utility options***
	3.2 Use the relevant ***operating system user interface*** to correctly configure the installation
	3.3 Optimise the system to meet ***organisational requirements***
	3.4 Document the system according to organisational requirements
	3.5 Install the operating system with minimal disruption to ***client*** or users
4. Provide instruction to meet new software	4.1 Provide one-to-one instruction about changes to the client or users as required

© Commonwealth of Australia, 2025 Future Skills Organisation

requirements	4.2 Obtain client evaluation about new system to ensure requirements are met, using appropriate ***feedback mechanism***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - liaise with people working across different levels and in different contexts, such as operating system vendors and clients
- literacy skills to:
  - interpret technical computer installation manuals
  - obtain written and verbal feedback from clients
  - present information, such as the use of diagnostic tools
  - provide verbal instructions to client
- technical skills to:
  - install and configure operating system software
  - write instructions for clients.

Required knowledge

- current industry-accepted hardware and software products
- functions and features of operating systems used by the organisation
- installation and configuration of systems software
- architecture of current technical systems
- deployment of current organisational systems
- organisational requirements for operating system software
- prerequisites for system software installation
- set-up and configuration procedures
- software packages supported by the organisation
- system’s current functionality
- system’s diagnostic software
- vendor specifications and requirements for installation.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • install, configure and test an operating system to improve system performance with minimum disruption to clients.
Context of and specific resources for assessment	Assessment must ensure access to: • personal computer where installation may be performed • OS software and technical documentation • organisational documentation • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of candidate:
	  • questioning team members, supervisors and clients
	  • installing and testing an operating system
	• review of candidate's practical assignments and reports.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Operating system may include:	• Linux:
	  • Debian
	  • Fedora
	  • Google Chrome OS
	  • Kubuntu
	  • Linux Mint
	  • Red Hat
	  • Ubuntu
	• Mac OS X
	• Microsoft Windows:
	  • Windows 2000
	  • Windows XP (32 bit versus 64 bit)
	  • Windows Vista (32 bit versus 64 bit)
	  • Windows 7 (32 bit versus 64 bit)
	• mobile operating systems:
	  • Android
	  • Blackberry
	  • iPhone
	  • Palm
	  • Symbian
	  • Windows Phone 7 series.

Installation components may include:	• configure power management:
	  • hibernate
	  • sleep timers
	  • standby
	  • suspend
	  • wake on local area network (LAN)
	• demonstrate safe removal of peripherals
	• device manager:
	  • driver signing
	  • install and update devices drivers

© Commonwealth of Australia, 2025 Future Skills Organisation

	• verify
	• directory structures:
	  • create folders
	  • navigate directory structures
	• disk preparation order:
	  • format drive
	  • partition
	  • start installation
	• files:
	  • attributes
	  • creation
	  • extensions
	  • permissions
	• file systems, such as FAT32 versus new technology file system (NTFS)
	• installation methods:
	  • boot media, such as DVD, CD, floppy or universal serial bus (USB)
	  • factory recovery partition
	  • install from image
	  • network installation
	  • recover CD
	• operating system installation options:
	  • file system type
	  • network configuration
	  • repair install
	• user data migration - user state migration tool (USMT)
	• verification of hardware compatibility and minimum requirements
	• virtual memory.

Appropriate person may include:	• authorised business representative • client • supervisor.
Boot-utility options may include:	• automated system recovery (ASR) • boot options • boot to restore point • disk boot order or device priority • emergency repair disk (ERD) • recovery console • recovery options • safe mode

© Commonwealth of Australia, 2025 Future Skills Organisation

	• types of boot devices (disk, network, USB).

Operating system user interface may include:	• Windows-adopting interface to undertake similar tasks with chosen operating system:
	  • administrative tools, such as performance monitor, event viewer, services and computer management
	  • command prompt utilities, such as ipconfig, Ping and Telnet
	  • control panel
	  • location of basic network settings between OS versions
	  • MMC
	  • my computer
	  • my network places or home group
	  • run line utilities:
	  • cmd
	  • direct diagnostics (DXdiag)
	  • msconfig
	  • MSINFO32
	  • REGEDIT
	  • start menu
	  • task bar or systray
	  • task manager
	  • Windows Explorer - Libraries in Windows 7.

Organisational requirements may include:	• availability of system to be optimised • client support documentation • in-house or vendor • contracting arrangements relating to IT purchasing • IT policy and procedures relating to service levels and installation • level of complexity of technical manuals.
Client may include:	• department within the organisation • person with special needs • person within a department • third party.
Feedback mechanism may include:	• interview • meeting • questionnaire • survey.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT303A Connect internal hardware components

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to modify and connect system hardware components according to client and user requirements.

Application of the Unit

This unit applies to support technicians who modify and connect system components. Ensuring the integrity of the system after the operation is critical in the context of minimising client disruption and need for continuing desktop operation.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify, categorise and distinguish between the different types of internal hardware components	1.1 Identify and categorise the different ***internal hardware components*** 1.2 Explain the purpose and characteristics of the different internal hardware component categories 1.3 Distinguish between the different types of devices within each internal hardware component category
2. Determine components required	2.1 Identify and clarify user internal hardware component requirements according to ***organisational guidelines*** 2.2 Organise and record user component requirements, pass on to ***appropriate person*** for evaluation and vendor selection
3. Obtain components	3.1 Contact vendors to obtain technical specifications for the proposed components 3.2 Assess the options and provide recommendations to the appropriate person for final analysis 3.3 Obtain components to prepare for installation
4. Install components	4.1 Develop plans, with prioritised tasks and contingency arrangements, for the installation of selected components with minimum disruption to ***clients*** 4.2 Liaise with appropriate person to obtain approval for the plans 4.3 Install and configure components according to plan, installation procedures and ***organisational requirements*** 4.4 Test components for error-free performance, using available technology 4.5 Identify and resolve identified problems 4.6 Test and enhance system performance, using knowledge of the system, to meet organisational benchmarks 4.7 Document the installation and configuration process according to organisation guidelines
5. Evaluate modified	5.1 Collect client or user feedback and analyse against client

© Commonwealth of Australia, 2025 Future Skills Organisation

system	requirements 5.2 Correct identified shortcomings in the system and record actions

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - consult with peers and supervisors, and internal and external clients
  - interpret technical computer installation manuals
  - interpret user manuals and help functions
- literacy skills to:
  - organise resources for one-to-one instruction
  - plan, prioritise and organise work
  - write technical reports and maintain records
- planning and organisational skills to address technical issues
- problem-solving skills to anticipate and respond to a range of driver-related errors that may arise
- technical skills to:
  - comprehend how the operating system will communicate with the installed component
  - install components
  - test components using available technology
  - test system performance.

Required knowledge

- areas of the operating system relevant to configuration and testing
- current industry-accepted hardware and software products
- environmental considerations in e-waste disposal
- organisational guidelines and organisational requirements with regard to safety, recycling and component installation
- system's diagnostic software and current functionality
- vendor specifications and requirements for component installation.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify and categorise the different types of internal hardware components • modify system's hardware to meet client requirements • plan the modification and connect internal hardware components according to vendor and technical specifications • install components across a variety of situations and account for unexpected contingencies.
Context of and specific resources for assessment	Assessment must ensure access to: • personal computer and internal hardware components for installation • current industry standard performance testing software • documents detailing organisational guidelines and requirements • technical manuals and tools • appropriate learning and assessment support when required • modified equipment for people with special needs. Note: The careful planning and promotion of hardware upgrades and changes are critical to the effective support of business functions. Hardware modifications need to be risk managed similar to other business processes. The effective management and execution of the component maintenance and replacement process may significantly determine the amount of downtime a company encounters.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate’s knowledge of system diagnostic software and system functionality • direct observation of candidate connecting internal hardware components • evaluation of client requirements and candidate’s final recommendations

© Commonwealth of Australia, 2025 Future Skills Organisation

	• review of candidate's written notes. Note: Evidence for assessment from industry or vendor-certified training may be presented for the whole or part of this unit depending on the range of variables and performance criteria.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Internal hardware components may include:	• adapter card components:
	  • communications:
	  • modem
	  • network interface card (NIC)
	  • I/O:
	  • parallel
	  • small computer system interface (SCSI)
	  • serial
	  • universal serial bus (USB)
	  • multimedia:
	  • capture cards
	  • sound card
	  • TV tuner cards
	  • video:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• AGP • peripheral component interconnect (PCI) • PCIe • cooling system components: • CPU and case fans • heat sinks • liquid cooling systems • thermal compound • CPU components and features: • 32 bit versus 64 bit • hyper threading • identify CPU types: • AMD • Intel • multi-core: • dual core • quad core • triple core • onchip cache: • L1 • L2 • speed (real versus actual) • display device components: • connector types: • component or RGB • DVI pin compatibility • HDMi • S-Video • VGA • LCD technologies: • contrast ratio • native resolution • resolution (e.g. XGA, SXGA+, UXGA, WUXGA) • projectors, CRT and LCD • settings: • degauss • multi-monitor • refresh rate • resolution

© Commonwealth of Australia, 2025 Future Skills Organisation

	• memory components and features:
	  • ECC versus non-ECC
	  • parity versus non-parity
	  • single channel versus dual channel
	  • single sided versus double-sided
	  • speed:
	  • PC100
	  • PC133
	  • PC2700
	  • PC3200
	  • DDR3-1600
	  • DDR2-667
	  • types:
	  • DRAM
	  • SRAM
	  • SDRAM
	  • DDR or DDR2 or DDR3
	  • RAMBUS
	• motherboard components:
	  • basic input/output system (BIOS), complementary metal oxide semiconductor (CMOS) or Firmware:
	  • CMOS battery
	  • POST
	  • bus architecture
	  • bus slots:
	  • AGP
	  • AMR
	  • CNR
	  • PCI
	  • PCIe
	  • Personal Computer Memory Card International Association (PCMCIA)
	  • chipsets
	  • contrast RAID (levels 0, 1, 5)
	  • form factor:
	  • ATX or BTX
	  • micro ATX
	  • NLX
	  • I/O interfaces:
	  • IEEE 1394 or Firewire

© Commonwealth of Australia, 2025 Future Skills Organisation

	• modem • NIC • parallel • PS/2 • serial • sound • USB 1.1 and 2.0 • video • memory slots: • DIMM • RIMM • SIMM • SODIMM • parallel advanced technology attachment (PATA): • EIDE • IDE • processor sockets • riser card or daughterboard • serial advanced technology attachment (SATA) • eSATA • power supply components: • AC adapter • ATX proprietary • pins (20, 24) • voltage selector switch • voltage, wattage and capacity • storage devices and backup media components: • floppy disk drive (FDD) • hard disk drive (HDD): solid state versus magnetic • optical drives, such as CD, DVD, RW or blu-ray • removable storage: • external CD-RW and hard drive • hot swappable devices and non-hot swappable devices • solid state (e.g. thumb drive, flash, SD cards, USB) • tape drive.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites

© Commonwealth of Australia, 2025 Future Skills Organisation

	• financial control mechanisms • opening mail with attachments • personal use of emails and internet access • virus risk.
Appropriate person may include:	• authorised business representative • client • supervisor.
Clients may include:	• department within the organisation • person within a department • third party.
Organisational requirements may include:	• how and what the organisation wants in regard to work environment • preventative maintenance and diagnostic policy • problem solution processes • roles and technical responsibilities in the IT department • vendor and product service level support agreements.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT304A Implement system software changes

Modification History

Version	Comments
ICAICT304A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to implement system software changes and to hand over the modified system to the client's operational area.

Application of the Unit

This unit applies to those working in support roles who are required to update operating systems on client computers with the latest technology fixes.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Determine system changes required	1.1 Determine and record required changes to ***system***
	1.2 Ensure that documentary evidence exists to support changes and evaluate changes required
	1.3 Complete ***documentation*** required according to maintenance methodologies
	1.4 Clarify and confirm the nature of the changes with the ***client***
	1.5 Obtain technical data from reliable sources and request other resources that may be required to complete the changes
2. Carry out system changes	2.1 Plan the procedure to effect intended changes
	2.2 Consult with colleagues and ***users*** involved in the proposed changes and agree a mutually acceptable timeline and method of implementation
	2.3 Copy initialisation or configuration files prior to implementation
	2.4 Create a roll-back path in the event of failure
	2.5 Ensure that changes required in ***software*** are made according to project or ***organisational guidelines***
	2.6 Test and verify that the changes have been made according to implementation guides and ***organisational standards***
3. Present changes to client	3.1 Demonstrate changes to the client and explain the impact of these changes
	3.2 Work towards making these changes acceptable to the client if changes are rejected, or making further modifications if required
	3.3 Update documentation and repositories according to standards and update modifications made to the change-management system
4. Perform handover to client	4.1 Update documentation and client procedures to reflect changes made
	4.2 Secure sign-off of acceptance documents by client
	4.3 Facilitate handover of modified system to client's operational area

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - consult with colleagues and users
  - evaluate client user requirements
- literacy skills to:
  - interpret organisational guidelines and standards
  - interpret policy and procedures
  - interpret technical manuals
  - write documentation and client procedures
- planning and organisational skills to:
  - effect intended changes
  - prioritise and organise own work
  - technical skills to install and configure system software.

Required knowledge

- business scheduling requirements
- change control procedures
- client business domain
- current industry-accepted hardware and software products
- emerging standards for data and voice communications
- system's current functionality
- features of system under modification
- organisational policy and procedures with regard to system changes
- vendor software services with regard to system changes.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

© Commonwealth of Australia, 2025 Future Skills Organisation

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • evaluate, document and implement changes to the system with minimum disruption to the system and client users.
Context of and specific resources for assessment	Assessment must ensure access to: • computer • system software currently used in industry • technical manuals and tools • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of the system's functionality • direct observation of candidate implementing software change • evaluation of candidate's change process and updated modifications • review reports prepared by candidate, including log books and test results.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

System may include:	• application • business • computers • financial system • information system • management system • mobile equipment • network • software.
Documentation for version control may follow:	• audit trails • client training • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • maintaining equipment inventory • naming standards • project-management templates and report writing • satisfaction reports • version control.
Client may include:	• customer • external organisation • individual • internal department • internal employee.
Users may include:	• department within the organisation • person within a department • third party.
Implementation may include:	• formulating methods for standby operations or contingency plans • implementing the entire system.
Software may include:	• commercial software applications • in-house or customised software • organisation-specific software

© Commonwealth of Australia, 2025 Future Skills Organisation

	• packaged software.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • making voice or video calls • opening mail with attachments • personal use of emails and internet access • virus risk.
Organisational standards may include:	• communication with stakeholders • dispute resolution and modification procedures • formal procedures that must be adhered to, such as check points and sign-offs with documented procedures and templates • implementation of financial control mechanisms • processes for determining size and cost.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT305A Identify and use current industry-specific technologies

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use specific industry technologies to meet identified industry standards.

The unit emphasises the importance of constantly reviewing and demonstrating work processes, skills and techniques to ensure that the quality of the entire business process is maintained at the highest level possible through the appropriate application of industry-specific technologies.

Application of the Unit

This unit applies to individuals engaged in ongoing review and research in order to identify and apply industry technologies or techniques to improve aspects of the organisation's activities.

Licensing/Regulatory Information

Users should confirm licensing, legislative, regulatory, or certification requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Prepare to use industry-specific technologies	1.1 Identify technologies specific to an ***industry sector***
	1.2 Acquire and use the ***industry-specific technologies***
	1.3 Identify, classify and use industry-specific technologies where appropriate, for the benefit of the organisation
2. Use industry-specific technology to assist in solving organisational problems	2.1 Conduct testing of industry-specific technology
	2.2 Use features and functions of industry-specific technology within an organisational context
	2.3 Demonstrate depth of knowledge of the enabling technologies to an accepted industry standard
	2.4 Access and use ***sources of information*** relating to the industry-specific technology
3. Evaluate industry-specific technology performance	3.1 Evaluate industry-specific technology for performance, usability and benefit to the organisation
	3.2 Determine ***environmental considerations*** involved with using the technology
	3.3 Seek ***feedback*** from users, where appropriate

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- basic research skills to locate appropriate sources of information regarding industry-specific technology
- communication skills to:
  - communicate with peers and supervisors
  - seek assistance and expert advice
  - seek feedback from users
- literacy skills to interpret technical documentation, equipment manuals and specifications
- safety awareness skills to work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- technical skills to:
  - identify features of industry-specific technology
  - test and evaluate industry-specific technology
  - use industry-specific technology.

Required knowledge

- broad awareness of current technology trends, directions in IT and specifically of the major industry technology standards used in the specified IT area
- vendor product directions relating to specified IT area
- current industry hardware and software products, with broad knowledge of their general features, capabilities and application
- information-gathering techniques.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify new and emerging industry-specific technologies • use features and functions of identified industry-specific technologies to an industry standard level.
Context of and specific resources for assessment	Assessment must ensure access to: • site where industry-specific technologies may be used • industry-specific technologies currently used in industry • documents detailing OHS standards, environmental guidelines

© Commonwealth of Australia, 2025 Future Skills Organisation

	and organisational requirements • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of features and functions of industry-specific technologies • direct observation of candidate using industry-specific technologies • simulation of industry-specific uses of the industry specific technologies.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Industry sector may include:	• business services or information worker • information and communication technology • telecommunication.
Industry-specific technologies may include vendor-specific:	• hardware • integrated services • internet access • mobile-communication devices

© Commonwealth of Australia, 2025 Future Skills Organisation

	• networks • peripherals • software.
Sources of information may include:	• appliances software and technical connections guidance and other outputs supplied by vendors and manufacturers • documents • test pages • vendor and manufacturer guidance regarding requisite depth of knowledge of industry-specific technologies • web pages.

Environmental considerations may include:	• correct disposal by an authorised body of redundant hardware:
	  • circuit boards
	  • hard drives
	  • motherboards
	• recycling
	• safe disposal of packaging:
	  • cardboard
	  • paper
	  • plastic
	  • polystyrene.

Feedback may include:	• competency skill level • industry-validated demonstration of competency through certifications • interviews • meetings.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT306A Migrate to new technology

Modification History

Version	Comments
ICAICT306A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use upgraded technology. It includes testing and evaluating new technologies to improve the organisation's performance.

Application of the Unit

This unit applies to individuals engaged in ongoing review and research in order to identify and apply new technology or techniques to improve aspects of the organisation's activities.

The unit emphasises the importance of constantly reviewing work processes, skills and techniques to ensure that the quality of the entire business process is maintained at the highest level possible through the appropriate application of new technology.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Prepare to use new technology	1.1 Review organisation's goals and activities 1.2 Research new operational technologies that will advance the organisation's goals and activities 1.3 Prepare evaluation checklist 1.4 Evaluate and select the most appropriate technologies 1.5 Acquire selected ***technology*** 1.6 Identify and use new or upgraded ***equipment*** where appropriate, for the benefit of the organisation
2. Use technology to assist in solving organisational problems	2.1 Conduct testing of new or upgraded equipment 2.2 Use features and functions of new or upgraded equipment and ***software*** within the organisation 2.3 Access and use ***sources of information*** relating to new or upgraded equipment
3. Evaluate new or upgraded technology performance	3.1 Evaluate new or upgraded equipment for performance and usability against ***OHS standards*** and evaluation criteria 3.2 Determine ***environmental considerations*** from new or upgraded equipment 3.3 Seek ***feedback*** from users, where appropriate 3.4 Document new technology in a method consistent with organisation's guidelines

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- analytical skills to evaluate features and functions of new equipment and software
- communication skills to:
  - communicate with peers and supervisors
  - seek assistance and expert advice
  - seek feedback from users
- literacy skills to interpret technical documentation, equipment manuals and specifications
- planning and organisational skills to prioritise and monitor own work
- safety awareness skills to work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- research skills to locate appropriate sources of information regarding IT and new technologies
- technical skills to:
  - assist in the decision-making process
  - identify features of new technologies
  - test and evaluate new software and equipment.

Required knowledge

- current technology trends and directions in IT:
  - hardware
  - new developments
  - new protocols
  - services
  - software
- current industry hardware and software products, with broad knowledge of general features and capabilities
- information-gathering techniques
- vendor product directions relating to specified technology.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and	Evidence of the ability to:

© Commonwealth of Australia, 2025 Future Skills Organisation

evidence required to demonstrate competency in this unit	• identify new and emerging technology in IT • conduct testing and evaluate new equipment for the benefit of the organisation • use features and functions of new technologies, including software and equipment.
Context of and specific resources for assessment	Assessment must ensure access to: • site where new technology may be used • new equipment and software currently used in industry • documents detailing OHS standards, environmental guidelines and organisational requirements • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of features and functions of new technology • direct observation of candidate using new technology • review of evaluation prepared by candidate evaluating upgraded technology performance • evaluation of currency of appropriate technology.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Technology may include:	• communications equipment • hardware • networks • personal computers (PCs) • storage.
Equipment may include:	• hard drives • hubs • tablet • modems and other connectivity devices, such as digital subscriber line (DSL) modems • monitors • other peripheral devices • PCs • personal digital assistant (PDA) • printers • switches • workstations.

Software may include:	• commercial software packages
	• customer relationship management
	• enterprise systems (corporate systems)
	• integrated services:
	  • banking
	  • financial services
	• user-based software for new business processes.

Sources of information may include:	• appliance software and technical connections guidance and other outputs supplied by vendors and manufacturers • documents • test pages • web pages.
OHS standards may relate to:	• correct lifting methods • correct posture • length of time in front of computer

© Commonwealth of Australia, 2025 Future Skills Organisation

	• light position
	• lighting
	• physical safety considerations:
	  • general electrical safety and cabling
	  • power supply and leads applying to computer and peripheral installations
	• repetitive strain injury prevention
	• style of chair
	• type of desk
	• type of monitor
	• typing position
	• ventilation.

Environmental considerations may include:	• correct disposal by an authorised body of redundant hardware:
	  • circuit boards
	  • hard drives
	  • motherboards
	• recycling
	• safe disposal of packaging:
	  • cardboard
	  • paper
	  • plastic
	  • polystyrene.

Feedback may include:	• interviews • meetings • questionnaires • surveys.

Unit Sector(s)

General ICT

Custom Content Section

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT307A Customise packaged software applications for clients

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to analyse, design, implement and review the customisation of packaged software applications, using simple programming constructs.

Application of the Unit

This unit applies to individuals who focus on analysing the range of software-based activities in the workplace, in order to improve the processes involved.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Analyse customisation requirements	1.1 Determine ***client*** requirements and document these in a requirement specifications file in line with ***organisational requirements*** 1.2 Confirm that projected specifications meet client requirements 1.3 Determine required level of ***documentation*** necessary to meet client requirements
2. Develop customisation	2.1 Design ***software applications***, taking into account ***system*** limitations and client needs 2.2 Customise software applications using simple programming constructs, conforming to organisational requirements 2.3 Obtain feedback from the client following client testing of the customised software applications 2.4 Make further changes to software applications to meet client requirements 2.5 Document the changes
3. Provide support for customised application	3.1 Produce documentation for client 3.2 Produce help-desk documentation for ongoing support 3.3 Obtain clients' evaluation and feedback to ensure that their requirements have been met

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse customisation requirements
- communication skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - communicate with clients
  - convey and clarify complex information
  - seek assistance and expert advice
- literacy skills to interpret technical documentation, equipment manuals and specifications
- planning and organisational skills to prioritise and monitor own work
- problem-solving skills to solve operational problems as they arise
- safety awareness skills to work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- research skills to locate appropriate sources of information regarding IT and new technologies
- technical skills to:
  - analyse and interpret technical aspects of implementation
  - customise applications
  - identify if new features are useful or desirable
  - operate software applications
  - use simple programming constructs.

Required knowledge

- current industry-accepted hardware and software products, including their general features and capabilities
- functions and features of software applications suitable for client
- functions and features of the operating system (OS)
- IT structure and system infrastructure
- organisational OHS requirements relating to working with computer software
- organisational policy and procedures relating to customising software
- organisational security procedures.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate	Evidence of the ability to: • identify and document client requirements to customise software applications • design software applications

© Commonwealth of Australia, 2025 Future Skills Organisation

competency in this unit	• analyse, implement and review customised software applications • produce documentation for client.
Context of and specific resources for assessment	Assessment must ensure access to: • site where software applications may be customised • use of customisable software applications currently used in industry • client requirements documentation • organisational requirements • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of a software package and how to modify it, using its built-in structures
	• direct observation of candidate modifying software applications to meet client requirements
	• review of:
	  • help-desk documentation prepared by candidate for ongoing support
	  • feedback from client to ensure requirements have been met.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• employee • external organisation • individual • internal department.
Organisational requirements may relate to:	• preventative maintenance and diagnostic policy • problem solution processes • roles and technical responsibilities in the IT department • vendor and product service level support agreements • work environment.
Documentation may refer to:	• audit trails • client training • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • maintaining equipment inventory • naming standards • project-management templates and report writing • satisfaction reports • version control.

Software applications may include:	• commercial software applications and organisation-specific software:
	  • communication packages
	  • database
	  • graphic
	  • presentation functionalities
	  • spreadsheet
	  • word-processing
	• presentation applications contained in:
	  • Claris Works
	  • Lotus Suite
	  • Microsoft Office
	  • Star Office

© Commonwealth of Australia, 2025 Future Skills Organisation

	• other similar applications.
System may include:	• application • business • computers • financial system • information system • management system • network • software.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT308A Use advanced features of computer applications

Modification History

Version	Comments
ICAICT308A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use computer applications employing advanced features. It involves manipulating data and accessing support resources to solve routine problems.

Application of the Unit

This unit applies to individuals who are expert users or advanced users and capable of tutoring colleagues in the use of commercial applications.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

	italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Manipulate data	1.1 Employ ***advanced features*** of ***applications*** in the preparation and presentation of data 1.2 Transfer data between applications, linking and embedding related data files as required 1.3 Create and employ ***objects***, macros and templates for routine activities 1.4 Use shortcuts and features to increase personal productivity
2. Access and use support resources	2.1 Solve routine problems using support resources 2.2 Use online help to overcome difficulties with applications 2.3 Solve problems with manuals and training booklets 2.4 Access and apply technical support for ***system*** problems, using troubleshooting results and alert messages

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - communicate with supervisors and peers
  - seek assistance and expert advice
  - use online help
- literacy skills to interpret technical documentation, equipment manuals and specifications
- planning and organisational skills to prioritise and monitor own work
- problem-solving skills to solve operational problems as they arise
- research skills to source support resources to solve routine problems

© Commonwealth of Australia, 2025 Future Skills Organisation

- safety awareness skills to work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- technical skills to:
  - apply technical support for system problems
  - operate software applications
  - use applications features
  - use online help.

Required knowledge

- basic knowledge of operating systems software and system tools
- vendor product directions in computer applications
- vendor applications and their features.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • use at least three computer applications employing advanced features and import and export capacities for efficiency and productivity purposes • solve routine problems using support resources.
Context of and specific resources for assessment	Assessment must ensure access to: • site where advanced features of computer applications may be used • computer applications currently used in industry • documents or information containing data suitable to demonstrate advanced features of computer applications • support resources, including online, manuals and training booklets • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess

© Commonwealth of Australia, 2025 Future Skills Organisation

	practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of:
	  • support resources, including online, manuals and training booklets
	  • advanced features of a number of computer applications
	• direct observation of candidate:
	  • manipulating data between applications
	  • creating and employing objects, macros and templates.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Advanced features may include:	• conditional formatting • cross-referencing • form controls • forms • formulas • graphics

© Commonwealth of Australia, 2025 Future Skills Organisation

	• hyperlinks • macros • mail merge • master documents • names • object linking and embedding (OLE) • ranges • sections • styles • tables • templates • validation.

Applications may include:	• commercial software applications and organisation-specific software:
	  • communication packages
	  • database
	  • graphic
	  • presentation functionalities
	  • spreadsheet
	  • word-processing
	• presentation applications contained in:
	  • Claris Works
	  • Lotus Suite
	  • Microsoft Office
	  • Star Office
	  • other similar applications.

Objects may include:	• buttons • checkboxes • drop-down lists • option buttons • text boxes.
System may include:	• application • business • computers • financial system • information system • management system • network • software.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

General ICT

Custom Content Section

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT401A Determine and confirm client business requirements

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to determine client business requirements and verify the accuracy of the information gathered.

Application of the Unit

This unit applies to information technology (IT) personnel who are required to gather information to determine business system requirements to meet client expectations and needs.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine context of business need or problem	1.1 Establish the business ***problem*** to be investigated, including determining ***system*** boundaries, scope and the development methodology to be used 1.2 Choose ***information-gathering method*** and develop questions appropriate to business problem 1.3 Develop objectives and identify expected outcomes to be achieved 1.4 Document the business problem 1.5 Submit ***documentation*** to ***appropriate person*** for substantiation
2. Gather information	2.1 Use chosen information-gathering method to identify ***clients*** of the system and problems they encounter 2.2 Record client responses 2.3 Analyse gathered information to identify new ***system requirements*** and establish problem specifications 2.4 Document system requirements and problems 2.5 Analyse physical requirements and identify changes required to implement new systems
3. Confirm system specifications	3.1 Check documentation to ensure it meets client business needs 3.2 Submit documentation to the client for verification of accuracy and approval 3.3 Make changes to the documentation as necessary and indicated by the client 3.4 Submit documentation to client for final approval or sign-off

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- communication skills to:
  - collect and present information
  - liaise and negotiate with internal and external personnel
  - participate in teams
- initiative and enterprise skills to identify, analyse and evaluate information from a variety of sources
- literacy skills to:
  - gather, analyse and evaluate information
  - prepare documentation
- problem-solving skills to:
  - participate in the development of strategic initiatives and contribute to solutions
  - troubleshoot common system problems
- research skills to specify, analyse and evaluate broad features of a particular business domain
- technical skills to provide current advice on systems and data-gathering products.

Required knowledge

- data-gathering techniques
- detailed knowledge in areas related to client business
- functional organisational charts and their interpretation
- physical requirements of the client's business, taking into account current system functionality, geography, environment, client user and cost constraints
- products related to data capture
- role of stakeholders and the degree of stakeholder involvement.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate	Evidence of the ability to: • use investigative techniques to interview and document • produce a clear statement of business expectations and needs,

© Commonwealth of Australia, 2025 Future Skills Organisation

competency in this unit	including critical business requirements.
Context of and specific resources for assessment	Assessment must ensure access to: • current business needs • a client expectations brief • business objectives • systems, data gathering and appropriate software products • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate documenting a business problem • verbal or written questioning to assess candidate's knowledge of techniques for gathering, analysing and documenting information • review of documented system specifications developed by candidate for approval by client.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

Problem may refer to:	• application • business • network • system.
System may include:	• application • business • cabling infrastructure • computers • financial information • management • network equipment • software.
Information-gathering method may include:	• focus groups or observation • interviews • physical-site surveys • questionnaires • surveys • vendor offerings.

Documentation may include:	• audit trails
	• standards:
	  • Australian Standards (AS)
	  • Institute of Electrical and Electronics Engineers (IEEE)
	  • International Electrotechnical Commission (IEC)
	  • International Organization for Standardization (ISO)
	  • Internet Engineering Task Force (IETF)
	  • naming
	• project management templates
	• report writing principles
	• version control.

Appropriate person may include:	• authorised business representative • client • supervisor.
Clients may include:	• customers • employees • external organisations • individuals • internal departments.
System requirements may include:	• client user • cost constraints

© Commonwealth of Australia, 2025 Future Skills Organisation

	• environment • geography • system functionality.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT402A Determine project specifications and secure client agreement

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop agreed acceptance criteria for a particular project.

Application of the Unit

This unit applies to those involved in development or maintenance work in a variety of IT areas who are responsible for securing client sign-off to projects.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine milestones and quality attributes with client	Interview ***client*** to determine ***project*** deliverables and ***acceptance criteria*** Document project milestones and associated deliverables in measurable terms, taking into account ***constraints*** Determine and document criteria to evaluate each deliverable Negotiate quality standards with client and document Confirm project direction with ***appropriate person***
2. Formulate metrics and milestones	Define the units of measurement (metrics) that will be used in the project, including consideration of project milestones, timeframe and costs Schedule the measurement of project milestones and associated deliverables Document the process for analysing variances and their impact on the project Schedule quality reviews into project plan
3. Obtain client agreement to acceptance criteria	Obtain client agreement for project delivery dates Communicate acceptance criteria clearly and coherently to the client Obtain client agreement to acceptance criteria and anticipated timeframes for the project

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - undertake function point
  - determine the metrics process in line with client requirements
- communication skills to:
  - facilitate groups
  - liaise and negotiate with clients and team members
  - present, transfer and collect information and gain consensus
- literacy skills to deal with clients and team members
- planning and organisational skills to:
  - participate in the development of strategic initiatives
  - undertake risk management
  - undertake scoping, timeframe, cost, and quality of a project
  - determine communications for a project
- research skills to specify, analyse and evaluate broad features of a particular business domain and best practice in system development methodologies
- technical skills to formulate system development and milestones.

Required knowledge

- detailed knowledge of:
  - client business area
  - project planning methodologies and tools
  - quality processes
  - system development plans
  - technical tools and their use relating to task list, such as when formulating metrics and milestones
  - theory and purpose of metrics.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop acceptance criteria for a project • document this according to organisational standards • present this document to stakeholders and obtain approval.

© Commonwealth of Australia, 2025 Future Skills Organisation

Context of and specific resources for assessment	Assessment must ensure access to: • client requirements • technical specifications • organisational and process goals • critical business requirements • predefined high-level acceptance criteria • project deliverables • future organisational business processes • test plan • project-budget timeframe. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate performing review of quality attributes • verbal or written questioning to assess candidate's knowledge of formulating metrics and milestones • review of candidate's acceptance criteria and timeframes for approval by client.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• employees • external organisations • individuals • internal departments.
Project may include:	• business improvement process • ebusiness solution involving the total organisation or part of the organisation • systems-only change • total organisational change.
Acceptance criteria may include:	• cost implications • logistical considerations • technical • timeframe.
Constraints may include:	• budget • hardware • legal constraints • policy • resource • software • time.
Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT403A Apply software development methodologies

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to apply traditional and non-traditional systems development methodologies.

Application of the Unit

This unit applies to those working in a senior development role in a range of information and communications technology (ICT) areas who choose and apply appropriate development methodologies.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Determine and select appropriate methodology for a given activity	1.1 Determine and define subject activity 1.2 Define criteria for selection of development ***methodology*** 1.3 Review and evaluate a range of ***traditional and non-traditional system development methodologies*** 1.4 Select appropriate system development methodology to suit the activity
2. Apply the selected development methodology	2.1 Create an initial ***project*** plan to guide developmental processes 2.2 Identify appropriate ***task types*** according to development methodology 2.3 Clearly describe and articulate task types 2.4 Define appropriate ***control structures*** that need to be created during task type execution 2.5 Associate each task type with a set of ***input and output*** parameters
3. Adjust project to suit appropriate methodology	3.1 Identify resources to support methodology selection 3.2 Apply appropriate methodology to solve tasks 3.3 Monitor project flow and record effectiveness against project plan 3.4 Review and document opportunities for improvement, lessons learned and recommendations for future projects 3.5 Submit results to ***appropriate person*** for approval

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- analytical skills to analyse the benefits of one methodology over another
- communication skills to:
  - gain consensus on concepts when planning the application of the methodology to the project
  - present information
- literacy skills to:
  - prepare reports required by development methodology
  - write business reports
- planning and organisational skills to:
  - develop project plan
  - manage system development
- problem-solving skills to select development methodology suitable to a client business context
- technical skills to evaluate development methodologies.

Required knowledge

- client business domain and organisational requirements
- current project requirements
- role of stakeholders and the degree of stakeholder involvement in the development process
- two or more current industry development methodologies.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop a project plan • apply a methodology to a project • produce documentation as required by the chosen methodology.
Context of and specific resources for	Assessment must ensure access to: • design specifications and current methodologies

© Commonwealth of Australia, 2025 Future Skills Organisation

assessment	• organisational standards for documentation and version control • detailed user requirements document, including model and scope • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate conducting the stages of a development methodology within the scope of a project • verbal or written questioning to assess candidate's knowledge of a variety of system development methodologies and their application to a systems project • review of supporting documentation produced by candidate.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Methodology may include:	• traditional methodology • non-traditional methodology.

© Commonwealth of Australia, 2025 Future Skills Organisation

Traditional system development methodologies may include:	• design methodology • structured systems analysis • system development life cycle.
Non-traditional system development methodologies may include:	• multi-view • object-oriented analysis and design • prototyping • soft system methodology.
Project may include:	• business improvement process • ebusiness solution involving the total organisation or part of the organisation • systems-only change • total organisational change.
Task types may include:	• development process activities • cultural • organisational • procedural.
Control structures may include:	• acceptance criteria • inspection • review process • test plans.
Input and output may include:	• pre-conditional options, such as a check to confirm that inputs fulfil specific requirements • post-conditional options, such as a check that outputs have met quality requirements.
Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT404A Use online learning tools

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use the internet as a resource to acquire knowledge and skills to meet client requirements.

Application of the Unit

This unit applies to those who use the internet to maintain currency of workplace skills.This unit applies to those who use the internet to maintain currency of workplace skills.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify learning requirements	1.1 Identify ***learning requirements*** and skill gaps 1.2 Seek advice from ***relevant personnel*** on learning requirements and skill gaps 1.3 Identify opportunities for undertaking ***learning development activities*** 1.4 Develop learning plan
2. Research learning tools available online	2.1 Identify existing ***online learning tools*** 2.2 Research and evaluate other relevant online learning tools
3. Undertake learning	3.1 Implement learning plan 3.2 Identify opportunities in the workplace to apply new learning 3.3 Follow coaching or mentoring advice in work activities
4. Monitor learning effectiveness	4.1 Determine suitable assessment mode 4.2 Review outcomes of assessment 4.3 Undertake ***peer assessment*** 4.4 Assess ***feedback*** from peer assessment, individuals and colleagues 4.5 Identify further learning requirements

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - determine learning requirements and skill gaps
  - review assessment outcomes

© Commonwealth of Australia, 2025 Future Skills Organisation

- communication skills to:
  - give and receive feedback
  - seek advice
- learning skills to undertake online learning
- literacy skills to interpret online information about training requirements, company policies and procedures
- planning and organisational skills to organise learning-related activities
- research skills to find online learning tools
- technical skills to:
  - access the internet
  - use a web browser.

Required knowledge

- basic knowledge of:
  - current and future industry trends
  - legislation and statutory requirements
  - online training tools
  - principles and techniques of measuring performance and self-assessment
  - relevant competency standards and assessment processes
  - organisational training policies, plans and procedures
- overview knowledge of:
  - methods to identify and prioritise required learning needs
  - systems and processes to direct required learning.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • use online learning tools to gain knowledge and skills to meet client requirements • maintain currency of skills within the workplace.
Context of and specific resources for	Assessment must ensure access to: • the internet to use online learning tools

© Commonwealth of Australia, 2025 Future Skills Organisation

assessment	• appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning on knowledge of online learning tools • review of candidate's development plan outlining learning requirements.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Learning requirements may include:	• learning due to new software or upgrades • maintaining currency of skills within industry.
Relevant personnel may include:	• coach or mentor • external consultants, teachers or trainers • peers, work colleagues, team or enterprise • supervisor or training manager • training development officer or assessor.
Learning development	• career planning and development

© Commonwealth of Australia, 2025 Future Skills Organisation

activities may include:	• coaching, mentoring or supervision • formal internal or external training provision • informal internal training provision • personal study • work experience, exchange or opportunities • workplace skills assessment.
Online learning tools may include:	• bookmarking systems • content management systems (CMS) and annotation systems • knowledge-based repositories • networked learning • online books and manuals • online tutorials • weblogs (blogs), wikis, podcasting, syndicated feeds and collaboration tools.
Assessment may include:	• offline exams • online exams.
Peer assessment may include:	• external assessment • review of outcomes.
Feedback may include:	• formal and informal performance appraisals • obtaining comments from clients, supervisors and colleagues • online feedback results • receiving guidance, technical support and information to assist performance • workplace assessment.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT405A Develop detailed technical design

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to assist in the development of a detailed technical design.

Application of the Unit

This unit applies to individuals performing systems design tasks who are required to review and update technical design documents.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Assist in selecting technical design features	1.1 Select and revise design model based on iteration and design changes 1.2 Incorporate outstanding design points according to ***acceptance criteria*** 1.3 Distribute reports identifying changes and implications to ***appropriate person*** for review
2. Contribute to design review	2.1 Compare design against ***requirements*** and fix as necessary 2.2 Confirm design with appropriate person 2.3 Use ***feedback mechanisms*** to gather information on design changes from ***client*** 2.4 Incorporate design changes where required
3. Contribute to development of program specifications	3.1 Implement modules by incremental development techniques 3.2 Identify user authority for each module 3.3 Prepare detailed specifications of module implementation for each module that will not be incrementally built 3.4 Prepare documentation according to requirements of the ***project***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with client when:
  - transferring and collecting information
  - presenting information and gaining consensus on concepts
- literacy skills to prepare technical documentation
- problem-solving skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - develop algorithms
  - participate in the development of strategic initiatives
  - revise the design model
- technical skills to incorporate required changes to model.

Required knowledge

- client business domain and client's critical business functions and processes
- current various life cycle options
- design fundamentals and refinement
- design quality metrics.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• design and prepare a clear and best-fit technical design for a set project, incorporating:
	  • changes to design model based on user requirements
	  • detailed specification of modules
	  • updated documentation to reflect changes.

Context of and specific resources for assessment	Assessment must ensure access to: • requirements model • business requirements • project deliverables • acceptance criteria • current information technology (IT) blueprint • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• verbal or written questioning to assess candidate's knowledge of the principles of technical designs • review of project documentation, particularly including design model and module specifications • review of client-feedback mechanisms.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Acceptance criteria may include:	• cost implications • logistical considerations • technical • timeframe.
Appropriate person may include:	• authorised business representative • client • supervisor.
Requirements may relate to:	• application • business • network • people in the organisation • system.
Feedback mechanisms	• interviews • meetings

© Commonwealth of Australia, 2025 Future Skills Organisation

may include:	• questionnaires • surveys.
Client may include:	• clubs • external organisations • individuals • internal departments • internal employees.
Project may include:	• business improvement process • business involved in a total organisational change • ebusiness solution involving the total organisation or part of the organisation • systems-only change.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT406A Build a graphical user interface

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design, build and test a graphical user interface (GUI) to specification.

Application of the Unit

This unit applies to programmers in a variety of fields who are required to develop the system's graphical interface with users.

GUIs take commands from input devices and expect the underlying operating system (OS) to carry out a function.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine specification of GUI	1.1 Review GUI ***requirements***
	1.2 Review organisational ***standards*** for GUI
	1.3 Determine the back-end for interfacing with the GUI
	1.4 Determine the functionality of the GUI, including back-end interface
	1.5 Determine the ***application development language*** for writing the GUI
	1.6 Determine type and level of ***documentation*** required
2. Design GUI to specification	2.1 Design the GUI incorporating the required functionality
	2.2 Document design outcomes
3. Build GUI to specification	3.1 Build the GUI with the required functionality in the determined language, using the toolkit's classes or widgets, containers and other pertinent features
4. Test and document GUI to meet specification	4.1 Test GUI for overall functionality according to requirements
	4.2 Iterate GUI design or build until test results meet requirements
	4.3 Produce technical documentation for the GUI

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with clients

© Commonwealth of Australia, 2025 Future Skills Organisation

- literacy skills to:
  - produce GUI documentation
  - understand requirements, documents and standards
- problem-solving skills to solve programming problems that may arise
- technical skills to:
  - debug the programming language where appropriate
  - program using the specified programming language
  - use a range of software packages
  - use a workstation
  - use appropriate languages during GUI development.

Required knowledge

- detailed knowledge of:
  - object-oriented programming concepts
  - system properties
- features of application programming interface (API)
- issues relating to copyright and intellectual property
- overview knowledge of Australian Computer Society Code of Ethics
- relevant commonwealth and state privacy and information access legislation.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • build a GUI to requirements • demonstrate a GUI in concept and compiled form, using a development tool to assist GUI construction • provide appropriate documentation.
Context of and specific resources for assessment	Assessment must ensure access to: • GUI requirements • organisational standards • development environment. Where applicable, physical resources should include equipment

© Commonwealth of Australia, 2025 Future Skills Organisation

	modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of programming concepts and system properties • evaluation of GUI completed by candidate • review of documentation produced by candidate for GUI.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Requirements may include:	• application • business • network • people in the organisation • system.
Standards may include:	• industry recommendations • organisational standards.
Application development language may include:	• Codemesh • Eclipse (open source)

© Commonwealth of Australia, 2025 Future Skills Organisation

	• EMACS • EPP • eXtensible pre-processor kit • GTK2 • Java 2 SDK • Java Runner • JBuilder 3.5, Visual Age 3.0 • Netscape Directory SDK for Java: Source Code, Borland Enterprise Studio for Java • QT and KDevelop • Visual Basic • Visual C++ • Visual J++.
Documentation may include:	• audit trails • client training • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • maintaining equipment inventory • naming standards • project management templates and report writing • satisfaction reports • version control.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT407A Maintain website information standards

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to establish and maintain the accuracy and usability of information stored on client websites.

Application of the Unit

This unit applies to individuals working in the web area who are required to ensure that information on client websites is clear and accurate.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Prepare and publish organisational content and information required by industry for website	1.1 Validate organisational information and seek approval prior to uploading to a website 1.2 Ensure specific ***details*** of the organisation are made available on the website 1.3 Ensure privacy, security and liability statements are correctly displayed on the website and conform to ***legislative requirements*** and ***web development standards*** 1.4 Develop and make available ***organisational information***
2. Provide navigation links and payment information	2.1 Ensure website users have navigation links to access appropriate information regardless of where they are located within the website 2.2 List various payment options on the website
3. Ensure disclosure of policies and services	3.1 Present a clear website statement outlining ***charges*** 3.2 Present ***warranty information*** on appropriate screen, prior to finalising orders 3.3 Provide ***after-sales support*** and services information and direct website user to its location 3.4 Ensure website contains policies regarding cancellations, returns and refunds, and associated conditions
4. Communicate product or service conditions and notifications	4.1 Ensure appropriate screens display limitations and legislative restrictions on who or where goods and services will be sold or shipped to 4.2 Ensure the website provides facilities to confirm orders and cancellations as quickly as possible 4.3 Ensure website provides facilities to communicate to client with minimum delay, details of orders, hold-ups or errors with ordered or cancelled goods or services, information about changed costs or adjustments, and expected date of arrival
5. Ensure customer service support	5.1 Explain service ***standards*** and make them available to all potential and current website users 5.2 Ensure website users have a method for providing feedback

© Commonwealth of Australia, 2025 Future Skills Organisation

	on aspects of information held on the website 5.3 Ensure acknowledgements of complaints are transmitted to website users lodging complaints, with a description of what will take place within the organisation to address issues raised

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to collect and evaluate organisational information for web publication
- communication skills to liaise and negotiate with colleagues and clients
- literacy skills to:
  - document information for websites
  - interpret and write organisational policy
  - interpret legislative and standards requirements
- technical skills to:
  - analyse websites
  - archive information
  - publish on a website
  - write hypertext markup language (HTML) code.

Required knowledge

- consumer protection legislation
- content features, including clarity and readability
- document design, web design and usability
- electronic commerce modelling language
- information architecture
- instructional design principles
- obligations of merchants and service providers
- organisational requirements
- privacy legislation.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • evaluate and analyse current practices • interpret organisation, legislative and industry requirements • develop policy • provide a site accessible to a variety of customers via electronic communication • ensure that information meets all the requirements for an effective and efficient e-commerce interaction.
Context of and specific resources for assessment	Assessment must ensure access to: • range of organisational policies, procedures and guidelines • customer service manuals and general data • appropriate organisational structures • information standards for legislative and organisational requirements • software and web development tools • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate publishing various items of information on a site • verbal or written questioning to assess candidate's knowledge of client and user requirements regarding product/service conditions and notifications • review of site navigation, links, and site copyright and general information.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the

© Commonwealth of Australia, 2025 Future Skills Organisation

	work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Details may include:	• contact details • physical address • virtual details for online communications • web presence information.
Legislative requirements may include:	• copyright • liability statements • privacy legislation.
Web development standards may include:	• Authoring Tool Accessibility Guidelines (ATAG) • User Agent Accessibility Guidelines (UAAG) • Web Content Accessibility Guidelines (WCAG).
Organisational information may include:	• copyright notice on website if required • information to notify the website user of which country the website is located in • information with regard to licences or qualifications or memberships needed by potential users of the website • local laws applicable to transactions that may be conducted • notation on website indicating when the site was last updated • policy on how information gathered on website users by the website will be handled.
Charges may include:	• product or service costs • shipping and handling charges and taxes to the customer prior to finalising orders.
Warranty information may include:	• length of warranty • time limits on warranty coverage

© Commonwealth of Australia, 2025 Future Skills Organisation

	• what is covered • what is not covered • who administers the warranty.
After-sales support may include:	• duration of service and support • nature of service and support • under what circumstances it is provided or made available • who is responsible for it.
Standards may include:	• International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • organisational standards • project standards.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT408A Create technical documentation

Modification History

Version	Comments
ICAICT408A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to create technical documentation that is clear to the target audience and easy to navigate.

Application of the Unit

This unit applies to technical writers, designers, developers and support staff who are required to produce technical support documents of their work.

Technical documentation provides a record of the functionality and processing of a system, program, network or application. The technical documentation should document how the system, program, network or application is structured, how it works and changes that have been made to it.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Identify and analyse documentation requirements and client needs	1.1 Consult with ***client*** to identify documentation ***requirements***
	1.2 Interpret and evaluate documentation requirements and confirm details with client
	1.3 Investigate industry and ***documentation standards*** for requirements
	1.4 Define and document the scope of work to be produced
	1.5 Consult with client to validate and confirm the scope of work
2. Design documentation	2.1 Identify information requirements with reference to layout and document structure
	2.2 Create document templates and style guides consistent with information requirements
	2.3 Conduct a review of the ***system*** in order to understand its functionality
	2.4 Extract content that meets information requirements according to copyright restrictions
	2.5 Develop the structure of the ***technical documentation*** giving focus to the flow of information, style, tone and ***content*** format
	2.6 Validate the technical documentation structure with the client
3. Develop documentation	3.1 Write technical documentation based on the template and scope of work using the information gathered
	3.2 Translate technical terminology into plain English where appropriate
	3.3 Apply content format and style according to documentation standards and templates
4. Evaluate and edit documentation	4.1 Submit technical documentation to ***appropriate person*** for review
	4.2 Gather and analyse feedback

© Commonwealth of Australia, 2025 Future Skills Organisation

	4.3 Incorporate alterations into the technical documentation 4.4 Edit the technical documentation for technical and grammatical accuracy
5. Prepare documentation for publication	5.1 Check that the completed technical documentation meets client requirements and scope of work 5.2 Submit the technical documentation to appropriate person for approval 5.3 Prepare the technical documentation for publication and distribution using appropriate ***channels***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to interact with clients and staff
- literacy skills to:
  - identify content
  - interpret standards and industry requirements
  - write content
- research skills to:
  - analyse audience needs
  - identify target audiences
- technical skills to:
  - determine appropriate content, formats and styles
  - use word-processing software and multimedia authoring tools.

Required knowledge

- content features, such as clarity and readability
- document design, web design and usability
- functions and features of templates and style guides
- instructional design principles
- organisational policies, procedures and standards that cover document design.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • establish customer needs • design and develop technical documentation, such as system, procedures, training material and user guides, incorporating appropriate standards • update document with client feedback • prepare documentation for publication.
Context of and specific resources for assessment	Assessment must ensure access to: • technical specifications • documentation standards • organisational resources and documentation • information about system, platform, network or application being documented • relevant standards • appropriate word-processing software • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate reviewing a system to establish its functionality • verbal or written questioning to assess candidate's knowledge of copyright and other requirements relating to technical content • review of technical documentation developed by candidate.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level,

© Commonwealth of Australia, 2025 Future Skills Organisation

	language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• external organisations • individuals • internal departments • internal employees.
Requirements may refer to:	• application • business • network • organisational policies • people in the organisation • system.

Documentation standards may include:	• audit trails
	• International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS)
	• naming conventions
	• organisational standards
	• policy relating to:
	  • distribution
	  • revision
	  • sign-off
	  • storage
	• project-management templates and report-writing principles
	• version control.

© Commonwealth of Australia, 2025 Future Skills Organisation

System may include:	• application • business • computers • financial • information • management • network • software.
Technical documentation may include:	• brochures • help references • online help • operational procedures • reports • self-paced tutorials • system design • system functionality • system or project specifications • technical manuals • training materials • user guides.

Content may include:	• information and interactive features:
	  • background articles
	  • company information
	  • copyright and disclaimer notices
	  • customer only information
	  • customer-specific information
	  • error messages
	  • feedback mechanisms
	  • forms
	  • frequently asked questions
	  • hyperlink titles
	  • instructions
	  • product information
	  • ratings or rankings
	  • testimonials
	  • quotes from reviews
	  • reference pages
	  • site map
	  • what's new.

Appropriate person may	• authorised business representative

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• client • supervisor.
Channels may include:	• animation and graphics provided through books • audio • CDs • computer-based tutorials • DVDs • help screens • manuals • text • world wide web.

Unit Sector(s)

General ICT

Custom Content Section

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT409A Develop macros and templates for clients using standard products

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop macros and templates for clients using industry-recognised software applications.

Application of the Unit

This unit applies to persons working in an office environment in which documents play a major role in communication and business activity.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine macro or template requirement	1.1 Determine ***client*** requirements, ensuring they are in line with ***organisational guidelines***
	1.2 Develop macro or template specification
	1.3 Confirm that macro or template specification meets client's needs and operational guidelines
	1.4 Determine ***documentation*** requirements
2. Develop macro or template for client	2.1 Develop macro or template to specification using industry-recognised ***software applications***
	2.2 Demonstrate macro or template to client and obtain feedback
	2.3 Amend macro or template, as required by client
	2.4 Update macro or template specification
3. Provide client support for macro or template	3.1 Document support and instruction requirements
	3.2 Provide documentation to client help desk for future support

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to troubleshoot the operation of macros
- communication skills to:
  - demonstrate application to client and obtain feedback
  - liaise with clients
- literacy skills to:
  - document instructions
  - interpret software manual instructions

© Commonwealth of Australia, 2025 Future Skills Organisation

- technical skills to employ macros, such as creating a particular keyboard key combination for each macro or by assigning it to a custom button on a toolbar.

Required knowledge

- features and functions of particular categories of commercial computing packages, in particular procedures for:
  - creating macros and using default templates supplied by the software application package
  - creating new macros and templates
- functions and features of the operating system
- features and functions of software and hardware supported by the organisation.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop a variety of macros and templates using at least two industry-recognised application packages.
Context of and specific resources for assessment	Assessment must ensure access to: • documents detailing organisational style guide and policies • personal computer where software installation may be performed • internet connection • networked computers • server and workstation hardware and software • style guides and design brief • technical documentation and installation manuals • use of software currently used in industry • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for

© Commonwealth of Australia, 2025 Future Skills Organisation

	this unit: • verbal or written questioning to assess candidate's knowledge of procedures for creating macros and using default templates • direct observation of candidate demonstrating macro and template use • review of the candidate's documentation • evaluation of candidate's help-desk support provided to the client.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• employee • external organisation • individual • internal department.
Organisational guidelines may include:	• content of emails • downloading information and accessing particular websites • opening mail with attachments • personal use of email and internet access • virus risk.
Documentation may	• audit trails • International Organization for Standardization (ISO),

© Commonwealth of Australia, 2025 Future Skills Organisation

follow:	International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • naming standards • project management templates • report writing protocols • version control.
Software applications may include:	• commercial software applications • communication packages • database • graphic • organisation-specific software • presentation functionalities • spreadsheet • word-processing.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT410A Conduct post-implementation IT system reviews

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to plan and execute an IT system review following implementation at a point where the system has been operational for some time.

Application of the Unit

This unit applies to in a range of information and communications technology (ICT) development roles required to review the success of a project with a view to contributing to best practice for future projects.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Schedule review	1.1 Review ***organisational guidelines*** and criteria procedures to identify system implementation results 1.2 Convert the review process into specific criteria 1.3 Contact the ***appropriate person*** to schedule timing and venue of review 1.4 Prepare work schedule for the review based on organisation guidelines and identify action, items and staff involved 1.5 Contact appropriate vendor and other organisations, regarding support or service commitments
2. Carry out review	2.1 Explain the purpose of the review to ***stakeholders*** 2.2 Use techniques to obtain data on the areas under review
3. Document and publish results	3.1 Document and record information relating to the system review 3.2 Distribute review results and related documentation to stakeholders 3.3 Gather feedback from stakeholders about review document 3.4 Schedule additional meetings to discuss review findings with stakeholders 3.5 Finalise recommendations and action items from the review and distribute to appropriate person

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- analytical skills to obtain data on areas under review
- communication skills to liaise with stakeholders, vendors and other organisations
- literacy skills to:
  - review organisational guidelines
  - write accurate case notes
- planning and organisational skills to:
  - conduct meetings
  - prepare work schedule and organise staff
- problem-solving skills to resolve issues relating to system review
- technical skills to discuss system software and hardware issues with stakeholders.

Required knowledge

- client business domain
- current industry-accepted hardware and software products
- implementation process and issues
- review techniques
- specific project concerned
- role of stakeholders and the degree of stakeholder involvement in a review.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • plan a review of the system after the implementation has been completed and has been operational for some time • carry out this review • document the results.
Context of and specific resources for assessment	Assessment must ensure access to: • personal computer (PC) where software installation may be performed • use of software currently used in industry • documents detailing organisational style guide or policies • server and workstation hardware and software

© Commonwealth of Australia, 2025 Future Skills Organisation

	• internet connection • operational system and specifications • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of purpose of post-implementation reviews • direct observation of candidate facilitating meetings • evaluation of candidate's documented system review.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access

© Commonwealth of Australia, 2025 Future Skills Organisation

	• virus risk.
Appropriate person may include:	• authorised business representative • client • supervisor.
Stakeholders may include:	• development team • project team • sponsor • user.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT411A Select and employ software and hardware testing tools

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to select and use software and hardware diagnostic and testing tools.

Application of the Unit

This unit applies to individuals in a wide range of information and communications technology (ICT) areas who are required to test software and hardware.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Establish process operational requirements	1.1 Identify process ***requirements*** ensuring they are accurate, complete, prioritised, and have functionality, and reference appropriate method or media types 1.2 Identify conflicting or overlapping requirements 1.3 Document and validate functional requirements of the ***client*** 1.4 Identify and validate available resources and budget
2. Select hardware and software for processing function	2.1 Identify and evaluate relevant ***hardware*** and ***software*** tools with reference to functional requirements 2.2 Identify and analyse relevant products and ***equipment*** interdependencies with reference to functional requirements and ***system architecture*** 2.3 Identify and document appropriate tools, including their limitations for the required use and industry ***standards*** 2.4 Select and acquire tools according to purchasing policies
3. Configure and test hardware and software	3.1 Install and configure appropriate hardware and software tools according to vendor guidelines with reference to system architecture and client functionality requirements 3.2 Configure system architecture for optimal usage 3.3 Prepare, schedule and execute tests and record outcomes 3.4 Track errors, and interpret and correct them 3.5 Make changes to the tested hardware or software based on test results 3.6 Document the hardware and software configuration according to requirements
4. Use and validate software and hardware	4.1 Provide appropriate training of client with reference to guides, instructions and vendor materials 4.2 Use hardware and software according to vendor guidelines 4.3 Validate hardware and software performance with reference to client functional requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse:
  - customisation requirements
  - hardware and software functional requirements
- communication skills to:
  - communicate with vendors
  - convey and clarify complex information
  - seek assistance and expert advice
- literacy skills to:
  - accurately summarise and document information
  - interpret technical documentation, equipment manuals and specifications
- planning and organisational skills to:
  - organise and assess importance and relevance of product information
  - prioritise and monitor own work
- problem-solving skills to solve operational problems as they arise
- safety awareness skills to work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- research skills to locate key sources of information
- technical skills to:
  - analyse and interpret technical aspects of implementation
  - develop creative solutions and demonstrate automating process capability
  - identify the conflicts and integration capabilities between diverse equipment
  - integrate multiple items of data and reconcile conflicting information
  - predict outcomes and results of selection of tools.

Required knowledge

- batch scripting of nominated automating software routines
- broad general knowledge of the client business domain
- broad knowledge of vendor product directions
- current industry-accepted hardware and software products, and their features and capabilities

© Commonwealth of Australia, 2025 Future Skills Organisation

- functions and features of:
  - development tools, including animation development tools
  - development package automating options
  - third-party tools for automating a range of software applications
  - media management tools
  - technologies
- interaction between relevant hardware and software products
- basic design principles of each media type as required.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • evaluate hardware and software that meet functional requirements • select and use the correct automating tools • develop an automating process that produces an outcome that is measurable and meets specified requirements • install, configure and document hardware and software according to vendor guidelines • validate hardware and software performance against client requirements.
Context of and specific resources for assessment	Assessment must ensure access to: • site where automated processing may be carried out • hardware and software currently used in industry • a range of automating vendor products currently used in industry • client requirements documentation • organisational requirements. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• client domain • hardware and software to be tested • automated processes • direct observation of candidate installing, configuring and testing hardware and software tools according to vendor guidelines • review of documentation prepared by candidate outlining: • hardware and software configuration • tests to be carried out • evaluation of test results.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Requirements may be related to:	• application • business • network • people in the organisation • system.
Client may include:	• employees • external organisations • individuals

© Commonwealth of Australia, 2025 Future Skills Organisation

	• internal departments.
Hardware may include:	• modems and other connectivity devices, such as digital subscriber line (DSL) modems • networks • personal computers • remote sites • servers • workstations.
Software may include:	• commercial applications • customised • in-house • organisation-specific • packaged.
Equipment may include:	• other peripherals or stand-alone units • personal computers • workstations.

System architecture may include:	• configuration:
	  • large memory model
	  • requests per second
	  • small memory model
	• database software:
	  • DB2
	  • Informix
	  • Ingres
	  • Microsoft Structured Query Language Server (SQLS)
	  • Mini SQL (mSQL)
	  • MySQL
	  • Oracle
	  • Postgre Structured Query Language (Postgre SQL)
	  • Sybase
	• operating systems:
	  • Linux
	  • Mac
	  • multi-user ability
	  • Novell NetWare
	  • Windows.

Standards may include:	• International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • organisational standards

© Commonwealth of Australia, 2025 Future Skills Organisation

	• project standards.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT412A Coordinate and maintain IT work teams

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to establish and improve work teams and their performance in an information technology (IT) environment.

Application of the Unit

This unit applies to those employed in a range of information and communications technology (ICT) roles who are required to manage teams.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Establish team	1.1 Select and identify suitable ***team members*** for a particular project or ***problem***
	1.2 Secure agreement from appropriate persons for release of team members
	1.3 Identify the type of work ***team***
	1.4 Determine time allocation for team members to suit ***team operations*** or nature of the project or problem
	1.5 Define team and individual responsibilities
	1.6 Define how team performance will be measured
2. Coordinate team	2.1 Clarify and plan ***tasks*** in consultation with team
	2.2 Allocate tasks appropriately
	2.3 Determine and apply motivational factors
	2.4 Represent the team at meetings
	2.5 Work with team members to manage interpersonal conflict
3. Conduct team activities and review team performance	3.1 Regularly review team performance against objectives and take corrective action where necessary
	3.2 Regularly communicate with the team on policies, plans and other matters affecting the team
	3.3 Seek the input of team members during the decision-making process
	3.4 Consult the team regarding proposed workplace changes and improvements to processes
	3.5 Recognise team and individual achievement
	3.6 Validate team objectives against targets
	3.7 Determine ongoing nature of the team and either disband, select new objective, incorporate new team members or change team profile

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to analyse, evaluate and present information
- initiative and enterprise skills to deal with interpersonal conflict
- literacy skills to communicate in writing within the team
- planning and organisational skills to:
  - clarify and plan team tasks
  - ensure effective team operation
  - ensure efficient use of human resources
- problem-solving skills to:
  - analyse, diagnose, evaluate and develop new criteria, knowledge and procedures
  - develop team building initiatives.

Required knowledge

- business planning process relevant to the development of IT business solutions, such as when delegating responsibility and authority
- change-management systems
- client business domain
- conflict-resolution practices
- current business practices relating to preparing reports
- current industry-accepted hardware and software products, general features and capabilities
- information-gathering techniques
- OHS requirements relating to work safety, environmental factors and ergonomic considerations
- principles of equal employment opportunity (EEO) and anti-discrimination
- quality assurance practices, such as when coordinating a team
- vendor product directions.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • coordinate teams to meet objectives • prioritise work schedules to meet organisational guidelines • provide leadership and guidance to others in the application and planning of project tasks.
Context of and specific resources for assessment	Assessment must ensure access to: • team members • organisational policies and operational planning documentation • current industry products and services • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of candidate clarifying and planning tasks in consultation with team
	• review of candidate's written validation of team objectives against targets
	• verbal or written questioning to assess candidate's knowledge of:
	  • industry products and services
	  • team-building skills
	  • conflict-resolution skills
	  • time-management skills.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Team members may include:	• differences in language, literacy and numeracy skills • peers • people from a range of social, cultural or ethnic backgrounds • people from outside the organisation • supervisors and other members of the organisation.
Problem may refer to:	• application • business need or opportunity that must be addressed • network • people in the organisation • system.
Team may include:	• formal or informal • interdepartmental • organisational • temporary or ongoing • workgroup based.
Team operations may include:	• autonomy and responsibility of the team • communication style of team members • degree of delegation authorised • team dynamics • leadership style of team leader • life of the team • responsibility of team members • size and diversity of team.
Tasks may include:	• functions • specific projects • work activities.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT413A Relate to clients on a business level

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to formulate and implement service level agreements (SLAs).

Application of the Unit

This unit applies to individuals in a wide range of information and communications technology (ICT) areas who are required to deal with client supporting issues, including those arising from SLAs.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Prepare for development of SLA	1.1 Research organisational service standards, values and culture in order to understand the organisational environment 1.2 Investigate and document the goods and services provided by the organisation 1.3 Review current ***SLAs*** if appropriate
2. Develop SLA for consultation	2.1 Research ***client*** service needs and preferred level of service 2.2 Determine the level of service to be provided to the client 2.3 Develop a draft SLA for the client that incorporates quality, time, target performance and cost specifications
3. Negotiate client support service	3.1 Conduct a session with the client and present the draft SLA in a clear, concise and comprehensive manner 3.2 Present proposed cost and timeframes to the client 3.3 Negotiate terms with client and record alterations if required 3.4 Clarify areas of uncertainty or disagreement 3.5 Document terms of service negotiated with client, and refer document to ***appropriate person*** for approval and feedback
4. Monitor, adjust and implement procedures to maintain client focus	4.1 Assess progress in achieving client support service targets, using organisational ***systems*** and procedures 4.2 Gather client feedback to improve the provision of client support services where appropriate 4.3 Make adjustments to client support service based on client feedback and in line with ***organisational guidelines*** 4.4 Document changes to SLA and report changes to appropriate person

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- communication skills to:
  - facilitate and make presentations
  - liaise and negotiate with clients
- literacy skills to:
  - analyse and evaluate information
  - prepare general information and papers
- problem-solving skills to develop solutions unique to a client.

Required knowledge

- business practices, including:
  - change management
  - information-gathering techniques
  - planning process, including development of IT business solutions
  - preparation of reports
- current industry-accepted hardware and software products, including:
  - general features and capabilities
  - vendor product directions
- legal principles of commercial contracts and service level agreements
- organisational policies, plans and procedures, including contracting
- theoretical concepts relating to negotiation and business relationships.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • negotiate client support service provision • formulate and implement service level agreements • meet client requirements for support service within quality, time, target performance and cost parameters.

© Commonwealth of Australia, 2025 Future Skills Organisation

Context of and specific resources for assessment	Assessment must ensure access to: • organisational policies, procedures and SLAs for the IT industry • contexts for negotiating SLAs and contracts • current IT hardware and software products. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate's presentation of a draft service level agreement • review of candidate's documented terms of service as negotiated with a client • verbal and written questioning to assess candidate's knowledge of business practices, such as change management and planning processes.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

SLAs may include:	• consideration of business processes and requirements, clearly specified and quantified service levels, and evaluation or audit of service levels • SLAs for many different infrastructure services, including communications carriers, internet service providers (ISPs), active server pages (ASPs) and for vendor products • workload and performance considerations • expectations regarding servicing, penalties and charge back to business units.
Client may include:	• external organisations • internal departments • individuals • internal employees.
Appropriate person may include:	• authorised business representative • client • supervisor.
Systems may include:	• hardware and software components that run a computer.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access • virus risk.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT415A Provide one-to-one instruction

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to convey technical information to an individual client for their specific use.

Application of the Unit

This unit applies to personnel in a range of IT areas who are responsible for instructing others on an individual basis.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Determine client needs	1.1 Meet with ***client*** to determine ***learning needs*** and type of one-to-one ***instruction*** required 1.2 Decide upon ***actions*** for delivery of one-to-one instruction
2. Organise instruction resources	2.1 Determine the resources required to perform the instruction 2.2 Prepare the instruction plan 2.3 Acquire the resources according to ***organisational guidelines*** and prepare the resources for the instruction session 2.4 Provide client with details of instruction plan
3. Provide appropriate instruction	3.1 Provide instruction session to client, using identified instructions 3.2 Document the instruction session according to organisational guidelines 3.3 Refer ***further instruction requirements*** or training needs to ***appropriate person*** as required
4. Obtain client feedback	4.1 Create or obtain an evaluation and feedback form or other feedback mechanism according to organisational guidelines 4.2 Obtain client evaluation and feedback to ensure the ***requirements*** of the client are met 4.3 Review client feedback and discuss suggestions with appropriate person

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - convey and clarify complex information

© Commonwealth of Australia, 2025 Future Skills Organisation

    - effectively question and listen when conveying and clarifying information
    - investigate and assess client needs
    - provide one-to-one instruction to client
    - review feedback with client and appropriate person
- literacy skills to:
    - develop reports
    - document:
        - additional requirements
        - amount of technical support the client may require
        - solutions
        - support issues affecting the client
    - interpret technical manuals
- planning and organisational skills to:
    - develop an instruction plan
    - incorporate time management for self and others
    - organise resources for the instruction session
- problem-solving skills to:
    - anticipate and respond to a range of issues when delivering one-to-one instruction
    - develop and refine delivery strategies.

Required knowledge

- broad knowledge of:
    - escalation procedures
    - general features and capabilities of current industry-accepted hardware and software products
    - operating system (OS) functions and basic features
- hardware and software supported by the organisation
- in-house or vendor support available
- IT terminology
- security and network guidelines and procedures
- sources and availability of technical and organisational systems
- telephone, fax and online functions and procedures
- work group procedures.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • determine the instruction required by client • acquire and prepare associated resources • demonstrate empathy and understanding of the learner and accommodate different cultures • convey technical information to individual clients for their specific use in a clear, concise and coherent manner • explain the meaning of technical jargon.
Context of and specific resources for assessment	Assessment must ensure access to: • client requirements either directly or through a peer or supervisor • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate undertaking one-to-one instruction • review of instruction plan prepared by candidate • verbal or written questioning to assess candidate's knowledge of techniques for conveying technical information to an individual client.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• employees • external organisations • individuals • internal departments.
Learning needs may include:	• electronic • group participation • presentation via different means • reading • self-directed learning • self-paced.

Instruction may include:	• advice and support on a one-to-one basis
	• guidance on hardware supported by the organisation:
	  • formatting of disks
	  • printers
	  • reconfiguration of printers
	  • setting of screen resolution
	  • use of scanners
	• guidance on software applications supported by the organisation:
	  • creating graphs
	  • formatting spreadsheet
	  • setting up word-processing document for printing
	  • using a browser
	  • using an email system
	• provision of client documentation and manuals.

Actions may include:	• number of sessions expected • session duration • time and location of instruction • type of instruction requested.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution

© Commonwealth of Australia, 2025 Future Skills Organisation

	• document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • use of email and internet access • virus risk.
Further instruction requirements may include:	• active listening to client and other employees • handover to information and communications technology (ICT) technical expert area • on-site instruction • policy and procedures relating to IT training • questions and answers.
Appropriate person may include:	• authorised business representative • client • help-desk person • subject-matter expert • supervisor.
Requirements may include:	• application • business • network • people in the organisation • system.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT416A Contribute to the development of strategic plans

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to participate in the planning process and to contribute to the development of a strategic plan.

Application of the Unit

This unit applies to senior information and communications technology (ICT) staff who are required to provide input to strategic plans.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Plan for strategy	1.1 Participate in planning committee and clarify roles of people involved in process 1.2 Participate in identifying issues that planning process should address 1.3 Identify ***information*** that must be collected
2. Investigate the current environment	2.1 Investigate mission and vision statements of the organisation 2.2 Investigate current internal and external environment of the organisation
3. Participate in feedback session	3.1 Identify most important issues facing the organisation, using information gathered 3.2 Undertake a review session with ***appropriate persons*** to confirm issues identified 3.3 Identify ***objectives*** and strategies for the organisation
4. Finalise and validate plan	4.1 Create a written plan to document mission, vision, issues, objectives and strategies of organisation 4.2 Submit written plan to appropriate persons for approval 4.3 Review feedback and make alterations where appropriate

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to interpret, analyse and evaluate data
- communication skills to liaise with internal and external personnel during negotiation and feedback sessions
- literacy skills to:
  - prepare presentation materials in plain English

© Commonwealth of Australia, 2025 Future Skills Organisation

    - write a strategic plan, including issues and objectives of the organisation
- negotiation skills to relate to other team members in a defined range of predictable problems during the analysis process
- planning and organisational skills to:
    - confirm that the proposed project will come in on time and within budget
    - contribute to the identification of business strategy, vision, goals and objectives
    - set benchmarks and identify scope:
- problem-solving skills for problems arising during the development of a strategic plan
- research skills to identify, analyse and evaluate broad features of a particular business domain.

Required knowledge

- basic knowledge of:
    - information-gathering techniques
    - quality assurance practices
- components of the business planning process relevant to the development of strategic plans
- current business practices in preparing reports, particularly for contributing to the development of a strategic plan that identifies:
    - final expected results
    - details how these results will be achieved.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify criteria and issues for planning process • undertake feedback session to identify issues, goals and outcomes that meet stakeholder requirements • create a written plan documenting objectives and strategies of organisation.
Context of and specific resources for	Assessment must ensure access to: • site and personnel where a strategic business plan may be

© Commonwealth of Australia, 2025 Future Skills Organisation

assessment	developed • detailed information relating to current needs and project requirements of business • client expectations brief • business mission, vision statements and objectives • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of business planning processes when developing strategic plans • direct observation of candidate conducting feedback sessions • review of plan prepared by candidate outlining the issues, objectives and strategies for the organisation.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Information may	• client user • competitors

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• cost constraints • environment • geography • system functionality.
Appropriate persons may include:	• authorised business representative • client • supervisor.
Objectives may be contained in:	• business planning document • business strategy • client expectations brief.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT417A Identify, evaluate and apply current industry-specific technologies to meet industry standards

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to identify, evaluate and apply industry-specific technologies to meet identified industry standards.

Application of the Unit

This unit applies to individuals engaged in ongoing review and research in order to identify, evaluate and apply industry technologies or techniques to improve aspects of the organisation's activities. The unit provides evidence of the application of industry-enabling technologies.

The unit emphasises the importance of constantly reviewing and demonstrating work processes, skills and techniques to ensure that the quality of the entire business process is maintained at the highest level possible through the appropriate application of industry-specific technologies.

Licensing/Regulatory Information

Users should confirm licensing, legislative, regulatory, or certification requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Prepare to identify and evaluate industry-specific technologies	1.1 Identify technologies specific to an ***industry sector***
	1.2 Acquire ***industry-specific technologies***
	1.3 Identify, classify and use industry-specific technologies for the benefit of the organisation
2. Apply industry-specific technology to assist in solving organisational problems	2.1 Conduct testing of industry-specific technologies
	2.2 Apply features and functions of industry-specific technologies to provide a suitable solution to an identified problem
	2.3 Demonstrate depth of knowledge of enabling technologies to an accepted industry standard
	2.4 Access and use ***sources of information*** relating to the industry-specific technologies
3. Review and evaluate industry-specific technology performance	3.1 Review and evaluate industry-specific technologies for performance, usability and benefit to the organisation
	3.2 Determine ***environmental considerations*** involved with using the technologies
	3.3 Seek ***feedback*** from users where appropriate

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - communicate with peers and supervisors
  - seek assistance and expert advice
  - seek feedback from users
- literacy skills to interpret technical documentation, equipment manuals and specifications
- research skills to locate appropriate sources of information regarding industry-specific technologies
- safety awareness skills to work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- technical skills to:
  - identify features of the industry-specific technologies
  - test and evaluate the industry-specific technologies
  - use the industry-specific technologies.

Required knowledge

- awareness of current technology trends, directions in IT and the major industry technology standards used in the area
- vendor product directions
- current industry hardware and software products, and their general features, capabilities and application
- information-gathering techniques.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify new and emerging industry-specific technologies • apply and evaluate features and functions of identified industry-specific technologies to an industry standard.
Context of and specific resources for assessment	Assessment must ensure access to: • site where industry-specific technologies may be used • industry-specific technologies currently used in industry • documents detailing OHS standards, environmental guidelines and organisational requirements. Where applicable, physical resources should include equipment

© Commonwealth of Australia, 2025 Future Skills Organisation

	modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of features and functions of industry-specific technologies • direct observation of candidate using industry-specific technologies • simulation of uses of industry-specific technologies.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Industry sector may include:	• business services or information worker • information and communications technology • telecommunication.

Industry-specific technologies may include:	• vendor specific:
	  • hardware
	  • integrated services
	  • internet access
	  • mobile communication devices

© Commonwealth of Australia, 2025 Future Skills Organisation

	• networks • peripherals • software.
Sources of information may include:	• appliances software and technical connections guidance and other outputs supplied by vendors and manufacturers • documents • test pages • vendor and manufacturer guidance regarding requisite depth of knowledge of industry-specific technologies • web pages.
Environmental considerations may include:	• correct disposal by an authorised body of redundant hardware: • circuit boards • hard drives • motherboards • recycling • safe disposal of packaging: • cardboard • paper • plastic • polystyrene.
Feedback may include:	• competency skill level • industry-validated demonstration of competency through certification • interviews • meetings.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT418A Contribute to copyright, ethics and privacy in an IT environment

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to maintain professional and ethical conduct as well as to ensure that personal information of stakeholders is handled in a confidential and professional manner when dealing with stakeholders in an information technology (IT) environment.

Application of the Unit

This unit applies to IT personnel who are required to gather information to determine the organisation's code of ethics, and protect and maintain privacy policies and system security.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Protect intellectual property	1.1 Identify current ***legislation and standards*** relating to intellectual property and copyright 1.2 Investigate current organisational copyright policy 1.3 Adhere to organisational policy and current legislation in work practices
2. Contribute to copyright policy	2.1 Contribute to the creation or updating of the organisation's copyright policy and procedures to align with legislation and industry standards 2.2 Distribute new or revised policy and procedures to stakeholders
3. Protect rights of stakeholders	3.1 Identify and document the relevance of legislation and standards to organisational outcomes 3.2 Investigate and review organisational ***privacy policy*** and procedures 3.3 Investigate and review organisational code of ethics 3.4 Determine the integrity, confidentiality, security and availability of information as required by organisational policy 3.5 Maintain confidentiality and proprietary rights of ***stakeholder*** interests
4. Contribute to privacy policy	4.1 Contribute to the creation or updating of the organisational privacy policy and procedures to align with privacy legislation 4.2 Distribute new or revised policy and procedures to stakeholders 4.3 Implement new work procedures and collect feedback from stakeholders 4.4 Ensure the integrity, confidentiality, security and availability of information as required by organisational policy
5. Maintain privacy	5.1 Review work practices to ensure application of privacy policy

© Commonwealth of Australia, 2025 Future Skills Organisation

policy	and procedures 5.2 Maintain the integrity, confidentiality, and availability of information as required by organisational privacy policy 5.3 Review work practices to ensure system security according to organisational privacy policy
6. Contribute to creation of ethics code	6.1 Assist in developing or updating a code of ethics to align with legislation and standards for the organisation 6.2 Distribute the new ethics code to stakeholders and collect feedback 6.3 Implement new ethical work procedures and collect feedback 6.4 Review ethical work practices and feedback to ensure application of the code
7. Maintain ethics code	7.1 Perform regular checks to ensure stakeholders understand and are continuing to apply the code of ethics in the workplace 7.2 Establish a review and grievance procedure to enable confidential reporting of any ethical issues 7.3 Interview and regularly follow up with stakeholders to ensure they are receiving consistent and appropriate service in dealing with the code of ethics

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on ethical and privacy, operational and business-related matters
- learning skills to update personal ethical and privacy knowledge through professional development
- literacy skills to apply standards and legislation to policy and procedure development and monitoring
- planning and organisational skills to plan, prioritise and monitor own work
- research skills to gain and maintain current industry privacy and ethical information
- technical skills to perform application and system security and storage management.

Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

- Australian Computer Society Code of Ethics
- federal and state or territory legislation and policy relevant to an IT environment relating to:
  - access and equity
  - copyright and intellectual property
  - OHS
  - privacy
- organisational communication processes and procedures
- organisational requirements for customer service
- server operating systems
- system security procedures.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • analyse legislation and standards relating to professional conduct and privacy in the IT industry • contribute to the development of a code of ethics and monitor the workplace to ensure code of ethics is being applied and is appropriate • contribute to the development of a privacy policy and monitor the workplace to ensure the policy is being applied and is appropriate.
Context of and specific resources for assessment	Assessment must ensure access to: • relevant organisational policies, legislation and standards documentation • industry codes of practice • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• direct observation of candidate monitoring continuity of computing services and information flow to ensure the protection of stakeholder interests • review of candidate's documented code of ethics and privacy policy • verbal or written questioning to assess candidate's provision of some leadership and guidance to others in the implementation of ethical conduct in business relationships • verbal or written questioning to assess candidate's ability to provide guidance to others in the operation and management of privacy policies in business relationships.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Legislation and standards may include:	• access and equity • confidentiality requirements • copyright laws • defamation laws • industry codes of practice, such as Australian Computer Society Code of Ethics • industry standards • intellectual property • international standards

© Commonwealth of Australia, 2025 Future Skills Organisation

	• International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) • legal and regulatory policies affecting ebusiness • OECD Guidelines for Consumer Protection in the Context of Electronic Commerce • OHS • organisational standards • privacy legislation • project standards.
Privacy policy may include:	• access of personal information • disclosure of personal information • gathering of personal information • organisation standards and practices • quality of personal information • security of personal information • sensitivity of personal information • storage of personal information • use of personal information.
Stakeholders may include:	• authorised business representative • colleagues • individuals • internal departments • internal employees • external organisations • clients • project manager • supervisor • users.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT419A Work effectively in the digital media industry

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to work effectively as an individual or in a team environment in the digital media industries.

Application of the Unit

This unit applies to persons who use digital media technologies to work in the industry as digital media designers, developers, programmers, contractors or digital media authoring specialists.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Communicate effectively with others	1.1 Research and analyse ***information sources and data*** related to the digital media industry 1.2 Engage with ***key players*** in the organisation using a range of ***communication tools and media*** 1.3 Plan and develop a ***communication strategy*** for an enterprise or workplace and clients 1.4 Prepare ***reports*** in a variety of formats and media
2. Perform own work effectively	2.1 Develop a ***work plan and schedule*** 2.2 Respond to requests and resolve ***client queries and issues*** as they arise 2.3 Apply ***legislative and regulatory requirements*** 2.4 Apply industry ***codes of practice and guidelines***
3. Review own communication and work effectiveness and make improvements	3.1 Seek and respond positively to comments and feedback from ***peers and clients*** using evaluation techniques 3.2 Review own communication strategies and practices and make continuous ***improvements*** 3.3 Review own work plan and schedule against ***milestones or key performance indicators*** (KPIs) and make improvements 3.4 Undertake ***training and professional development*** activities 3.5 Participate in ***discussions and forums*** and generate ideas for improvement

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- communication skills to:
  - clarify the needs of clients
  - relate to people from diverse backgrounds
  - request advice, receive feedback and work with a team
  - work as a member of a digital media team, both independently on assignment and under direction
  - write reports
- initiative and enterprise in generating ideas for improving communication and work
- literacy skills to interrogate and interpret:
  - broad research material and technical manuals
  - organisational policies and governance documentation
  - technical information, such as maintenance requirements for equipment
- planning and organisational skills to plan and schedule personnel and work priorities
- problem-solving skills to distinguish between issues that can be resolved by delegation or referral to a supervisor
- self-management skills to:
  - balance the need for personal efficiency with the needs of others and work requirements
  - maintain own industry knowledge and competence
  - make decisions at own level of responsibility
  - modify work plan and prioritise work tasks
  - organise own time to meet milestones
  - work within deadlines
- technical skills to use IT equipment, operating systems and interactive digital media software.

Required knowledge

- current industry-accepted hardware and software digital media products, with sound knowledge of their features and capabilities
- OHS standards as they apply to working in the digital media industries
- operational environment, including customer base, company products and services
- organisational:
  - code of conduct and values that are consistent with the organisational mission
  - policy and procedures
  - systems, management structure and governance arrangements
- principles of equal employment opportunity (EEO) and anti-discrimination
- role and positioning of digital media within the overall business objectives of the organisation
- sound grasp of:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - digital media terminology
  - roles and responsibilities of personnel in the relevant sector of the digital media industries
- vendor product directions.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • analyse information and communicate effectively using a range of media and formats • perform according to work plan and organisational requirements and values • apply requirements of legislation and regulations • review and implement improvements to own work and communication.
Context of and specific resources for assessment	Assessment must ensure access to: • range of current industry information • appropriate IT equipment and technology to research and analyse industry information • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • observation of the candidate participating in workplace meetings • evaluation of written reports or verbal questioning to test knowledge as listed in the required skills and knowledge section of this unit • evaluation of case studies to assess ability to apply knowledge to different industry contexts and situations.
Guidance information	Holistic assessment with other units relevant to the industry

© Commonwealth of Australia, 2025 Future Skills Organisation

for assessment	sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Information sources and data may include:	• electronic and print media, such as news, reviews, articles and technical publications • employee and industry association representatives • events, such as industry functions, conferences, trade fairs, community activities, expositions, exhibitions, festivals and social events • government bodies and associated publications • induction kits • instruction or product manuals • internet and intranet • libraries • peak copyright organisations • personal observations and experience • policy and procedures manuals • reference books, industry information sheets, magazines and journals discussions with current industry practitioners, colleagues and community groups • retail and wholesale suppliers of products and services • training programs, seminars, conferences, symposiums, workshops and other professional development opportunities • unions and union publications (newsletters, magazines,

© Commonwealth of Australia, 2025 Future Skills Organisation

	bulletins and letters) and other sources of industrial relations information.
Key players may include:	• digital media organisations • employer organisations • government departments • IT professional bodies • unions • vendors of digital media products and services.
Communication tools and media may include:	• email • fax • mobile devices • phone • web.
Communication strategy may include:	• distribution lists • frequency and mode of communication • key messages • key stakeholders • purpose • ways of communication.
Reports may include various formats and styles:	• briefing notes • electronic mail • fax • general correspondence • handwritten and printed materials • internal memos • telephone messages.
Work plan and schedule may include:	• activities plan or schedule • diary • log book • electronic or paper-based project plan • tasks list.
Client queries and issues may include:	• disputes needing resolution • points of clarification • requests for information.
Legislative and regulatory requirements may include current, legislation, regulations, codes of practice (federal and state) and policy relating to:	• anti-discrimination and equal employment opportunity • business compliance • copyright • environmental issues • insurance • OHS • plagiarism

© Commonwealth of Australia, 2025 Future Skills Organisation

	• privacy and confidentiality • quality assurance • taxation • workplace and industrial relations.
Codes of practice and guidelines may include:	• Australian content standards • industry guidelines relating to the digital media.
Peers and clients may include:	• contractors • employees • external organisations and agencies • individuals • internal departments • supervisors • technical staff • work colleagues.
Improvements may include:	• acknowledging feedback and comments • coaching, mentoring and supervising informal conversation with peers, supervisor and clients • personal study • self-evaluation • use of formal evaluation tools, such as discussion, survey or interview to determine effectiveness or satisfaction.
Milestones or key performance indicators may include:	• performance appraisal with line supervisor • review of key performance indicators against key project milestones • review of performance against specified times for completion of key activities or tasks.
Training and professional development may include:	• attendance at forums and workshops (online or face to face) • coaching and mentoring • completion of internal and external training programs • personal study, such as journals, and technical, policy and procedures manuals.
Discussions and forums may include:	• online discussion forums • performance appraisal processes • planning days • project briefing and debriefing sessions • seminars and workshops • staff meetings.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT420A Develop client user interface

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design and document a client user interface that integrates with front end applications.

Application of the Unit

This unit applies to software designers and developers who are required to build a screen that will integrate between users and applications.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Prepare design for interface	1.1 Review ***requirements*** and other ***documentation*** to determine ***user*** needs 1.2 Investigate ***system environment*** to determine the impact of user interface design 1.3 Review ***organisational goals*** to ensure consistency with organisational styles 1.4 Define data query and report formats for the user interface design where appropriate 1.5 Document needs and findings and obtain approval for the proposed interface from the ***appropriate person***
2. Design and document user interface	2.1 Design menu structures according to requirements and ***acceptance criteria*** and following ***design principles*** 2.2 Design screen dialogues according to requirements and acceptance criteria and following design principles 2.3 Design batch procedures where appropriate to technical specifications and acceptance criteria 2.4 Design online help and tutorials for the prototype following design principles 2.5 Document prototype according to organisational goals 2.6 Submit prototype to appropriate person for sign-off

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - liaise and negotiate with clients and staff
  - present information

© Commonwealth of Australia, 2025 Future Skills Organisation

- literacy skills to:
  - analyse and evaluate information
  - develop online help and tutorials
  - write business reports
- technical skills to:
  - design and document user interface, including screen dialogues and batch procedures
  - prepare and review technical documentation.

Required knowledge

- client business area
- current industry design principles
- current industry-accepted hardware and software products, including broad knowledge of general features and capabilities
- current industry-accepted user interfaces, including broad knowledge of general features and capabilities
- front-end systems
- web design principles.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • determine impact of user interface design in the system environment and identify appropriate data query and report formats • design menu structures according to design principles • design screen dialogues in line with requirements and acceptance criteria • design batch procedures • develop online help and tutorials for prototype.
Context of and specific resources for assessment	Assessment must ensure access to: • design specifications • organisational standards for documentation and version

© Commonwealth of Australia, 2025 Future Skills Organisation

	control • project management process and hierarchy • usability test plan • agreed usability metrics • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate defining data query and report formats for the user interface design based on analysis of requirements • verbal or written questioning to assess candidate's knowledge of requirements for designing online help and tutorials • review of candidate's user interface prototype.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Requirements may refer to:	• application • business • network • people in the organisation

© Commonwealth of Australia, 2025 Future Skills Organisation

	• system.
Documentation may involve:	• business performance data • business policies customer feedback • business strategic plans • change-management plans • current systems design plans • project management plans.
User may include:	• department within the organisation • person within a department • third party.
System environment may include:	• application • business • computers • financial system • information system • management system • network • software.
Organisational goals may include:	• preventative maintenance and diagnostic policy • problem solution processes • roles and technical responsibilities in the IT department • vendor and product service level support agreements • work environment.
Appropriate person may include:	• authorised business representative • client • supervisor.
Acceptance criteria may include:	• cost implications • logistical considerations • technical • timeframe.
Design principles may include:	• consistency • ease of learning • familiarity • flexibility • invisible technology • product compatibility • protection • responsiveness • robustness • simplicity • task compatibility

© Commonwealth of Australia, 2025 Future Skills Organisation

	• user compatibility • workflow compatibility.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT421A Connect, maintain and configure hardware components

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to install, configure and maintain personal computer devices, including mobile devices according to client and user requirements. It provides an understanding of different types of available hardware components and peripherals, and gives an insight into their interconnectivity.

Application of the Unit

This unit applies to support technicians who set up, modify and connect system components.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Identify hardware components	1.1 Identify different types of ***personal computer devices*** 1.2 Identify and categorise the different ***personal computer components***, including ***mobile personal computer components*** 1.3 Explain the purpose and characteristics of the different personal computer component categories 1.4 Distinguish between the different types of devices within each personal computer component category
2. Identify types of peripheral hardware components	2.1 Identify and categorise the different ***peripheral hardware components*** 2.2 Explain the purpose and characteristics of the different peripheral hardware components 2.3 Distinguish between the different types of devices within each peripheral hardware component category
3. Install and configure personal computer components	3.1 Install and configure personal computer components 3.2 Install and configure mobile personal computer components 3.3 Develop plans, with prioritised tasks and contingency arrangements, for the installation and configuration of selected components with minimum disruption to ***clients*** 3.4 Liaise with appropriate person to obtain approval for the plans 3.5 Install and configure components according to plan, installation procedures and ***organisational requirements*** 3.6 Use appropriate ***testing tools*** to test components for error-free performance 3.7 Identify and resolve identified problems 3.8 Test and enhance system performance, using knowledge of the system, to meet organisational benchmarks 3.9 Document the installation and configuration process according to organisation guidelines 3.10 Develop and document a maintenance plan and schedule

© Commonwealth of Australia, 2025 Future Skills Organisation

	based on vendor specifications for the installed components
4. Install and configure print devices	4.1 Install and configure ***print devices*** 4.2 Detect and identify common ***printer issues*** 4.3 Undertake ***printer issue resolution*** to meet client requirements
5. Evaluate modified system	5.1 Collect client or user feedback and analyse against client requirements 5.2 Correct identified shortcomings in the system and record actions

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - consult with peers, supervisors and internal and external clients
  - interpret technical computer installation manuals
  - interpret user manuals and help functions
- literacy skills to:
  - organise resources for one-to-one instruction
  - read technical manuals
- planning and organisational skills to:
  - address technical issues
  - plan activities, including milestones
- problem-solving skills to anticipate and respond to a range of driver-related errors that may arise
- technical skills to:
  - comprehend how the operating system will communicate with the installed component
  - install components
  - test components using available technology
  - test system performance
  - write technical reports and maintain records.

Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

- environmental considerations in e-waste disposal
- systems diagnostic software
- areas of the operating system related to configuration and testing
- current industry-accepted hardware and software products
- organisational guidelines
- organisational requirements
- system's current functionality
- vendor specifications and requirements for component installation.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify and categorise the different types of hardware, internal hardware and peripheral hardware components • install components across a variety of situations and account for unexpected contingencies • modify system's hardware, internal hardware and peripheral hardware components to meet client requirements • plan the modification and connection hardware, internal hardware and peripheral hardware components according to vendor and technical specifications • test components and rectify identified problems.
Context of and specific resources for assessment	Assessment must ensure access to: • hardware, internal hardware and peripheral hardware components for installation and configuration • use of current industry standard performance testing software • documents detailing organisational guidelines and requirements • technical manuals and tools • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for

© Commonwealth of Australia, 2025 Future Skills Organisation

	this unit:
	• verbal or written questioning to assess candidate's knowledge of systems diagnostic software and systems functionality
	• direct observation of candidate:
	  • connecting hardware, internal hardware and peripheral hardware components
	  • testing components and rectifying identified problems
	• evaluation of client requirements and candidate's final recommendations
	• review of candidate's written notes.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Personal computer devices may include:	• iPAD (or similar) • laptop • notebook • personal digital assistant (PDA) • personal computer (Mac or PC) • server • workstation.
Personal computer components may	• cooling systems: • case fans

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• CPU fans • heat sinks • thermal compound • memory: • adapter cards • capture cards (TV and video) • graphics cards • I/O cards: • Firewire • parallel • serial • universal serial bus (USB) • media reader • sound cards • storage controllers: • eSATA cards • redundant array of inexpensive or independent disks (RAID) cards (RAID array - levels 0,1,5) • wired and wireless network cards • motherboards: • advanced network basic input/output system (BIOS) settings • bus speeds • chipsets • complementary metal oxide semiconductor (CMOS) battery • expansion slots • firmware updates • front panel connectors • I/O ports • jumper settings • memory slots • socket types • sound, video, USB 1.1, USB 2.0, serial, IEEE 1394 or Firewire, parallel, NIC, modem, PS/2 • power supplies: • connector types and quantity • output voltage • wattages and capacity • processors:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• 32bit versus 64bit • cache • front side bus • number of cores • power consumption • socket types • speed • storage devices: • CD, DVD, RW or blu-ray • external • floppy disk drive (FDD) • hard disk drive (HDD): • parallel advanced technology attachment (PATA) • serial advanced technology attachment (SATA) • solid state • optical drives • removable.
Mobile personal computer components may include:	• components of the LCD, including inverter, screen and video card • communication connections: • Bluetooth • cellular wireless area network (WAN) • ethernet • infra-red • modem • expansion devices: • docking station • peripheral component interconnect (PCI) express cards • Personal Computer Memory Card International Association (PCMCIA) cards • hard drive and memory • input devices: • function keys • point devices, such as touch pad, point stick or track point • stylus or digitiser • internal laptop expansion slot types • keyboard, processor, plastics, pointer devices, heat sinks, fans, system board, CMOS battery, and speakers • power and electrical input devices: • auto-switching

© Commonwealth of Australia, 2025 Future Skills Organisation

	• batteries • fixed input power supplies • wireless cards and video card.
Peripheral hardware components may include:	• input devices: • bar code reader • biometric devices • keyboard • KVM switch • mouse • multimedia, such as web and digital cameras, MIDI, microphones • touch screen • output devices: • printers • screen • speakers • printer consumables • printer drivers (compatibility).
Clients may include:	• department within the organisation • person within a department • third party.
Organisational requirements may include:	• how and what the organisation wants in regard to work environment • preventative maintenance and diagnostic policy • problem solution processes • roles and technical responsibilities in the IT department • vendor and product service level support agreements.
Testing tools may include:	• anti-static pad and wrist strap • cable testers • extension magnet • loop back plugs • multi-meter • power supply tester • specialty hardware or tools.
Print devices may include:	• impact • inkjet • laser • local versus network printers • thermal.
Printer issues may	• blank paper

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• error codes • garbage printout • ghosted image • lines and smearing • no connectivity • out of memory error • paper jams.
Printer issue resolution may include:	• clean printer • clear paper jam • install maintenance kit (reset page count) • power cycle • replace drum • replace fuser • set IP on printer.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT422A Participate in IT services

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to apply the principles of service management when working in an information technology (IT) service desk environment.

Application of the Unit

This unit applies to individuals who work in IT service roles and are responsible for providing IT service desk support.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Prepare to work on a service desk	1.1 Identify principles of service desk ***quality*** 1.2 Apply ***concepts and terminology*** associated with a ***service desk environment*** 1.3 Use appropriate ***service principles***
2. Support a service desk	2.1 Use ***service desk systems*** to open a new service call 2.2 Inform customer of the progress of the call using service principles 2.3 Escalate a service desk call following service principles 2.4 Implement service desk closure principles 2.5 Seek user feedback following closure of a service desk call
3. Apply continuous improvement to service desk	3.1 Review ***service desk records*** 3.2 Plan methods of improving performance 3.3 Document proposed improvements and submit to appropriate person

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business-related matters
- literacy skills to:
  - document service desk
  - read and interpret enterprise procedures, manuals and specifications
- planning and organisational skills to plan, prioritise and monitor own work

© Commonwealth of Australia, 2025 Future Skills Organisation

- problem-solving and contingency-management skills to adapt procedures to local requirements and reconfigure depending on differing operational contingencies, risk situations and environments
- research skills to research industry best practice
- technical skills to advise on a range of IT support procedures.

Required knowledge

- detailed knowledge of:
  - enterprise escalation policy and procedures
  - industry best practice in IT service desk support
- overview knowledge of:
  - basic technical terminology in relation to service management
  - legislation, codes of practice and other formal agreements that directly impact on resolution processes
  - quality assurance of processes and procedures relating to service desk
  - service management relating to service desk.
  -

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • follow procedures and processes to provide service desk support • plan and document strategies to improve service desk performance.
Context of and specific resources for assessment	Assessment must ensure access to: • IT service desk environment • current service logs and procedures • service desk software • customer contact technologies currently used in industry • appropriate learning and assessment support when required • modified equipment for people with special needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of service management and quality processes • review of candidate's documented service management processes • evaluation of candidate's service management procedures.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Quality may include:	• capability maturity model integration (CMMI) • ISO standard 17025/IEC standard 20000.
Concepts and terminology may include:	• alert • availability • business case • catalogue • change types (normal, standard and emergency) • configuration management system • contract • definitive media library (DML) • event

© Commonwealth of Australia, 2025 Future Skills Organisation

	• impact, urgency and priority • incident • known error • known error database (KEDB) • operational level agreement (OLA) • release and release policy • resources, capabilities and assets • risk • service assets • service catalogue • service change • service design package • service knowledge management system (SKMS) • service level agreement (SLA) • service portfolio • service provider • service request • supplier • utility and warranty • workaround.
Service desk environment may include:	• call centre • help desk • local, central or virtual service desk.
Service principles may include:	• communication by keeping the customer informed of progress and advising on workarounds • data integrity • ease of use for customers • incident control using life cycle management of all service requests • single point of contact (SPOC) and not necessarily the first point of contact (FPOC) • single point of entry • single point of exit • streamlined communication channels.
Service desk systems may include:	• Acacia Help Desk • Aegis Service Desk • Control-F1 • Giva Inc. • HelpMaster Pro • HelpTrac • Internet Software Sciences • iTrack

© Commonwealth of Australia, 2025 Future Skills Organisation

	• LBE Help Desk Software • NetHelpDesk • NetKeeper • Numara Trackit • the BridgeTrak Suite.
Service desk records may include:	• calls on specific problems • calls solved by specific staff • length of open calls.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT423A Select cloud storage strategies

Modification History

Release	Comments
Release 1	This version first released with ICA11 Information and Communications Technology Version 2.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to analyse business requirements and select the best strategies to provide a cloud storage solution.

Application of the Unit

This unit applies to those engaged in developing a cloud storage strategy for an enterprise.

Licensing/Regulatory Information

Users should confirm licensing, legislative, regulatory, or certification requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria

1. Plan for the implementation of a cloud storage solution	1.1. Review ***business requirements*** and identify enterprise standards 1.2. Review major ***characteristics*** relating to cloud storage and identify ***advantages*** and ***disadvantages*** of its use 1.3. Review suitability of ***big data*** in the cloud storage solution
2. Select strategies for implementing cloud storage solutions	2.1. Research and review major ***cloud storage applications*** to determine possible cloud storage business needs 2.2. Identify most relevant business functions for cloud storage deployment 2.3. Evaluate possible providers of cloud storage solutions 2.4. Review ***service level agreements*** (SLAs) and identify ***hidden costs*** 2.5. Develop a cloud storage strategy according to identified business data deliverables.
3. Evaluate effectiveness of cloud storage	3.1. Review and evaluate the cloud storage technologies for performance, usability and benefit to enterprise 3.2. Document and action required improvements

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills
communication skills to: • communicate with peers and supervisors in relevant cloud computing technological areas • seek assistance and expert advice from relevant people in cloud computing industry area • literacy skills to interpret technical documentation, equipment manuals and specifications • research skills to locate appropriate sources of information regarding cloud storage technologies • analytical skills to analyse and evaluate features of cloud storage technology • safety awareness skills to work systematically with required attention to detail without

© Commonwealth of Australia, 2025 Future Skills Organisation

injury to self or others, or damage to goods or equipment
• technical skills to:
  • identify features of cloud storage technologies
  • test and evaluate cloud storage technologies

Required knowledge
• current trends and directions in information and communications technology (ICT), and major industry technology standards used in cloud storage services • vendor product directions in cloud storage services • current industry hardware and software products, and their general features, capabilities and application, especially where applied to cloud storage technologies

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • review benefits and challenges associated with implementing a cloud storage solution • determine most appropriate cloud storage solutions for the enterprise and effective strategies for their implementation • review implementation of a cloud storage strategy and identify areas for improvement.
Context of and specific resources for assessment	Assessment must ensure access to: • site where cloud storage technologies may be used • cloud storage technologies currently used in industry • SLA documentation relevant to cloud storage scenarios • documentation detailing work health and safety (WHS) standards, environmental guidelines and enterprise requirements • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of features and functions of industry-specific cloud

© Commonwealth of Australia, 2025 Future Skills Organisation

	technologies • direct observation of candidate using industry-specific cloud technologies • simulation of uses of industry-specific cloud technologies.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating *conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.*

Business requirements may include:	• data conversion requirements • hardware and software requirements • interface requirements • operational requirements • user requirements.
Characteristics may include:	• data centre hosting • multiple physical locations • networked online storage • virtualisation use.

Advantages may include:	• ability to provide security through local machine duplication
	• ability to off load storage maintenance tasks, such as:
	  • backup
	  • disaster recovery
	  • data replication

© Commonwealth of Australia, 2025 Future Skills Organisation

	• hardware purchases • access to a wider variety of web services to support the enterprise • anywhere any time access • pay-as-you-use storage costs • provides the option of off-premises or on-premises storage or a combination of both.

Disadvantages may include:	• accessibility:
	  • bandwidth-dependent for access
	• compliance:
	  • service provider's legislative requirements may not be compliant with local legislative requirements
	• data sensitivity:
	  • data more easily compromised
	• security:
	  • chance of piracy
	  • distributed data – access available at more physical locations
	  • greater chance of virus attack
	  • greater number of people with physical access
	• supplier stability:
	  • vulnerability to bankruptcy
	  • purchased by competitive company
	  • purchased by legally non-compliant company.

Big data may include:	• data access that incorporates high volume, high velocity and a high variety of information with fast in-depth processing • data managed by large information management specialist companies using big data technologies, such as Software AG, Oracle, IBM, Microsoft, SAP, EMC, and HP • data that is distributed within the cloud across a wide number of database servers.

Cloud storage applications may include a wide variety of key consumer applications:	• digital photography:
	  • Flickr
	  • Picasa
	• Office applications:
	  • Google Docs
	• social networking:
	  • Facebook
	  • MySpace
	• storage services:
	  • MediaMax

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Strongspace • Xdrive • video: • YouTube • web email: • Gmail • Hotmail • Yahoo • website hosting: • GoDaddy • HostMonster • StartLogic.
Service level agreements may include:	• cloud storage SLAs focused on the characteristics of the data centre and cloud network: • data throughput • jitter disturbance • mean time between failures • mean time to recovery • mean time to repair • various data rates.
Hidden costs may include:	• costs besides basic monthly costs per gigabyte, such as: • copying and deleting files • costs for internet connections • data transfers • metadata functions.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT501A Research and review hardware technology options for organisations

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes skills and knowledge to apply research skills when reviewing hardware solutions, as part of an analysis of emerging technology.

Application of the Unit

This unit applies to senior staff in a variety of information and communications technology (ICT) roles who are required to select new technology for their organisation and review the efficacy of existing technologies.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine organisational needs	1.1 Establish organisational needs and selection criteria for new technology 1.2 Review strategic goals and determine future requirements 1.3 Assess physical infrastructure and financial parameters against strategic goals
2. Research vendors, suppliers and IT industry specialists	2.1 Determine suitable suppliers and vendors 2.2 Source information from suppliers and vendors 2.3 Assess vendor information against ***industry standards*** 2.4 Review emerging standards and applications for compatibility with supplier and vendor information
3. Evaluate and report on hardware technology options	3.1 Review and test ***hardware*** to identify suitability for organisational requirements 3.2 Identify possible ***project risks*** associated with identified hardware 3.3 Document findings in a report and present to ***appropriate person***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - convey complex and abstract concepts and information
  - liaise with customers, vendors and suppliers
  - participate in teams and contribute to solutions and goals

© Commonwealth of Australia, 2025 Future Skills Organisation

    - present information, such as the results of testing new technology and proposals to move in new directions
- literacy skills to:
    - interpret industry standards
    - interpret technical information from vendors and suppliers
- numeracy skills to calculate cost and consider financial information
- planning and organisational skills to:
    - estimate scope, time, cost and quality
    - plan communications and risk management
    - investigate new technology for new roles in the workplace
- problem-solving skills to develop new approaches with new technology
- research skills to:
    - analyse and evaluate information
    - develop reports and summary findings
    - gain and maintain relevant and current technical product knowledge
- technical skills to:
    - assess technical information against industry standards
    - review and test hardware.

Required knowledge

- business planning process relevant to the development of data and voice integration and remote access business solutions
- client business needs that can be satisfied by the provision of IT products and services
- current business practices in preparing reports
- current industry and technology information sources
- current industry-accepted hardware, cabling and software products, including broad knowledge of general features and capabilities, with particular reference to emerging trends and product design
- equipment performance benchmarking
- industry networks, key individuals and organisations within the IT industry
- information-gathering techniques
- quality assurance practices, to promote reliable investigation processes
- vendor product directions:
    - access and security products
    - next generation networks
    - self-configuring asymmetric digital subscriber line (ADSL) or cable modem-router-switch for the small office home office (SOHO) market
    - wireless standards.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • analyse and plan approaches to technical problems or management requirements • access and convey conceptual information regarding emerging technology in relation to organisational needs • evaluate information, using it to forecast for planning or research purposes • recommend technology options.
Context of and specific resources for assessment	Assessment must ensure access to site with: • network or computer layout documentation and premises plans • network components • equipment specifications • organisational guidelines • business plan or model • journals of industry and professional associations • relevant standards. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of reports completed by the candidate recommending technology change • verbal or written questioning to assess candidate's ability to apply technical knowledge in the preliminary analysis of emerging technology according to organisational requirements or practices.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level,

© Commonwealth of Australia, 2025 Future Skills Organisation

	language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Industry standards may include:	• review of software and hardware currently used in the industry, which can be obtained from:
	  • conferences
	  • industry publications and websites
	  • professional groups:
	  • ICT groups
	  • Sector-specific.

Hardware may include:	• cabling infrastructure • internet access • modems and other connectivity devices • networks • personal computers • remote sites • servers • wireless networks • workstations.

Project risks may include:	• variations in locating and obtaining hardware influenced by changes in:
	  • scope
	  • time
	  • cost
	  • quality.

© Commonwealth of Australia, 2025 Future Skills Organisation

Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT502A Develop detailed component specifications from project specifications

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to analyse requirements of the project specifications in order to produce a set of high-level component specifications.

Application of the Unit

This unit applies to systems designers who are required to produce component specifications for programmers.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Develop components	1.1 Document behaviour scenarios according to ***documentation standards*** 1.2 Identify or develop components according to ***project specifications*** 1.3 Prepare diagrams according to ***standards***
2. Prepare schema	2.1 Analyse and document component connectivity 2.2 Identify and incorporate data flow iteration 2.3 Prepare component action diagrams according to standards
3. Prepare component model	3.1 Describe roles and responsibilities 3.2 Review and update functional ***requirements*** 3.3 Specify interface components and component relationships 3.4 Prepare interaction diagrams according to standards
4. Iterate and review model	4.1 Conduct walk-through of current model and review functionality 4.2 Identify relationships to ensure integration of model 4.3 Review class service requirements 4.4 Prepare initial test criteria 4.5 Implement process for incremental testing

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse the domain model

© Commonwealth of Australia, 2025 Future Skills Organisation

- communication skills to liaise with technical and operational staff
- literacy skills to interpret standards and organisational requirements
- problem-solving skills to resolve issues when components are identified or developed within project specifications
- planning and organisational skills to:
  - scope project
  - estimate time, cost, quality, communications and risk-management issues
- research skills to:
  - identify information sources for a cost-benefit analysis
  - specify, analyse and evaluate broad features of a particular business domain and best practice in program development
- technical skills to produce sequential diagrams.

Required knowledge

- appropriate design tools and their use
- configuration management
- key features of a cost-benefit analysis
- current industry-accepted design methodologies and hardware and software products, including broad knowledge of general features and capabilities
- data-modelling techniques
- program development methodologies
- quality assurance practices for preparing component model
- relevant standards and organisational policies
- current system functionality for analysing components.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify components relevant to the project requirements • document component connectivity and relationships • document component interface requirements.
Context of and specific	Assessment must ensure access to:

© Commonwealth of Australia, 2025 Future Skills Organisation

resources for assessment	• technical specifications • organisational and process goals • standards for model development • computer-aided software engineering (CASE) tools • project deliverables • test plan • project budget • outcomes of the business-analysis process • appropriate software and hardware • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	
	• direct observation of candidate:
	  • preparing component action diagrams
	  • conducting walk-through of models against specifications
	  • using CASE tools
	• verbal or written questioning to assess candidate's knowledge of interoperability between components
	• review of developed model.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Documentation standards may include:	• International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS)
	• organisational and project policy related to:
	  • sign-off
	  • storage
	  • distribution
	  • revision.

Project specifications may include:	• current system functionality • technical requirements • user problem statement.
Standards may include:	• ISO, IEC and AS standards • organisational standards • project standards.
Requirements may refer to:	• application • business • network • people in the organisation • system.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT503A Validate quality and completeness of system design specifications

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to check the system specifications against outcomes and quality standards.

Application of the Unit

This unit applies to individuals working as system designers who are required to validate system design specifications to ensure that they meet the required organisational audit standards.

System quality may refer to the network system, a program or a project.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine audit criteria	1.1 Investigate the ***system*** or product for which the quality audit is being performed to understand its functionality 1.2 Determine the objectives to be achieved by the quality audit 1.3 Determine the scope of the quality audit 1.4 Develop a list of audit criteria and ***quality benchmarks*** 1.5 Develop a ***metric*** to classify the audit criteria 1.6 Determine the audit technique or methodology to be followed 1.7 Examine and detail the resources available to carry out the audit 1.8 Document the objectives, scope, criteria, technique and resources in an audit plan
2. Audit aspects of the final system	2.1 Use the audit criteria to collect evidence about the functionality and quality of the final system, including ***documentation*** 2.2 Use a checklist to monitor audit progress 2.3 Document audit outcomes as the audit progresses
3. Review and confirm contract and specifications	3.1 Review system contract against audit outcomes 3.2 Compare system functionality against audit outcomes and system contract 3.3 Identify items of non-compliance where audit outcomes do not meet performance targets or fall short of contract ***requirements*** 3.4 Review system procedures for corrective action 3.5 Document items of non-compliance and proposed corrective action

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - liaise with internal and external personnel on technical and operational matters
  - present information
- literacy skills to:
  - analyse and evaluate information
  - write reports
- planning and organisational skills to conduct quality audit when reviewing system against contract areas
- problem-solving skills to draft acceptance criteria
- technical skills to:
  - create appropriate metrics
  - explore functionality of the system being tested.

Required knowledge

- acceptance criteria
- detailed design principles and specification standards
- fault tolerance technologies
- quality audits
- quality levels, both generally and as required by the organisation.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to	Evidence of the ability to: • determine audit criteria and conduct audit

© Commonwealth of Australia, 2025 Future Skills Organisation

demonstrate competency in this unit	• review system procedures for non-compliance • specify corrective actions.
Context of and specific resources for assessment	Assessment must ensure access to: • audit tools • documentation guidelines • relevant standards and benchmarks • service level agreement (SLA) • archive policy • acceptance criteria • IT security specifications • live system, including database, system files and designed interface • technical specifications of system. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate undertaking an audit • verbal or written questioning to assess candidate's knowledge of requirements for identifying audit criteria • review of documented items of non-compliance and proposed corrective action prepared by candidate.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

System may include:	• active server page (ASP) • applications • databases • gateways • internet service provider (ISP) • operating system • servers.

Quality benchmarks may include:	• benchmarks that cover:
	  • cost savings
	  • performance
	  • quality
	  • technical matters
	• relevant quality standards:
	  • AS3925.1-1994 Software quality assurance - plans
	  • NZS14102:1998 Information technology guideline for evaluation and selection of CASE tools
	  • AS/NZS4258:1994 Software user documentation process
	  • AS/NZS ISO/IEC 12207:1997 Information technology - Software life cycle processes.

Metric may include:	• capacity • input • output • performance • quality • value metrics.
Documentation may follow:	• audit trails • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • naming standards • project management templates • report writing principles • version control.

© Commonwealth of Australia, 2025 Future Skills Organisation

Requirements may refer to:	• application • business • network • people in the organisation • system.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT504A Confirm transition strategy for a new system

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to confirm a transition strategy to a new system, based on the revised system design and newly developed change-management plan.

Application of the Unit

This unit applies to staff in a range of information and communications technology (ICT) positions who are required to plan for a transition to a new system, whether that be websites, networks or software.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Confirm delivery and acceptance plan	1.1 Confirm phased delivery with the ***client*** and ***project team*** 1.2 Confirm method of acceptance and ***acceptance criteria*** 1.3 Confirm that acceptance test plan is in place and agreed
2. Confirm data take-up plan	2.1 Identify the data source for each ***database*** 2.2 Analyse possible integrity ***constraints*** 2.3 Design the data conversion workflow, taking into consideration data validation, data clean-up and data loading 2.4 Identify interface ***requirements***, data take-up method, complexity and effort required 2.5 Develop required data conversion contingencies and confirm with ***appropriate person***
3. Confirm cutover plan	3.1 Agree on the conversion window in operational timescale with appropriate person 3.2 Plan and confirm parallel running with appropriate person 3.3 Confirm approval of dependencies with appropriate person 3.4 Confirm approval of fall-back options with appropriate person 3.5 Confirm approval of checkpoints, tests and responsibilities with appropriate person 3.6 Confirm approval of resources, tasks and timescales with appropriate person

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- analytical skills to interpret system transition plans
- communication skills to liaise with client and technical staff to ensure requirements are known and can be met within timeframes
- literacy skills to interpret technical specifications and related documentation
- planning and organisational skills to manage data transition and data storage planning
- research skills to specify, analyse and evaluate broad features of a particular business domain and best practice in data transition
- technical skills to:
  - analyse data
  - design data conversion workflow
  - identify data source for each database.

Required knowledge

- conversion strategies
- current business practices related to transition strategies
- cut-over strategies
- post-converging strategies.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • refine the transition strategy in the light of technical information and change-management plans • confirm acceptance plan • develop a data take-up plan • confirm cutover plan.
Context of and specific resources for assessment	Assessment must ensure access to: • IT specifications • change-management plan • acceptance test plan • IT security assurance specifications

© Commonwealth of Australia, 2025 Future Skills Organisation

	• appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of candidate developing required data conversion contingencies
	• verbal or written questioning to assess candidate's knowledge of:
	  • interpreting software specifications
	  • cut over and test network equipment.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• employees • external organisations • individuals • internal departments.
Project team may include:	• different businesses working in partnership • individual business analysts • solution developers and business clients working together

© Commonwealth of Australia, 2025 Future Skills Organisation

	• third-party solution developers working together.
Acceptance criteria may include:	• cost implications • logistical considerations • technical • timeframe.
Database may include:	• object-relational databases • proprietary databases and commercial off-the-shelf (COTS) database packages • relational databases.
Constraints may include:	• budget • hardware • legal constraints • policy • resource • software • time.
Requirements may refer to:	• application • business • network • people in the organisation • system.
Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT505A Determine acceptable developers for projects

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to ensure that development projects are contracted to developers who are credible and able to accomplish the task within the confines of the mutually agreed parameters of the project. The process involves analysis and recording of objective evidence across a broad range of technical and managerial operations.

Application of the Unit

This unit applies to the process of identifying appropriate organisations to develop and maintain organisational systems. Special care is taken to ensure appropriate solutions providers have the skills, depth of capability and support to undertake the required tasks.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Specify development requirements	1.1 Prepare and document clear ***specifications*** for the ***project*** 1.2 Submit specifications to ***appropriate person*** for sign-off and authority to contract ***developers*** 1.3 Prepare request for tender document if appropriate, using specifications 1.4 Prepare and document agreed selection guidelines
2. Identify potential developers	2.1 Investigate potential developers in line with ***organisational guidelines*** 2.2 Request development quotes from potential developers 2.3 Assess submitted quotes against selection guidelines and make a shortlist of potential developers, where appropriate
3. Select a potential developer	3.1 Assess the capability of developers to do the project work 3.2 Confirm that potential developers understand the scope of the work to be undertaken 3.3 Conduct a ***due diligence*** check where appropriate and assess the quality of developers 3.4 Select appropriate developers using ***selection criteria*** 3.5 Inform developers of their selection according to organisational guidelines
4. Sign off the selection process	4.1 Prepare contract for signing according to enterprise procedures 4.2 Sign contract and prepare developers to commence work according to contract

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to determine:
  - business requirements or specifications
  - selection criteria
  - technical requirements or specifications
- communication skills to liaise with:
  - business units, managers and other staff or users
  - contract developers
  - project team members
  - technical staff and service providers
- literacy skills to:
  - prepare contracts
  - write technical specifications and requirements
- numeracy skills to make judgements about quotes from potential developers
- problem-solving skills to plan and manage:
  - contract developers
  - project
  - project team members
- technical skills to navigate on the web.

Required knowledge

- basic knowledge of processes and procedures relating to:
  - business liaison
  - business negotiation
- overview knowledge of:
  - Australian Computer Society Code of Ethics
  - industry and ecommerce standards.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • systematically select professional and skilled providers and developers who can complete the required development project.
Context of and specific resources for assessment	Assessment must ensure access to: • business plan • procurement policies • selection policies. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate identifying and selecting potential developers • review of selection process documents such as ranked assessments, tendering guidelines, and selection criteria prepared by candidate.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Specifications may include:	• business case • business requirement specifications • project plan • request for information (RFI) • request for proposal (RFP) • request for tender and invitation to tender • technical and system specification • use of case statements.
Project may include:	• business improvement process • ebusiness solution involving the total organisation or part of the organisation • systems-only change • total organisational change.
Appropriate person may include:	• authorised business representative • client • supervisor.

Developers may include:	• internal or external sources of expertise:
	  • analysts or programmers
	  • consultants
	  • contractors
	  • employees
	  • solution providers.

Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access • virus risk.
Due diligence may	• checking for vendor certification

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• checking membership of professional bodies • checking developer's website and their 'seal of trust' credentials • checking with appropriate quality and industry bodies • conducting a check of reputation in the industry • identifying the work of the developer to be employed • obtaining referees of previous clients.

Selection criteria may include:	• registration of interest
	• RFI
	• RFP
	• involving:
	  • advertising to the open market
	  • cold calling
	  • existing relationships
	  • extending an existing relationship
	  • getting recommendation from someone trusted
	  • identifying a well-designed ebusiness site and finding the developers
	  • online searching
	  • preferred supplier lists
	  • responding to advertisements.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT506A Implement process re-engineering strategies

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to consider a variety of potential process re-engineering strategies and to make appropriate selections for implementation in an organisation.

Application of the Unit

This unit applies to senior information and communications technology (ICT) staff who are required to implement system re design.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
of competency.	*and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Develop process re-engineering strategies	1.1 Research and determine target process for re-engineering action 1.2 Develop process re-engineering plan 1.3 Determine and document strategic importance of process 1.4 Establish and document performance standards and benchmarks for new process 1.5 Seek feedback and suggestions from ***client*** on proposed process re-engineering
2. Implement process re-engineering strategies	2.1 Compare suggestions with process re-engineering plan to determine suitability for ***business requirements*** 2.2 Incorporate suggestions where appropriate 2.3 Implement new process into business structure and leave sufficient scope for changing capacity or upgrades
3. Monitor organisational context	3.1 Monitor new process to measure performance levels 3.2 Determine and document the benefits of the new process to the business 3.3 Identify and document training needs for staff 3.4 Analyse the cultural and political impact of the new process 3.5 Document the new process and disseminate information to ***appropriate person***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to evaluate cultural and political impact of the new process

© Commonwealth of Australia, 2025 Future Skills Organisation

- communication skills to:
  - liaise with the client
  - undertake market research and testing, using focus groups
- literacy skills to:
  - interpret business requirements
  - write technical documents and training needs document
- learning skills to provide instruction to staff
- planning and organisational skills to develop the process re-engineering plan
- problem-solving skills to undertake risk analysis
- research skills to determine target process for re-engineering.

Required knowledge

- business case preparation
- copyright and intellectual property
- impact of the new process on the organisation
- organisational strategy
- procedures relating to consulting internally and externally.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • implement are-engineering process that supports organisational objectives, taking into account the complex interdependencies between organisational and external components.
Context of and specific resources for assessment	Assessment must ensure access to: • process re-engineering plan • analysis software • ebusiness models • modelling software • organisational strategy • organisational structure and culture • personal computer

© Commonwealth of Australia, 2025 Future Skills Organisation

	• stakeholder analysis. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of process re-engineering • review of candidate's implementation plan.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that maybe present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• employees • external organisations • individuals • internal departments.
Business requirements may relate to:	• application • business • network • people in the organisation • system.

© Commonwealth of Australia, 2025 Future Skills Organisation

Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT507A Select new technology models for business

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to identify opportunities for using new technology to support and enable efficient models of business.

Application of the Unit

This unit applies to senior information and communications technology (ICT) staff in a range of areas who are required to research innovative approaches to meeting business requirements.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify processes to be improved by the application of a new business model	1.1 Map existing process flow against relevant performance ***standards*** in order to identify areas that may need improvement 1.2 Outline emerging models and processes 1.3 Identify changes in the technological, ***client*** and supply chain environment 1.4 Document changes identified and submit to ***appropriate person*** for review
2. Appraise existing models	2.1 Analyse existing business models in use 2.2 Investigate business models in use in other similar businesses 2.3 Identify and determine relevance of business models in use and under development in other industry sectors 2.4 Map existing models in other parts of business supply chain
3. Research new business models	3.1 Investigate new business models to establish opportunities for improvement 3.2 Evaluate opportunities against ***business requirements*** 3.3 Prioritise and document identified opportunities
4. Select the appropriate model	4.1 Select a business model that improves the business processes 4.2 Develop performance benchmarks to measure the effectiveness of the chosen business model 4.3 Model new business process or model and collaborate with other businesses 4.4 Document the proposed business model according to business procedures 4.5 Forward appropriate document to appropriate person for sign-off

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse current business models
- initiative and enterprise skills to develop new methods of doing business
- literacy skills to:
  - deal with complex ideas and concepts
  - document benchmarking standards
- numeracy skills to develop cost-benefit analyses
- problem-solving skills to use data obtained from modelling to support decision making
- technical skills to:
  - conduct prototyping
  - design technical models
  - evaluate models.

Required knowledge

- benchmark selection and development
- business process design
- business-to-business and business-to-customer interface and liaison
- copyright and intellectual property
- current technical environment
- determination of the impact of technological change
- electronic commerce modelling language (ECML)
- environmental scanning
- interpretation of design specifications
- modelling
- value and supply chain management
- website architecture.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify new approaches to using technology or new technology to enable efficient models of business • determine the appropriate focus of the selected business model in order to achieve the desired performance improvement • document the new business model.
Context of and specific resources for assessment	Assessment must ensure access to: • business systems • analysis software • modelling software • business requirements • current industry news, forums, lists and chat rooms • user analysis • supply and value chain analysis. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of current business processes and modelling • review of reports prepared by candidate showing proposed new business model.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Standards may include:	• International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • organisational standards • project standards.
Client may include:	• employees • external organisations • individuals • internal departments.
Appropriate person may include:	• authorised business representative • client • supervisor.
Business requirements may include:	• customer • inventory • payroll • supplier • tax requirements of the organisation.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT508A Evaluate vendor products and equipment

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to evaluate and test a range of vendor products and equipment against a client's business requirements.

Application of the Unit

This unit applies to individuals in a range of information and communications technology (ICT) areas who are required to assess hardware and software products.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Establish business requirements	1.1 Identify and prioritise ***business requirements*** 1.2 Identify conflicting or overlapping business requirements 1.3 Specify budget and available resources 1.4 Validate business requirements, budget and resource needs with ***client***
2. Identify vendor products and equipment	2.1 Investigate a representative range of vendor products and equipment 2.2 Identify and document interdependencies 2.3 Specify and document technical alternatives available to the business 2.4 Determine and document availability of products and equipment 2.5 Ensure vendor products and equipment meet Australian or other ***standards***
3. Test vendor products and services	3.1 Develop valid and reliable test regime with appropriate measurements 3.2 Establish test environment, including calibrated measuring equipment 3.3 Undertake testing of products or equipment and document results 3.4 Undertake revised testing where initial tests are inconclusive or where alternative product configuration may meet business requirements
4. Evaluate vendor products, services and equipment	4.1 ***Rate*** vendor products for quality, performance and support 4.2 Rate vendor products for fit with client needs 4.3 Establish product limitations, performance, integration capabilities and costs and compare with established business requirements 4.4 Prepare cost-benefit analysis
5. Prepare evaluation	5.1 Document product information in order of preference

© Commonwealth of Australia, 2025 Future Skills Organisation

report	5.2 Recommend preferred product, including the reasoning behind recommendations 5.3 Prepare a report containing ***solution*** details 5.4 Submit report to client for approval

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to compare and contrast similar products from different vendors
- communication skills to effectively communicate with vendors
- literacy skills to identify key sources of product information, summarise and document technical information
- numeracy skills to compare prices on different products.

Required knowledge

- broad knowledge of:
  - Australian Computer Society Code of Ethics
  - client business domain
  - copyright and intellectual property
  - current industry-accepted hardware and software products, including their general features and capabilities
- detailed knowledge of current and future technical systems
- features and function of relevant hardware components and software products and the interaction between these
- vendor product and international standards.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

© Commonwealth of Australia, 2025 Future Skills Organisation

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • evaluate a range of vendor products and equipment against a client's functional requirements • choose the most appropriate products • document the selected items and selection rationale.
Context of and specific resources for assessment	Assessment must ensure access to: • client functional requirements • hardware and software specifications from vendors • test procedures and activities. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of client business domain and appropriate selection criteria • review of reports prepared by candidate showing selected items and selection rationale.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Business requirements may relate to:	• application • business • network • people in the organisation • system.
Client may include:	• employees • external organisations • individuals • internal departments.
Standards may include:	• Australian Standards (AS) • Institute of Electrical and Electronics Engineers (IEEE) • International Electrotechnical Commission (IEC) • International Organization for Standardization (ISO) • International Telecommunications Union (ITU) • Internet Engineering Task Force (IETF) • organisational • project.

Rate process may include:	• evaluation of:
	  • customer testimonies
	  • support documents.

Solution may include:	• hardware upgrades • implementing a new system • new hardware • new software • software upgrades • user training.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT509A Gather data to identify business requirements

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to identify, analyse and document business requirements.

Application of the Unit

This unit applies to systems analyst developers and project team leaders and managers responsible for gathering data to identify business requirements.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify key information sources	1.1 Identify information repositories across the business 1.2 Review current ***organisational documentation*** 1.3 Develop critical questions to elicit information from key stakeholders using a mixture of open and closed questions
2. Gather data	2.1 Use a wide range of ***information-gathering techniques*** 2.2 Review reports and other data sources for business information 2.3 Confirm ***business-critical factors*** relating to current and future directions of the organisation with ***stakeholders***
3. Prepare data analysis for review	3.1 Analyse group and individual responses to clearly define business priorities 3.2 ***Document*** data analysis for review according to organisational standards

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to identify business requirements
- communication skills to transfer and collect information and gain consensus on concepts
- literacy skills to document and communicate analysis findings
- planning and organisational skills to gather data within a set timeframe
- problem-solving skills to develop strategic initiatives
- research skills to specify, analyse and evaluate broad features of a particular business domain and best practice in system development.

Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

- overview knowledge of:
  - client business domain, so that the business need is understood by project team and client
  - current industry-accepted hardware and software products, general features and capabilities
  - role of stakeholders and the degree of stakeholder involvement
  - quality assurance practices (e.g. when planning the requirements phase)
- detailed knowledge of system's current hardware, software and communication functionality.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • document business requirements based on business strategy and current and future directions • facilitate client stakeholders to reach a consensus position.
Context of and specific resources for assessment	Assessment must ensure access to: • project brief • business documentation • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of data-gathering techniques • direct observation of candidate conducting interviews and focus groups • evolution of system-requirement specifications based on data gathered • evaluation of software prototype based on data gathered

© Commonwealth of Australia, 2025 Future Skills Organisation

	• evaluation of unified modelling language (UML) diagrams to represent the analysis of the data gathered.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Organisational documentation may include:	• annual reports • brochures • business forms • current systems • facilitated group sessions or discussion groups • financial statements • performance reports • policy documents • website.
Information-gathering techniques may include:	• interviews • observation • questionnaires • surveys.
Business-critical factors may include:	• customer confidence • customer demographics • data knowledge and management

© Commonwealth of Australia, 2025 Future Skills Organisation

	• expectations • response times • scalability • security • traffic.
Stakeholders may include:	• development team • project team • sponsor • user.
Document may include:	• business requirement specifications • textual documentation, such as system-requirement specifications • case diagrams • wireframes.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT510A Determine appropriate IT strategies and solutions

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to determine the best IT solution during the initial planning phase. It involves defining the basic goals of the solution and providing the basis for a high-level project work plan.

Application of the Unit

This unit applies to IT personnel who participate in the development of strategic initiatives. They may participate in teams, including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Evaluate IT needs of the organisation	1.1 Conduct an analysis process that determines the organisation's current needs and projected IT requirements 1.2 Review organisational environment and relevant industry changes and trends 1.3 Determine IT goals, objectives and future requirements 1.4 Prepare information for ***appropriate person*** to determine scope with top-level management
2. Contribute to the development of the project goals and objectives	2.1 Determine project scope according to agreed brief 2.2 Align the project goals with the IT goals of the organisation 2.3 Determine the impact that system or changes will have on the organisation 2.4 Document project, goals and impact of changes according to requirements
3. Determine best IT systems solution	3.1 Evaluate a range of IT systems solutions according to project goals 3.2 Define the high-level ***hardware***, ***software*** and communications environment necessary for the proposed systems solution 3.3 Develop a ***feasibility*** study and a cost-benefit analysis of the proposed solution 3.4 Ensure that the proposed solution aligns with the organisation's strategic plan 3.5 Forward feasibility study and cost-benefit analysis document to appropriate person for approval and sign-off

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- analytical skills to interpret, analyse and evaluate current needs and project IT requirements of the organisation
- communication skills to negotiate with other team members during the planning process
- literacy skills to write reports according to organisational requirements
- numeracy skills to develop a cost-benefit analysis
- project planning skills to set benchmarks and identify scope to contribute to a high-level project work plan
- research skills to:
  - analyse and evaluate broad features of a particular business domain
  - identify best practice in system development
  - identify business continuity impact
  - identify business objectives and future requirements
- technical skills to:
  - evaluate a range of IT systems solutions
  - define hardware and software for systems solution
  - identify the best IT systems solution and define the basic goals of the system.

Required knowledge

- broad knowledge of two or more current industry systems development methodologies
- components of the business planning process relevant to the development of IT business solutions
- current business practices to:
  - prepare reports and facilitate group interview processes
  - identify and recommend IT solutions following quality assurance practices
- current industry-accepted hardware and software products, with broad knowledge of general features and capabilities of technology
- feasibility and cost-benefit analysis and identifying information sources for a cost-benefit analysis
- role and degree of stakeholder involvement in the development of the IT strategy
- specific client business requirements in relation to proposed IT solutions.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • analyse organisation's current needs and projected IT requirements • determine the impact of system changes on the organisation • evaluate and recommend IT strategies and systems solutions to meet business objectives • develop a feasibility study and cost-benefit analysis of proposed solution.
Context of and specific resources for assessment	Assessment must ensure access to: • site where IT strategies and solutions may be developed • detailed information relating to current needs and project requirements of the business • outcomes of the business-analysis process • client expectations brief • business risks and objectives • range of IT business solutions. Where applicable, physical resources should include equipment modified for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of IT systems solutions
	• direct observation of candidate conducting feedback sessions
	• review of:
	  • documentation prepared by candidate outlining the best IT systems solutions for the organisation
	  • feasibility study and cost-benefit analysis of proposed solution developed by candidate.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support.

© Commonwealth of Australia, 2025 Future Skills Organisation

	In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Appropriate person may include:	• authorised business representative • client • supervisor.
Hardware may include:	• modems or other connectivity device, including digital subscriber line (DSL) modems • networks • personal computers • remote sites • servers • workstations.
Software may include:	• commercial • customised software • in-house • packaged.
Feasibility may include:	• economic • operational • schedule • technical.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT511A Match IT needs with the strategic direction of the enterprise

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to ensure information technology (IT) services meet current and future internal operational enterprise requirements.

Application of the Unit

This unit applies to system administrators who maintain and support critical infrastructure for commercial and business objectives in small to medium-sized organisations.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Evaluate current business strategy	1.1 Analyse the current strategic plan of the organisation to understand the industry environment and current organisational goals 1.2 Compare information related to current operational practices and the strategic plan to determine possible IT gaps and improvement opportunities 1.3 Report information regarding the effect of IT developments to an ***appropriate person***
2. Evaluate effect of changes	2.1 Review information on current IT systems supported by the organisation 2.2 Compare and document advantages and disadvantages of current and proposed IT systems 2.3 Determine the objectives and implications of introducing changes 2.4 Document findings and forward to appropriate person for feedback
3. Develop action plans	3.1 Develop plans to implement proposed changes, according to ***organisational policy and procedures*** 3.2 Document action plans, ensuring that standards, targets and implementation methods are detailed 3.3 Forward documentation to appropriate person for feedback and approval

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- analytical skills to:
  - compare advantages and disadvantages of current and proposed IT systems
  - evaluate effect of IT changes
  - determine possible IT client support gaps
  - review objectives and performance measures
- communication skills to:
  - negotiate with other team members during the planning process
  - report effect of IT development to appropriate person
- literacy skills to:
  - document recommendations and develop action plans
  - organise and present information according to business report writing requirements
- planning and time-management skills to:
  - plan client-support service delivery within quality, time and cost parameters
  - manage client-support services
- research skills to:
  - identify business objectives and future requirements
  - source basic information from readily available sources.

Required knowledge

- analysis and planning approaches to technical problems or management requirements, taking into account the hardware platform used by the organisation, and network and security guidelines
- current system functionality to forecast for planning
- operating systems supported by the organisation to forecast for planning
- possible competing and complementary internal and external operating environments
- technology and product directions for evaluating and forecasting vendor and technology trends.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to	Evidence of the ability to: • access and analyse relevant information on changes to

© Commonwealth of Australia, 2025 Future Skills Organisation

demonstrate competency in this unit	technology and resources • analyse strategic plans to determine future technology needs • monitor resource use and cost-efficiency, and effectiveness of technology • develop and document action plan detailing standards, targets and implementation methods.
Context of and specific resources for assessment	Assessment must ensure access to: • site where IT needs and strategic directions of the enterprise may be coordinated • detailed information relating to business strategic plan • outcomes of the business-analysis process • budget constraints • timeframe for the strategic plan • business risks and objectives • information on a range of IT business solutions • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of analysis and planning methodologies in an IT environment • review of documentation prepared by candidate detailing findings of evaluation of proposed IT systems • review of action plan prepared by candidate, detailing standards, targets and implementation methods.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Appropriate person may include:	• authorised business representative • client • supervisor.
Organisational policy and procedures may include:	• operational • financial • legal • human relations • internal and external operating environments.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT512A Plan process re-engineering strategies for business

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to select a process to be re-engineered, to plan for its re-engineering, and to understand the strategic, organisational and change context in which it is to be re-engineered.

Application of the Unit

This unit applies to those working in senior positions in the knowledge management or systems development field who are required to evaluate existing systems with a view to redesigning them.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Select the process to be re-engineered	1.1 Identify major processes that require re-engineering 1.2 Identify boundaries, ***stakeholders*** and strategic importance of each process 1.3 Prioritise each process according to its level of ***performance*** 1.4 Select a process to re-engineer and document decision-making process
2. Identify the strategic context	2.1 Determine the purpose of the selected process, and where it fits into the business strategy 2.2 Evaluate the scope of the process, including stakeholder and strategic impact 2.3 Identify potential risks 2.4 Define the broad objectives of the new process 2.5 Model the new process, taking into account ***client*** expectations, cooperation across boundaries and process flow 2.6 Analyse changes to organisational structures, ***technical requirements***, training needs, cultural and political impact and communication channels 2.7 Document new process and impact of changes
3. Design the new process	3.1 Develop key performance indicators and implementation responsibilities for the new process 3.2 Communicate information to ***appropriate person*** 3.3 Prepare a process re-engineering plan to document stages 3.4 Submit process re-engineering plan to appropriate person for sign-off

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- analytical skills to:
  - analyse changes to:
    - communication channels
    - cultural and political impact
    - organisational structures
    - technical requirements
    - training needs
  - evaluate the scope of the project
- communication skills to liaise and negotiate with stakeholders
- literacy skills to:
  - document stages of implementation
  - write re-engineering plans
- planning and time-management skills to prioritise each process according to level of performance
- research skills to identify:
  - boundaries and stakeholders
  - major processes for re-engineering
- technical skills to:
  - develop a training needs analysis
  - develop key performance indicators for benchmarking
  - manage the change-management process.

Required knowledge

- copyright and intellectual property
- ecommerce standards
- industry standards
- organisational development and structure
- organisational strategy
- stakeholder liaison and negotiation.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify a process to be re-engineered • prepare an analysis, documenting the impact of changes to the organisation • plan the re-engineering of the process in a manner that supports the strategic, organisational and change context of the process to be re-engineered • design the new process, including key performance indicators and implementation responsibilities.

Context of and specific resources for assessment	Assessment must ensure:
	• access to:
	  • organisational structure and culture
	  • organisational strategy
	  • stakeholder analysis
	  • ebusiness models
	• use of:
	  • personal computer
	  • analysis software and modelling software currently used in industry.
	Where applicable, physical resources should include equipment modified for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of:
	  • benchmarking and change-management processes
	  • process re-engineering
	• review of documentation prepared by candidate analysing the impact of process re-engineering changes to the organisation
	• review of the process re-engineering plan prepared by candidate, detailing key performance indicators and implementation responsibilities.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be

© Commonwealth of Australia, 2025 Future Skills Organisation

	culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Stakeholders may include:	• development team • project team • sponsors • users.

Performance may include:	• financial or profitability measurements and selection decisions based on:
	  • strategic importance of the process
	  • worst performance.

Client may include:	• employees • external organisations • individuals • internal departments.
Technical requirements may relate to:	• application • business • database • network • people in the organisation • platform • system.
Appropriate person may	• authorised business representative • client

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• supervisor.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT514A Identify and manage the implementation of current industry-specific technologies

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to identify and manage the implementation of specific industry technologies to meet identified industry standards.

This unit covers the skills required to demonstrate and constantly review work processes that ensure that the quality of the business process is maintained at the highest level possible through the appropriate application of industry-specific technologies.

Users should confirm licensing, legislative, regulatory, or certification requirements with the relevant federal, state or territory authority.

Application of the Unit

This unit applies to individuals engaged in ongoing review and research in order to identify, manage and evaluate the implementation of industry technologies or techniques to improve aspects of the organisation's activities. The unit provides evidence of the application of industry enabling technologies.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Analyse and plan the implementation of industry-specific technologies	1.1 Identify technologies specific to an ***industry sector***
	1.2 Acquire ***industry-specific technologies*** and analyse their relevance to organisational requirements
	1.3 Plan the implementation of industry-specific technologies, where appropriate, for the benefit of the organisation
2. Manage the application of industry-specific technology to assist in solving specific organisational problems	2.1 Manage the testing of industry-specific technology
	2.2 Manage the implementation of specific features and functions of industry-specific technology to provide a suitable solution to an identified problem
	2.3 Demonstrate depth of knowledge of enabling technologies to an accepted industry standard
	2.4 Access and use ***sources of information*** relating to the industry-specific technology
3. Review, analyse and evaluate industry-specific technology performance	3.1 Analyse implementation of the industry-specific technology for performance and usability
	3.2 Review and evaluate the benefits to the organisation
	3.3 Determine ***environmental considerations*** involved with using the technology
	3.4 Seek ***feedback*** from users, where appropriate

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - communicate at a high level with peers and supervisors
  - seek assistance and expert advice
  - seek feedback from users
- literacy skills to interpret technical documentation, equipment manuals and specifications
- high-level research skills to locate appropriate sources of information regarding industry-specific technology
- safety awareness skills to work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- technical skills to:
  - apply the industry-specific technology
  - identify features of the industry-specific technology
  - test and evaluate the industry-specific technology.

Required knowledge

- high-level knowledge of:
  - vendor-product directions
  - current technology trends, directions in IT and specifically of the major industry technology standards used in the specified area
  - information-gathering techniques
- in-depth knowledge of current industry hardware and software products, including their general features, capabilities and application.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to	Evidence of the ability to: • manage the implementation of new and emerging

© Commonwealth of Australia, 2025 Future Skills Organisation

demonstrate competency in this unit	industry-specific technologies • analyse and critically evaluate features and functions of identified industry-specific technologies to an industry standard.
Context of and specific resources for assessment	Assessment must ensure access to: • site where industry-specific technologies may be used • industry-specific technologies currently used in industry • documents detailing OHS standards, environmental guidelines and organisational requirements. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of features and functions of industry-specific technologies • direct observation of candidate managing the implementation of industry-specific technologies • simulation of industry-specific uses of the industry-specific technologies.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Industry sector may include:	• business services or information worker • information and communication technology • telecommunication.

Industry-specific technologies may include:	• vendor specific:
	  • hardware
	  • integrated services
	  • internet access
	  • mobile communication devices
	  • networks
	  • peripherals
	  • software.

Sources of information may include:	• appliances software and technical connections guidance and other outputs supplied by vendors and manufacturers • documents • test pages • vendor and manufacturer guidance regarding requisite depth of knowledge of industry-specific technologies • web pages.

Environmental considerations may include:	• correct disposal by an authorised body of redundant hardware:
	  • circuit boards
	  • hard drives
	  • motherboards
	• recycling
	• safe packaging disposal of:
	  • cardboard
	  • paper
	  • plastic
	  • polystyrene.

Feedback may include:	• competency skill level • industry validated demonstration of competency through certification

© Commonwealth of Australia, 2025 Future Skills Organisation

	• interviews • meetings.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT515A Verify client business requirements

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to deal with clients at a senior level, to identify their business requirements and verify the accuracy of the information gathered.

Application of the Unit

This unit applies to senior information and communications technology (ICT) personnel who liaise with senior client staff to initiate projects.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Establish business relationship	1.1 Identify organisational structure, culture and politics in relation to support requirements 1.2 Identify organisational stakeholders 1.3 Develop business relationship with ***client*** across the appropriate number of organisational units 1.4 Schedule regular liaison to manage relationship
2. Determine context of business need or problem	2.1 Work with client to define the business ***problem*** to be investigated 2.2 Establish ***system*** boundaries and scope 2.3 Manage the preparation of appropriate information gathering 2.4 Ensure that project objectives and outcomes are documented 2.5 Work with client to substantiate ***documentation***
3. Analyse new information	3.1 Supervise information gathering from identified clients of the system 3.2 Analyse gathered client responses 3.3 Analyse new ***system requirements*** 3.4 Ensure that new system requirements and problems are documented
4. Confirm system specifications	4.1 Review documentation 4.2 Work with client to verify system specifications, updating documentation as required 4.3 Obtain final approval and sign-off from client

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- communication skills to:
  - collect and present information
  - liaise and negotiate with internal and external personnel
  - manage teams
- initiative and enterprise skills to identify, analyse and evaluate information from a variety of sources
- literacy skills to:
  - gather, analyse and evaluate information
  - prepare documentation
- problem-solving skills to:
  - participate in the development of strategic initiatives and contribute to solutions
  - troubleshoot common system problems
- research skills to specify, analyse and evaluate broad features of a particular business domain
- technical skills to provide current advice on systems and data-gathering products.

Required knowledge

- data-gathering techniques
- detailed knowledge of client business to enable informed IT product provision
- products related to data capture
- role of stakeholders and the degree of stakeholder involvement.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • use techniques of investigation, interview and document • produce a clear statement of business expectations and needs, including critical business requirements • manage staff contributions.
Context of and specific resources for	Assessment must ensure access to:

© Commonwealth of Australia, 2025 Future Skills Organisation

assessment	• current business needs • client expectations brief • business objectives • systems, data gathering and appropriate software products • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate documenting a business problem • verbal or written questioning to assess candidate's knowledge of techniques for gathering, analysing and documenting information • review of documented system specifications developed by candidate for approval by client.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• external organisations • ICT company

© Commonwealth of Australia, 2025 Future Skills Organisation

	• individuals • internal departments • internal employees • service industry.
Problem may refer to:	• application • business • network • system.
System may include:	• application • business • cabling infrastructure • computers • financial system • information system • management system • network equipment • software.
Documentation may include:	• audit trails • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC), Institute of Electrical and Electronics Engineers (IEEE), Internet Engineering Task Force (IETF) and Australian Standards (AS) standards • naming standards • project-management templates • report-writing principles • version control.
System requirements may include:	• client user • cost constraints • environment • geography • system functionality.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT601A Develop IT strategic and action plans

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to create strategic and action plans in alignment with organisational IT goals and strategies.

Application of the Unit

This unit applies to senior information and communications technology (ICT) staff who are required to develop strategies for organisations, as well as action plans for their implementation.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Develop and communicate mission and vision statement	1.1 Develop a mission statement for the organisation that states the purpose, values and business activities 1.2 Develop a vision statement for the organisation that describes its future operation and success 1.3 Develop the mission and vision statements in active consultation with team members and management 1.4 Document mission and vision statements 1.5 Communicate mission and vision statement to ***stakeholders*** and other authorities in the organisation
2. Examine organisational environment	2.1 Assess the current internal situation of the organisation, taking into account its strengths and weaknesses 2.2 Assess the external environment of the organisation, taking into account opportunities and threats 2.3 Determine trends and developments impacting on the strategic direction of organisation 2.4 Determine critical issues facing the organisation 2.5 Document strengths, weaknesses, opportunities, threats and critical issues facing the organisation in the ***strategic plan***
3. Set objectives and targets	3.1 Use critical issues to develop objectives and targets for the organisation after active consultation with team members and management 3.2 Develop strategies that meet organisational objectives and reflect overall organisational mission and values 3.3 Ensure strategies are obtainable, realistic and able to meet basic mission critical parameters 3.4 Determine constraints associated with the strategies and objectives developed 3.5 Include strategies, objectives and constraints in strategic plan ***documentation***
4. Develop action plans	4.1 Develop ***action plans*** for the strategies and objectives in

© Commonwealth of Australia, 2025 Future Skills Organisation

	consultation with team members and management 4.2 Check that action plans have clear, comprehensive and concise details 4.3 Check that action plans are adhered to 4.4 Include action plans in strategic plan documentation
5. Review and implement strategic plan	5.1 Review strategic plan with stakeholders and management 5.2 Incorporate changes and improvements as recommended 5.3 Implement action plans as set out in the strategic plan 5.4 Review and evaluate success of strategic plan after action plans have been implemented

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to assess:
  - opportunities and threats to the organisation
  - strengths and weaknesses of the organisation
- communication skills to:
  - facilitate groups to collect information and gain consensus when developing mission statements, strategies, objectives and targets
  - liaise with development team, sponsors and users
- literacy skills to:
  - develop action plans
  - document strategies, objectives and constraints
- planning and time-management skills to develop and implement strategic plan

problem-solving skills to address and analyse specific customer requirements

- research skills to:
  - identify critical issues facing the organisation
  - identify trends and developments
- technical skills to:
  - develop objectives and targets for the organisation
  - use forecasting techniques for planning purposes, particularly for evaluating internal and external operating environments related to current and future IT requirements.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required knowledge

- analysis and planning approaches to technical problems and management requirements, relating to:
  - network and IT security guidelines of the organisation
  - organisational values and purpose:
    - developing action plans
    - monitoring strategic directions
    - setting objectives and targets
  - hardware platform used by the organisation
- broad knowledge of technology and product directions for evaluating and forecasting vendor and technology trends
- methods for evaluating:
  - current system functionality to forecast for planning, particularly with regard to IT trends and developments
  - internal and external operating environments to forecast for planning
  - operating systems supported by the organisation to forecast for planning.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop mission and vision statements in consultation with team members and management • evaluate and document strengths, weaknesses, opportunities, threats and critical issues facing the organisation • develop strategic directions and action plans determined by the strategic alignment of IT directions with organisational goals • review strategic plan and incorporate changes and improvements • implement action plans • evaluate strategic plans following implementation.
Context of and specific	Assessment must ensure access to:

© Commonwealth of Australia, 2025 Future Skills Organisation

resources for assessment	• detailed information relating to business strategic plan • budget and time constraints • business objectives • business risks • information on a range of IT business solutions • outcomes of the business-analysis process • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate undertaking strategic planning tasks • review of data gathered, reports and project plans prepared for developing the action and strategic plans • verbal or written questioning to assess knowledge of planning approaches to technical problems.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Stakeholders may	• development team

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• project team • sponsors • users.

Strategic plan may relate to:	• components from separate disciplines:
	  • human resources
	  • IT
	• organisational strategic plan
	• stand-alone document.

Documentation may follow:	• audit trails • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • naming standards • project management templates • report writing principles • version control.
Action plans may relate to:	• operational aspects • financial aspects • human relations • internal and external operating environments • legal aspects • risks.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT602A Develop contracts and manage contracted performance

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to negotiate and document contractual arrangements between clients, vendors and service providers and to monitor and manage performance against agreed contractual obligations.

Application of the Unit

This unit applies to information and communications technology (ICT) staff working in a range of areas who are required to contract both staff and suppliers.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Establish contract	1.1 Determine ***boundaries of the contract***
	1.2 Document contract details and provide a copy to the ***client*** and vendor for review
	1.3 Obtain client and vendor feedback to clarify problems and misunderstandings
	1.4 Facilitate negotiations to resolve problems and misunderstandings
	1.5 Seek agreement from ***stakeholders***
2. Monitor contract	2.1 Monitor performance against contractual obligations to ensure desired level of quality is maintained
	2.2 Ascertain client satisfaction with contractual performance
	2.3 Identify and take action to address unsatisfactory performance
	2.4 Provide recommendations for contractual variations, if required
	2.5 Forward recommendations to the ***appropriate person*** for approval

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - identify service expectations and boundaries of service provision
  - review objectives and performance measures against contract outcomes
- communication skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - negotiate contract equipment and services when providing client support
  - obtain feedback and clarify problems
  - present and facilitate groups to transfer and collect information, gain consensus on concepts and gain the trust and confidence of colleagues, clients and suppliers
- initiative and enterprise skills to plan use of resources to achieve contract obligations
- literacy skills to:
  - organise and present information
  - prepare information on client support performance outcomes and agreed quality standards
  - write business reports
- numeracy skills to monitor the finances related to contracts
- planning and organisational skills to:
  - plan the management of services
  - monitor satisfactory service
- technical skills to:
  - identify and take action to address unsatisfactory performance
  - monitor the service performance.

Required knowledge

- analysis and planning approaches to technical problems or management requirements, taking into account organisational values and purpose in the context of formulating client support contracts
- broad knowledge of methods for evaluating and forecasting vendor and technology trends
- contracting requirements related to IT
- IT purchasing of equipment and services, such as negotiating extensive client support contracts
- industry standards in relation to service and product agreements.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate	Evidence of the ability to negotiate and formulate extensive client support contracts by: • accessing and analysing relevant information on resources and budgets

© Commonwealth of Australia, 2025 Future Skills Organisation

competency in this unit	• analysing current and future client support requirements • monitoring resource use, cost efficiency and effectiveness against contractual obligations reviewing objectives and performance measures.
Context of and specific resources for assessment	Assessment must ensure access to: • detailed information relating to business strategic plan • budget constraints • timeframe for the strategic plan • business objectives • information on a range of IT business solutions • outcomes of a business-analysis process. Where applicable, physical resources should include equipment modified for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• review of contract prepared by the candidate meeting client requirements for service delivery within time and cost parameters
	• direct observation of candidate monitoring contract performance, including action taken to address unsatisfactory performance
	• verbal or written questioning to assess candidate's knowledge of:
	  • analysis and planning approaches to technical problems
	  • contracting in the IT area.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Boundaries of the contract may include:	• budget • organisational policy • resources • time constraints.
Client may include:	• employees • external organisations • individuals • internal departments.
Stakeholders may include:	• development team • project team • sponsors • users.
Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT603A Manage the use of appropriate development methodologies

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to nominate the most appropriate methodology from traditional and non-traditional systems development methodologies for use by a team.

Application of the Unit

This unit applies to information and communications technology (ICT) managers employed in a range of work environments who are required to select the most appropriate development methodologies for their team.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine and select appropriate methodology for a given activity	1.1 Determine and define subject activity 1.2 Define criteria for selection of development ***methodology*** 1.3 Review and evaluate with project leader a range of ***traditional and non-traditional system-development methodologies*** 1.4 Select appropriate system development methodology to suit the activity 1.5 Brief project team on selected methodology
2. Direct the use of the selected development methodology	2.1 Review the initial project plan to guide developmental processes 2.2 Review the identification of appropriate ***task types*** according to development methodology 2.3 Review the description and articulation of task types 2.4 Review the definition of appropriate ***control structures*** that need to be created during task type execution 2.5 Review the identification of resources to support methodology selection 2.6 Monitor the application of appropriate methodology to solve tasks 2.7 Monitor the project flow and effectiveness of use of methodology against project plan 2.8 Review the documented opportunities for improvement, lessons learned and recommendations for future projects

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- communication skills to:
  - gain consensus on concepts when planning the application of the methodology to the project
  - present information
- literacy skills to:
  - prepare reports required by development methodology
  - write business reports
- planning and organisational skills to:
  - manage system development
  - review and manage project plan
- problem-solving skills to select a suitable development methodology for a client
- technical skills to:
  - apply appropriate methodology to solve tasks
  - determine unique characteristics and qualities to be used
  - evaluate development methodologies
  - review a range of traditional and non-traditional system development methodologies.

Required knowledge

- client business domain and organisational requirements
- life cycle maintenance of a live system, network or website
- role of stakeholders and the degree of stakeholder involvement in the development process
- technology involved to develop each methodology
- two or more current industry development methodologies.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate	Evidence of the ability to: • manage a project team • review a project plan • supervise the application of a methodology to a project

© Commonwealth of Australia, 2025 Future Skills Organisation

competency in this unit	• evaluate a range of development methodologies and their application to a project or scenario • review documentation as required by the chosen methodology.
Context of and specific resources for assessment	Assessment must ensure access to: • design specifications and current methodologies • organisational standards for documentation and version control • detailed user-requirements document, including model and scope • project plan. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate reviewing the stages of a development methodology within the scope of a project • verbal or written questioning to assess candidate's knowledge of a variety of system development methodologies and their application to a systems project • evaluation of candidate's review of supporting documentation produced by project team.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Methodology may include:	• traditional • non-traditional.
Traditional system-development methodologies may include:	• design methodology • project life cycle • structured systems analysis.
Non-traditional system-development methodologies may include:	• object-oriented analysis and design • prototyping • soft system methodology • version control.
Task types may relate to:	• fixed unit • fixed duration • fixed work.
Control structures may include:	• a review process • acceptance criteria • inspection • test plans.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT604A Identify and implement business innovation

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to analyse traditional business processes to identify and implement business opportunities for innovation and reform.

Application of the Unit

This unit applies to those managing a knowledge management or systems development team, or working in a senior role in such a team. Those with line management responsibility would undertake this role.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Compare the business with competitor businesses	1.1 Investigate information on business markets, customers and methods of doing business 1.2 Analyse and compare the current market for the business and the customer base with typical business markets and customers 1.3 Analyse and contrast current business relationships, business processes and methods of doing business with e-facilitated businesses
2. Identify business opportunities for innovation and reform	2.1 Investigate innovation and reform of ***aspects of the business*** through business strategies 2.2 Assess opportunities for their compatibility with business goals and objectives, and conduct a cost-benefit analysis for each 2.3 Evaluate the degree of likely change and the ramifications for the business and its culture for each opportunity 2.4 Conduct a risk management analysis and formulate a plan for dealing with contingencies according to organisational requirements 2.5 Rank opportunities in terms of their viability and applicability to the organisation 2.6 Include opportunities for innovation in the organisation's business strategy and prioritise them for implementation
3. Implement innovation	3.1 Redesign aspects of the business in an innovative manner using online technologies according to the organisation's business strategy 3.2 Integrate innovation into the business and monitor to gauge usefulness and maximise implementation 3.3 Review business innovation in consultation with users and make recommendations for improvement or further innovation

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to evaluate opportunities
- communication skills to liaise with management, technical staff and end users of an organisation
- initiative and enterprise skills to plan innovations in line with business strategies
- literacy skills to produce reports and proposals
- numeracy skills to produce a cost-benefit analysis
- planning and organisational skills to plan a strategy to be implemented over time
- research skills to identify appropriate technologies to fit with an organisation's requirements.

Required knowledge

- culture of the business versus traditional business models
- internal and external sources of information
- legal, ethical and security issues relating to business strategies
- records-management principles
- relevant legislation from levels of government that effect business operation, especially regarding OHS and environmental issues, equal opportunity, industrial relations and anti-discrimination
- structure of the business.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • explain the organisation's strategic directions • develop innovations to assist the business • produce a cost-benefit analysis of suggested innovations • develop an implementation plan for such innovations.

© Commonwealth of Australia, 2025 Future Skills Organisation

Context of and specific resources for assessment	Assessment must ensure access to: • a range of business documents covering vision, mission statements and strategic directions • site where business opportunities for innovation may be implemented. Where applicable, physical resources should include equipment modified for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• review of candidate's written reports outlining:
	  • number of business innovations
	  • cost-benefit analysis and recommendations
	• evaluation of candidate's project plan to implement an innovation
	• verbal and written questioning to determine candidate's knowledge of:
	  • organisation's strategic directions
	  • cost-benefit analysis.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

Aspects of the business may include:	• customer service • delivery of core services • delivery of products • market development • product development.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT605A Implement a knowledge management strategy

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to implement a knowledge management strategy for an ebusiness through technology and cultural change.

Application of the Unit

This unit applies to those managing a knowledge management team, or working in a senior role in such a team. Those with line management responsibility would undertake this role.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Implement knowledge management system and procedures	1.1 Foster a culture of sharing knowledge within the business through a system of formal and informal incentives and rewards 1.2 Implement policy and procedures for capturing knowledge within the organisation according to the business knowledge management strategy, and integrate this knowledge into existing business processes to change the enterprise processes 1.3 Model methods of contributing to the organisation's knowledge management system, and provide learning and development opportunities for staff to assist them to contribute and provide feedback 1.4 Provide coaching, mentoring and ongoing support to staff in accessing and using the organisation's knowledge management system according to the business knowledge management strategy 1.5 Manage protection and security of knowledge or information and levels of access according to organisational requirements
2. Maintain business knowledge base	2.1 Monitor input procedures to ensure that sources are tapped and knowledge is captured according to the business knowledge management strategy, and to ensure the effectiveness of accurate ***data capture*** 2.2 Collect and analyse data on access and use of the knowledge management system to determine the organisation's strategic use of knowledge 2.3 Implement contingency measures to address shortfalls in the knowledge management system and procedures, according to level of responsibility and authority
3. Review knowledge management system and procedures	3.1 Evaluate the knowledge management system and procedures to ensure they are meeting the needs of clients, organisational aims, objectives and standards 3.2 Periodically review the organisational knowledge content for accuracy and currency to ensure that it remains in line with organisational requirements 3.3 Identify improvements to the system and to the organisation's strategic use of knowledge in consultation with

© Commonwealth of Australia, 2025 Future Skills Organisation

	users and prepare a cost-benefit analysis with recommendations

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to evaluate existing knowledge management initiatives and compare these to corporate needs and directions
- communication skills to liaise with management, technical staff and end users of an organisation
- initiative and enterprise skills to plan strategies
- literacy skills to produce reports and proposals
- numeracy skills to produce a cost-benefit analysis
- planning and organisational skills to plan a strategy to be implemented over time
- research skills to identify appropriate technologies to fit with an organisation's requirements.

Required knowledge

- culture of the business versus traditional business models
- database design concepts
- internal and external sources of information
- legal, ethical and security issues relating to knowledge management
- records management principles
- relevant legislation from levels of government that effect business operation, especially regarding OHS and environmental issues, equal opportunity, industrial relations and anti-discrimination
- structure of the business.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

© Commonwealth of Australia, 2025 Future Skills Organisation

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • explain the importance of knowledge management in contemporary organisations • encourage culture change in the management of knowledge • review and improve systems and procedures.
Context of and specific resources for assessment	Assessment must ensure access to: • sample organisations suitable for the implementation of knowledge management, including business plans • existing knowledge management strategy. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of candidate's written report outlining a knowledge management implementation plan • evaluation of setting up project's first phases of the knowledge management plan • verbal and written questioning to determine candidate's knowledge of culture change.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Data capture may include:	• ensuring effectiveness of accurate data capture
	• minimisation of inefficient processing
	• using open standards:
	  • European Article Numbering Uniform Code Council (EAN.UCC) product code
	  • United Nations Electronic Data Interchange for Administration Commerce and Transport (UN/EDIFACT).

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT606A Develop communities of practice

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to identify areas that would benefit from communities of practice, and to develop such communities.

Application of the Unit

This unit applies to information and communications technology (ICT) management who are responsible for teams and their production.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify requirement for community of practice	1.1 Map ***organisational knowledge*** 1.2 Identify existing informal communities of practice (CoPs) 1.3 Identify situations where staff will benefit from closer cooperation across organisational boundaries 1.4 Identify those in disparate areas that share work goals
2. Devise spaces for involvement	2.1 Enable electronic meeting spaces 2.2 Enable ***shared storage areas***, both public and private 2.3 Enable ***group mailing*** capability 2.4 Enable other appropriate technical facilitators
3. Invite participation	3.1 Publicise ***collaborative tools*** 3.2 Invite staff in areas identified above to group events, such as training and conferences 3.3 Allow new groups to coalesce spontaneously 3.4 Accept different levels of participation
4. Assist evolution of community	4.1 Facilitate regular contact within CoP 4.2 Enable evolution of CoP, including the disbanding of a CoP where its purpose has been achieved

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to interpret knowledge map
- communication skills to:
  - present information
  - provide advice to colleagues and staff

© Commonwealth of Australia, 2025 Future Skills Organisation

- initiative and enterprise skills to:
  - engage staff in new ways of working
  - identify areas in need of communities of practice
- literacy skills to:
  - interpret technical documentation
  - write reports
- learning skills to develop new ways of encouraging collaboration
- problem-solving skills to develop strategic initiatives related to testing the operation and consistency of the total system.

Required knowledge

- detailed knowledge of the organisation
- general knowledge of:
  - communications enabling technology
  - group dynamics
  - presentation and marketing
  - training.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify appropriate areas for CoP • manage the provision of enabling software • facilitate the development of CoP.
Context of and specific resources for assessment	Assessment must ensure access to: • organisational structure, goals and knowledge • site where CoP may be developed. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are

© Commonwealth of Australia, 2025 Future Skills Organisation

	appropriate for this unit:
	• verbal or written questioning to determine candidate's knowledge of:
	  • purpose and aims of CoP
	  • evolution of CoP
	  • required functionality of enabling software
	• evaluation of candidate's nominated facilitating technology
	• review of candidate's CoP proposal, specifically related to:
	  • methods to identify projected CoP
	  • proposed activities to initiate and encourage the CoP
	  • specified enabling software to facilitate the CoP.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Organisational knowledge may include:	• functions of individual business units • knowledge contained within individual business units • mission statement • strategic goals • structure.
Shared storage areas	• local computerised storage areas

© Commonwealth of Australia, 2025 Future Skills Organisation

may include:	• remote computerised storage areas.
Group mailing capability may include:	• ability to send email to group members • add, delete and update capability.
Collaborative tools may include:	• @Task • Access Grid • Alfresco • Atmail • blogs • Citadel • Drupal Framework • eGroupWare • eXo • Group-Office • Jumper 2.0 • KnowledgeTree • Lotus Live • Microsoft SharePoint • OBM Groupware • OpenGroupware.org • Simple Groupware • Tiki Wiki CMS Groupware • Tonido Workspace • wikis • WorkConnect.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT608A Interact with clients on a business level

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to interact with clients at a management level.

Application of the Unit

This unit applies to management personnel in a range of information and communications technology (ICT) areas who are responsible for maintaining client relationships.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Review client's business domain	1.1 Research organisational service standards, values and culture to understand the organisational environment 1.2 Investigate and document the goods and services provided by the organisation 1.3 Review current ***service level agreements*** (SLAs) if appropriate
2. Develop new business with client	2.1 Research ***client*** service needs and preferred level of service 2.2 Research opportunities for new business with client 2.3 Develop draft proposals to cover these new initiatives
3. Negotiate new business initiatives	3.1 Conduct a session with the client to present the new opportunities 3.2 Present proposals to the client in a clear, concise and comprehensive manner 3.3 Present proposed cost and timeframes to the client 3.4 Negotiate the terms with the client and record alterations if required 3.5 Clarify areas of uncertainty or disagreement 3.6 Document the agreement negotiated with the client
4. Monitor, adjust and implement procedures to maintain client focus	4.1 Assess progress in achieving new client initiatives 4.2 Gather client feedback to improve the proposals 4.3 Adjust the service provided to the client based on client feedback and in line with ***organisational guidelines*** 4.4 Document changes to new provisions

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- communication skills to:
  - facilitate and make presentations
  - liaise and negotiate with clients
- enterprise and initiative skills to identify new opportunities
- literacy skills to:
  - analyse and evaluate information
  - prepare general information and papers
  - problem-solving skills to develop solutions unique to a client.

Required knowledge

- business practices, including:
  - change management
  - information-gathering techniques
  - planning process, including development of IT business solutions
  - preparation of reports
- current industry-accepted hardware and software products, including:
  - general features and capabilities
  - vendor product directions
- legal principles of commercial contracts and SLAs
- organisational policies, plans and procedures, including contracting
- theoretical concepts relating to negotiation and business relationships.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify possible new business initiatives • propose new business to the client • formulate and implement new business • meet client requirements for support service within quality, time, target performance and cost parameters.

© Commonwealth of Australia, 2025 Future Skills Organisation

Context of and specific resources for assessment	Assessment must ensure access to: • organisational policies, procedures and SLAs for the IT industry • contexts for negotiating agreements and contracts • current IT hardware and software products. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate's presentation of a new business initiative • review of candidate's documented terms of service as negotiated with a client • verbal and written questioning to assess candidate's knowledge of business practices, such as change management and planning processes.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

Service level agreements may relate to:	• charge back to business units
	• consideration of business processes and requirements
	• clearly specified and quantified service levels
	• different infrastructure services:
	  • active server pages (ASPs)
	  • communications carriers
	  • internet service providers (ISPs)
	  • vendor products
	• evaluation or audit of service levels
	• expectations regarding servicing
	• penalties
	• workload and performance considerations.

Client may include:	• external organisations • individuals • internal departments • internal employees.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access • virus risk.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT609A Lead the evaluation and implementation of current industry-specific technologies

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to lead the identification, management and implementation of specific industry technologies to meet identified industry standards.

Application of the Unit

This unit applies to individuals engaged in ongoing review and research to lead the identification, management and evaluation of the implementation of industry technologies or techniques to improve aspects of the organisation's activities. The unit provides evidence of the application of industry-enabling technologies.

Licensing/Regulatory Information

Users should confirm licensing, legislative, regulatory, or certification requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Lead the implementation of industry-specific technologies	1.1 Identify technologies specific to an ***industry sector***
	1.2 Determine the relevance of ***industry-specific technologies*** to the organisational requirements
	1.3 Plan the implementation of industry-specific technologies where appropriate, for the benefit of the organisation
2. Direct the application of industry-specific technologies to assist in solving specific organisational problems	2.1 Lead the management of the testing of industry-specific technology
	2.2 Direct the implementation of specific features and functions of industry-specific technologies to provide a suitable solution to an identified problem
	2.3 Demonstrate depth of knowledge of enabling technologies to an accepted industry standard
	2.4 Access and use ***sources of information*** relating to the industry-specific technologies
3. Lead the review, analysis and evaluation of the industry-specific technology performance	3.1 Lead the analysis of the implementation of the industry-specific technologies for performance and usability
	3.2 Analyse, review and evaluate the benefits to the organisation
	3.3 Determine ***environmental considerations*** involved with using the technology
	3.4 Seek ***feedback*** from users, where appropriate

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- communication skills to communicate at a high level with peers and supervisors, such as technical personnel for expert advice
- high-level research skills to locate appropriate sources of information regarding industry-specific technology
- literacy skills to:
  - interpret technical documentation, equipment manuals and specifications
  - write detailed reports
- safety awareness skills to work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- technical skills to:
  - analyse, test and evaluate the industry-specific technologies
  - identify features of the industry-specific technologies
  - lead the application of industry-specific technologies.

Required knowledge

- high-level knowledge of:
  - vendor product directions
  - current technology trends, directions in IT and the major industry technology standards used in the specified area
  - information-gathering techniques
- in-depth knowledge of current industry hardware and software products, including their general features, capabilities and application.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • lead the implementation of new and emerging industry-specific technologies • undertake analysis and critically evaluate features and functions of identified industry-specific technologies to an in-depth industry standard.
Context of and specific resources for assessment	Assessment must ensure access to: • site where industry-specific technologies may be used

© Commonwealth of Australia, 2025 Future Skills Organisation

	• industry-specific technologies currently used in industry • documents detailing OHS standards, environmental guidelines and organisational requirements. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of features and functions of industry-specific technologies • direct observation of candidate leading the implementation of industry-specific technologies • simulation of uses of the industry-specific technologies.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Industry sector may include:	• business services or information worker • information and communication technology • telecommunication.
Industry-specific	• vendor specific:

© Commonwealth of Australia, 2025 Future Skills Organisation

technologies may include:	• hardware • integrated services • internet access • mobile communication devices • networks • peripherals • software.
Sources of information may include:	• appliances software and technical connections guidance and other outputs supplied by vendors and manufacturers • documents • test pages • vendor and manufacturer guidance regarding requisite depth of knowledge of industry-specific technologies • web pages.
Environmental considerations may include:	• correct disposal by an authorised body of redundant hardware: • circuit boards • hard drives • motherboards • recycling • safe disposal of packaging: • cardboard • paper • plastic • polystyrene.
Feedback may include:	• competency skill level • industry validated demonstration of competency through certification • interviews • meetings.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT610A Manage copyright, ethics and privacy in an IT environment

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manage the issues of copyright, professional and ethical conduct in team, as well as to ensure that personal information of stakeholders is handled in a confidential and professional manner when dealing with stakeholders.

Application of the Unit

This unit applies to IT personnel who are required to gather information to determine the organisation's code of ethics, and protect and maintain privacy policies and system security.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Manage adherence to copyright regulations	1.1 Review current Australian copyright law, in particular its relationship to information technology (IT) 1.2 Ensure that team members are aware of Australian copyright law and how it affects their work 1.3 Institute measures to ensure that copyright is not breached 1.4 Institute regular reviews to ensure organisational copyright requirements are up-to-date and team members are adhering to these requirements 1.5 Distribute updated versions if required
2. Manage ethical behaviour	2.1 Review appropriate ***code of ethics***, both organisational and IT-specific 2.2 Acquaint team members with ethical requirements 2.3 Institute regular reviews of team member's ethical work practices and feedback to ensure correct application of the code 2.4 Ensure that ***stakeholders*** are aware of ethics code, and adjust appropriately following stakeholder feedback 2.5 Institute regular reviews of stakeholder understanding and application of code of ethics 2.6 Establish a review and grievance procedure to enable confidential reporting of ethical issues 2.7 Institute regular reviews of code of ethics, updating and distributing as required
3. Manage privacy	3.1 Institute a regular review of the relevance of ***legislation and standards*** to organisational outcomes, the organisation's ***privacy policy*** and procedures, and the work practices of team members with regard to these requirements 3.2 Determine and ensure the integrity, confidentiality, security and availability of information as required by the organisational policy

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.3 Ensure continued confidentiality and proprietary rights of stakeholders' interests 3.4 Contribute to the creation or updating of the organisation's privacy policy and procedures to align with privacy legislation 3.5 Distribute new or revised policy and procedures to stakeholders 3.6 Implement new work procedures and collect feedback from stakeholders

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on ethical and privacy, operational and business-related matters
- learning skills to update personal ethical and privacy knowledge through professional development
- literacy skills to apply standards and legislation to policy and procedure development and monitoring
- planning and organisational skills to plan, prioritise and monitor own work
- research skills to gain and maintain relevant and current industry privacy and ethical information
- technical skills to perform application and system security and storage management.

Required knowledge

- Australian Computer Society Code of Ethics
- federal and state or territory legislation and policy relevant to an IT environment relating to:
  - access and equity
  - copyright and intellectual property
  - OHS
  - privacy
- organisational communication processes and procedures
- organisational requirements for customer service
- system security procedures.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • analyse legislation and standards related to copyright, professional conduct and privacy in the IT industry • contribute to the development of a code of ethics and monitor the workplace to ensure code of ethics is being applied and is appropriate • contribute to the development of a privacy policy and monitor the workplace to ensure the policy is being applied and is appropriate • ensure the adherence to copyright, ethics and privacy in a team.
Context of and specific resources for assessment	Assessment must ensure access to: • relevant organisational policies • legislation and standards documentation • industry codes of practice • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of candidate:
	  • ensuring continuity of IT services and information flow to ensure protection of stakeholders' interests
	  • instructing and directing the adherence of a team to these professional practices
	• review of candidate's documented code of ethics and privacy policy
	• verbal or written questioning to assess candidate's:
	  • provision of leadership and guidance to others in the implementation of ethical conduct in business relationships
	  • provision of guidance to others in the operation and management of privacy policies in business relationships

© Commonwealth of Australia, 2025 Future Skills Organisation

	• provision of guidance to others in the copyright area.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Code of ethics may include:	• Australian Computer Society Code of Ethics • organisational code of ethics.
Stakeholders may include:	• authorised business representatives • clients • colleagues • external organisations • individuals • internal departments • internal employees • project manager • supervisor • users.
Legislation and standards may include:	• access and equity • confidentiality requirements • copyright laws • defamation laws

© Commonwealth of Australia, 2025 Future Skills Organisation

	• industry codes of practice • industry standards • intellectual property • international standards • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • legal and regulatory policies affecting ebusiness • OECD Guidelines for Consumer Protection in the context of electronic commerce • OHS • organisational standards • privacy legislation • project standards.
Privacy policy may include:	• access to personal information • disclosure of personal information • gathering of personal information • organisational standards and practices • quality of personal information • security of personal information • sensitivity of personal information • storage of personal information • use of personal information.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT701A Lead research into identifying new marketplace opportunities

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to lead the work involved in researching, evaluating and recommending new organisational initiatives based on perceived marketplace opportunities.

Application of the Unit

Strategic business analysts in medium to large organisations apply the skills and knowledge in this unit to enhance organisational competitiveness by identifying and establishing new initiatives and transformational change based on researched marketplace opportunities.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Direct research into organisation's business domain	1.1 Research sectors in the relevant industry for trends that may yield viable business opportunities 1.2 Research business initiatives undertaken by competitor organisations to address the same or similar opportunities and analyse resources required to undertake such initiatives or project opportunities 1.3 Identify strategies for realising the identified business initiatives, including sub-contracting of suitable elements where applicable 1.4 Research legal, environmental and ***social implications*** of identified initiatives
2. Evaluate new business initiatives	2.1 Initiate and oversee ***market research*** for potentially viable identified business opportunities 2.2 Gauge the likely impacts of candidate new initiatives on the business enterprise, including specific legal, financial and transformational implications 2.3 Evaluate ***delivery strategies*** for anticipated products or services stemming from candidate initiatives
3. Explore feasibility of the new initiatives	3.1 Formulate selection criteria based on strategic business objectives 3.2 Facilitate a feasibility study, including cost-benefit analysis 3.3 Select most feasible option against selection criteria 3.4 Recommend preferred initiative

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- analytical skills to evaluate relevant industry sectors and market sensitivities
- communication skills to liaise with clients and stakeholders at relevant levels of management
- initiative, planning and organisational skills to:
  - coordinate new initiatives and cross-divisional projects, including potential business acquisitions
  - direct strategic level research
  - proactively seek out new market opportunities
- literacy skills to develop presentations and documents for executive management
- numeracy skills to:
  - create and manage budgets
  - present the results of financial analysis and financial modelling
  - review and appraise a financial business case
- problem-solving skills to identify and resolve problems quickly
- research skills to:
  - conduct research, collect and synthesise complex data
  - scan market research results and make decisions based on them
- technical and negotiation skills to direct and coordinate IT and business architecture change.

Required knowledge

- analysis methods and tools, including:
  - affinity diagrams
  - competition matrix
  - decision trees
  - mind maps
  - risk assessment
  - SWOT analysis
  - value chain
- contracts and procurement
- identifying government and non-government governing bodies in the relevant industry
- legal, ethical and security issues relating to research of competitive business opportunities, including the laws related to patents and copyright
- organisational structure, policies and procedures
- relevant government legislation that affects business operation.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • conduct research into trends for a specified industry sector and identify potential business opportunities • undertake market research and report on the viability and related implications of a selected business opportunity • develop and present a feasibility report, including cost-benefit analysis, justifying recommendations for a proposed new business initiative.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate resources to allow research to be conducted into industry trends, which may include access to commercial research house libraries via memorandum of understanding or other arrangements • opportunity to conduct meaningful market research on potential business opportunities • simulated or real executive level management teams for presentation of proposals and feedback. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate carrying out the required work • verbal or written questioning to assess required knowledge and skills • review of reports and proposals prepared by the candidate and feedback from executive team presentations • a portfolio of the work undertaken. Note: The preferred assessment method is through a workplace project or through a simulated medium to large enterprise workplace.
Guidance information	Holistic assessment with other units relevant to the industry

© Commonwealth of Australia, 2025 Future Skills Organisation

for assessment	sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Social implications may include:	• ethical dilemmas or issues • unintended social consequences and costs.
Market research may include:	• focus groups • interviews • mystery shopping • product tests • surveys.
Delivery strategies may refer to decisions about:	• consumers' perception of value for money and pricing • design of products or services to meet customer needs • distribution strategies to ensure the product or service can be delivered to or obtained easily by consumers • support services to ensure customer satisfaction.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT702A Direct ICT services

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to direct internal and external information and communications technology (ICT) services within a medium to large organisation.

Application of the Unit

Chief information officers in medium to large organisations apply the skills and knowledge in this unit to direct the strategic planning, risk management and security of internal and external ICT infrastructure of their organisation.

Their job roles combine high-level management and business skills to perform strategic planning and direction of emerging and converging technologies within the ICT industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Direct strategic planning for IT resources	1.1 Analyse ***organisational environment*** 1.2 Ensure compliance with legislative and social requirements 1.3 Establish priorities based on organisational need 1.4 Establish required ***IT infrastructure*** 1.5 Lead the development and implementation of a ***strategic plan*** for IT resourcing
2. Lead risk management of IT resources and processes	2.1 Lead development of strategy for ***risk assessment*** 2.2 Ensure risk assessment complies with ***organisational policy*** 2.3 Ensure ***risk mitigation*** based on identified risks
3. Direct quality assurance processes for IT services	3.1 Lead the development of a quality assurance strategic plan 3.2 Monitor ***quality processes*** 3.3 Oversee the implementation of quality assurance strategies 3.4 Ensure ***continuous improvement***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - assess deficiencies in project processes and set-up
  - conduct enterprise resource planning and management

© Commonwealth of Australia, 2025 Future Skills Organisation

    - determine the validity of arguments
    - formulate a logical plan of action based on proposed solutions
    - investigate situations and provide recommendations and remedies
    - make effective decisions
    - probe for consistency in information or data presented
- communication, teamwork and leadership skills to:
    - act as a positive role model
    - liaise with people working across different levels and in different contexts
    - negotiate
    - prepare reports to senior management
    - read and interpret an organisation's reports, policies and procedures in order to establish and review business continuity management framework
    - resolve conflicts
- initiative, enterprise and problem-solving skills to:
    - assess vulnerabilities in organisational processes and infrastructure set-up
    - evaluate competitive technologies
    - solve problems individually and in teams in response to changing environments
    - translate a range of ideas into appropriate action
- literacy skills to:
    - interpret reports dealing with complex ideas and concepts
    - read and interpret complex technical and non-technical information from a range of sources
    - review complex and unfamiliar information
- numeracy skills to:
    - negotiate adjustments to operational budgets based on benefits-realisation plans
    - validate project estimation and cost-benefit analysis
- planning and organisational skills to:
    - apply project management methods to reduce project and financial risks
    - establish and monitor the organisation's continuous improvement and planning processes
    - oversee project programs
- research skills to undertake the necessary background research for the development and monitoring of the strategic management plans
- technology skills to:
    - compare and recommend new technology solutions to improve organisational outcomes
    - evaluate complex information technology issues within the organisation's environment.

Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

- AS/NZS ISO 31000:2009 Risk management
- business continuity issues for the organisation
- organisation’s industry and current functionality, including existing data and information systems
- organisation's internal and external dependencies and interdependencies
- organisational policies and procedures, including risk-management strategy
- past and current internal, external and industry disruptions
- relevant legislation and regulations that impact on business continuity, such as OHS, environment, duty of care, contract, company, freedom of information, industrial relations, privacy and confidentiality, due diligence, and records management.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop a strategy to align IT services with organisational goals • conduct risk analysis, including security for IT assets and implement procedures that identify where risk occurs and what measures need to be taken to handle the risk • produce contingency plans for business continuity • establish warning systems and an ongoing process that includes regular or programmed reviews of the risk profile • confirm sufficient knowledge of security products and organisational security policy • develop strategy for the implementation of appropriate processes and procedures that ensure that quality expectations are met.
Context of and specific resources for assessment	Assessment must ensure access to: • relevant strategic level enterprise documentation, including planning, financial, and IT infrastructure documentation • relevant legislative policies. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are

© Commonwealth of Australia, 2025 Future Skills Organisation

	appropriate for this unit: • direct observation of the candidate carrying out project work • verbal or written questioning to assess required knowledge and skills • review of reports and implementation plans • portfolio of the project work undertaken. Note: The preferred assessment method is through a workplace project or through a simulated medium to large enterprise workplace.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Organisational environment may include:	• business or management structure • conglomerate of business entities • external environment in which a business is operating, including contractors and externally provided services • specific business entity • way in which organisational members perceive and characterise their environment in an attitudinal and value-based manner.
IT infrastructure may	• architecture requirements:

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• hardware • software • business, system, application, network, or people in the organisation • comparing and contrasting expected performance criteria against vendor proposed offerings • databases, applications, servers, operating system, gateways, application service provider (ASP) and internet service provider (ISP) • work stations, personal computers, modems or other connectivity devices, networks, remote sites, and servers.
Strategic plan may relate to:	• components from separate disciplines, such as IT or human resources • mission, vision and values • objectives and targets • organisational environment • part of organisational strategic plan or a stand-alone document • process of the organisation's definition of its strategy or direction, and making decisions on allocating its resources to pursue this strategy, including its capital and people.
Risk assessment may include:	• coordinated and economical application of resources to minimise, monitor and control the probability or impact of unfortunate events or to maximise the realisation of opportunities • establishment of a secure environment for IT assets • identification, assessment and prioritisation of risks • risk plans, gathering information, identifying threats, evaluating threats, developing scenarios, ranking risk, identifying counter measures, reporting and following up.
Organisational policy may refer to:	• documentation internal to the organisation that guides actions that are particular to the organisation issuing the policy, and guides processes that are most likely to achieve a desired outcome • process of making important organisational decisions, including the identification of different alternatives, such as programs or spending priorities, and choosing among them on the basis of the impact they will have • political, management, financial and administrative mechanisms arranged to reach explicit goals.
Risk mitigation may include:	• identification of one or more potential solutions to reduce or remove each risk if it arises • implementation of policies or actions that identify risks in an existing or planned process.

© Commonwealth of Australia, 2025 Future Skills Organisation

Quality processes:	• may refer to:
	  • processes that analyse quality to make sure it conforms to specific requirements and complies with established plans
	  • processes, authorisations and responsibilities for quality control, quality assurance, continuous improvement, communications and responsibilities
	• may contain:
	  • critical success factors
	  • measurement criteria
	  • inspection, audit, report and review procedures.

Continuous improvement may include:	• efforts that seek incremental improvement over time or breakthrough improvement at once • ongoing effort to improve products, services or processes • processes that are constantly evaluated and improved in the light of their efficiency, effectiveness and flexibility.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT703A Endorse business plan components for a new initiative

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to construct a business plan for a new initiative, including marketing, operations, organisational and financial plans within a medium to large organisation.

Application of the Unit

Chief information officers in medium to large organisations apply the skills and knowledge in this unit to direct the strategic planning, risk management and security of internal and external information and communications technology (ICT) infrastructure of their organisation.

Their job roles combine high-level management and business skills to perform strategic planning and direction of emerging and converging technologies within the ICT industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Endorse a marketing plan for IT business	1.1 Ensure internal and external ***environmental issues*** are addressed 1.2 Review feasibility of target market projections 1.3 Endorse selection of advertising and promotional strategies
2. Endorse the operation plan	2.1 Verify ***scope*** of business operation plan 2.2 Ensure business plan complies with business needs 2.3 Endorse criteria for ***quality processes*** against ***organisational standards***
3. Endorse the organisational plan	3.1 Analyse and review the organisational structure 3.2 Ensure the organisational structure meets the organisation’s strategic plans and directions
4. Endorse the financial plan	4.1 Endorse financial strategy for the new initiative 4.2 Evaluate expected cash-flow projections 4.3 Analyse and evaluate the effects of financial decisions on the ability of the organisation to meet planned outcomes 4.4 Ensure financial risk-management procedures according to organisational requirements 4.5 Ensure early detection and remedial action plans for deviations in budget objectives and projections

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- analytical skills to conduct enterprise resource planning and management
- communication skills to:
  - resolve conflict
  - negotiate with clients and internal staff
  - prepare reports to senior management
  - read and interpret an organisation's reports, policies and procedures to establish and review business continuity-management framework
- initiative, enterprise and problem-solving skills to:
  - act as a positive role model
  - assess vulnerabilities in organisational processes and infrastructure set-up
  - evaluate competitive technologies
  - solve problems individually and in teams in response to changing environments
  - translate a range of ideas into appropriate action
- planning and organisational skills to:
  - establish and monitor the organisation's continuous improvement and planning processes
  - manage teams
  - undertake the necessary background research for the development and monitoring of the strategic management plans
- technology skills to:
  - compare and recommend new technology solutions to improve organisational outcomes
  - evaluate complex information technology issues within the organisation's environment.

Required knowledge

- AS/NZS ISO 31000:2009 Risk management
- business continuity issues for the organisation
- organisation’s industry and current functionality, including existing data and information systems
- organisation's internal and external dependencies and interdependencies
- organisational policies and procedures, including risk-management strategy
- past and current internal, external and industry disruptions
- relevant legislation and regulations that impact on business continuity, such as OHS, environment, duty of care, contract, company, freedom of information, industrial relations, privacy and confidentiality, due diligence and records management.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop a strategy to align IT services with organisational goals • conduct risk analysis, including security for IT assets and implement procedures that identify where risk occurs and what measures need to be taken to handle the risk • produce contingency plans for business continuity • establish warning systems and an ongoing process that includes regular or programmed reviews of the risk profile • confirm sufficient knowledge of security products and organisational security policy • develop strategy for the implementation of appropriate processes and procedures that ensure that quality expectations are met.
Context of and specific resources for assessment	Assessment must ensure access to: • relevant strategic-level enterprise documentation, including planning, financial and IT infrastructure documentation • relevant legislative policies. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate carrying out project work • verbal or written questioning of candidate to assess required knowledge and skills • review of reports and implementation plans • review of a portfolio of the project work prepared by candidate. Note: The preferred assessment method is through a workplace project or through a simulated medium to large enterprise workplace.
Guidance information	Holistic assessment with other units relevant to the industry

© Commonwealth of Australia, 2025 Future Skills Organisation

for assessment	sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Environmental issues may include:	• auditing • workplace culture • legal • markets • multiple languages • policy • regulation.
Scope may include:	• customer acceptance criteria • description of outcomes (deliverables) • equipment and software to be installed • financials • milestones and timelines • project constraints • project objectives • resources required • roles of involved parties.
Quality processes may include:	• AS 3925.1-1994 Software quality assurance - plans • AS/NZS4258:1994 Software user documentation process • AS/NZS ISO/IEC 12207:1997 Information technology -

© Commonwealth of Australia, 2025 Future Skills Organisation

	Software life cycle processes • AS/NZS 14102:1998 Information technology guideline for evaluation and selection of CASE tools • cost savings • performance • quality • technical • various processes, depending on type of organisation.

Organisational standards may include:	• audit requirements
	• codes, including codes of practice
	• credit procedures
	• customer protection and trade practices
	• duty of care
	• enterprise agreements
	• equal employment opportunity (EEO)
	• ethical standards
	• OHS
	• industry codes of practice relevant to the workplace
	• legislation
	• national standards
	• organisational policies and procedures concerning:
	  • budgeting
	  • funding
	  • use of key performance indicators
	• organisation's:
	  • annual report
	  • business plan
	  • directory of services
	  • marketing or public relations plan
	  • strategic plan
	• quality management
	• relevant organisational policies and procedures
	• store policy, where relevant
	• workplace relations.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT704A Direct ICT in a supply chain

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to direct information and communications technology (ICT) in the supply chain for a medium to large organisation.

Application of the Unit

Chief information officers in medium to large organisations apply the skills and knowledge in this unit to direct the effective use of ICT in the support of critical supply chain processes.

Their job roles combine high-level management and business skills to perform strategic planning and direction of emerging and converging technologies within the ICT industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Identify current or proposed supply chain infrastructure	1.1 Critically evaluate key principles of ***supply chain*** management 1.2 Identify supply chain processes in the organisation from operational and business perspectives 1.3 Identify and review management and operational links to external organisations 1.4 Identify current chains, network processes, service and performance objectives
2. Direct ICT strategy to support supply chain processes	2.1 Develop strategy to align ICT technical resources with identified supply chain processes 2.2 Build ***communication model*** to improve the integration and sharing of critical business information between decision makers, operations and technical divisions 2.3 Identify the ***key performance indicators*** that will track progress against the strategic company objectives
3. Lead risk management of supply chain ICT support services	3.1 Lead development of strategy for ***risk assessment*** of internal and external supply chain processes 3.2 Assess risk assessment to ensure it complies with ***organisational policy*** 3.3 Mitigate identified risks
4. Direct quality assurance processes for supply chain ICT support services	4.1 Implement strategies to monitor ***performance levels*** of supply chain ICT support services 4.2 Ensure ***continuous improvement*** of supply chain ICT support services

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - conduct enterprise resource planning and management
  - investigate a critical incident and provide recommendations and remedies
- communication skills to:
  - resolve conflict
  - negotiate prices and support with vendors
- literacy skills to:
  - prepare reports to senior management
  - present and articulate complex information and ideas clearly to an appropriate audience
  - read and interpret an organisation's reports, policies and procedures in order to establish and review business continuity management framework
- initiative, enterprise and problem-solving skills to:
  - act as a positive role model
  - assess vulnerabilities in organisational processes and infrastructure set-up
  - evaluate competitive technologies
  - solve problems individually and in teams in response to changing environments
  - translate a range of ideas into appropriate action
- planning and organisational skills to:
  - establish and monitor the organisation's continuous improvement and planning processes
  - undertake the necessary background research for the development and monitoring of strategic management plans
- technology skills to:
  - compare and recommend new technology solutions to improve organisational outcomes
  - evaluate complex information technology issues within the organisation's environment.

Required knowledge

- business continuity issues for the organisation
- organisation’s industry and current functionality, including existing data and information systems

© Commonwealth of Australia, 2025 Future Skills Organisation

- organisation's internal and external dependencies and interdependencies
- organisational policies and procedures, including risk-management strategy
- past and current internal, external and industry disruptions
- relevant legislation and regulations that impact on business continuity, such as OHS, environment, duty of care, contract, company, freedom of information, industrial relations, privacy and confidentiality, due diligence and records management.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop strategic directions for supply chain management in alignment with organisational goals • develop policy for supply chain processes • conduct risk analysis on ICT support of supply chain processes and implement procedures that identify where risk occurs and what measures need to be taken to mitigate the risk • develop continuous improvement plan for ICT support of supply chain processes.
Context of and specific resources for assessment	Assessment must ensure access to: • relevant strategic level enterprise documentation, including planning, financial and ICT infrastructure documentation • relevant legislative policies. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate carrying out project work • verbal or written questioning to assess required knowledge and skills • review of reports and implementation plans • a portfolio of the project work undertaken. Note: The preferred assessment method is through a workplace project or through a simulated medium to large enterprise

© Commonwealth of Australia, 2025 Future Skills Organisation

	workplace.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Supply chain may include:	• movement and storage of raw materials
	• finished goods from point-of-origin to point-of-consumption
	• planning and management of activities involved in:
	  • sourcing
	  • procurement
	  • conversion
	  • logistics management activities
	• work-in-process inventory.

Communication model may relate to:	• emails, memos, letters, reports and proposals
	• good, relevant and timely flow of information between an organisation's employees and with its customers
	• verbal, such as formal and informal meetings
	• written
	• tools:
	  • iPhones
	  • laptops

© Commonwealth of Australia, 2025 Future Skills Organisation

	• personal productivity tool (PPT).

Key performance indicators may relate to:	• descriptions of measures or outcomes that:
	  • are key to the organisation's success
	  • are usually long-term considerations
	  • must be quantifiable (measurable)
	  • reflect organisational goals.

Risk assessment may include:	• coordinated and economical application of resources to minimise, monitor and control the probability or impact of unfortunate events or to maximise the realisation of opportunities • establishment of a secure environment for IT assets • identification, assessment and prioritisation of risks • risk plans • information gathering • threat identification and evaluation • scenario development • risk prioritisation • counter measure identification • report and follow-up.
Organisational policy may refer to:	• internal documentation that guides actions that are particular to the organisation issuing the policy, and guides processes that are most likely to achieve a desired outcome • process of making important organisational decisions, including the identification of different alternatives, such as programs or spending priorities, and choosing among them on the basis of the impact they will have • political, management, financial and administrative mechanisms arranged to reach explicit goals.
Performance levels may refer to:	• levels of availability, serviceability, performance, operation, or other attributes of the service, such as billing • contracted delivery time or performance of the service.
Continuous improvement may include:	• efforts that seek incremental improvement over time or breakthrough improvement at once • ongoing effort to improve products, services or processes • processes that are constantly evaluated and improved in the light of their efficiency, effectiveness and flexibility.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT705A Direct ICT procurement

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to direct information and communications technology (ICT) procurement for a medium to large organisation.

Application of the Unit

Chief information officers in medium to large organisations apply the skills and knowledge in this unit to direct ICT procurement strategy and policy.

Their job roles combine high-level management and business skills to perform strategic planning and direction of emerging and converging technologies within the ICT industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Evaluate the procurement processes of the organisation	1.1 Identify existing IT ***procurement*** processes in the organisation 1.2 Establish evaluation criteria for procurement processes 1.3 Evaluate procurement processes against criteria
2. Direct strategic planning to support IT procurement	2.1 Establish priorities based on organisational need 2.2 Lead the development of strategy to align IT procurement with the organisational goals and objectives 2.3 Implement IT procurement ***strategic plan*** 2.4 Develop procurement policy, including vendor selection based on strategic plan
3. Lead risk management of IT procurement	3.1 Lead development of strategy for ***risk assessment*** of IT procurement activities 3.2 Ensure IT procurement complies with ***organisational policy*** 3.3 Ensure ***risk mitigation*** based on identified risks 3.4 Ensure ***continuous improvement*** of IT procurement processes

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - conduct enterprise resource planning and management

© Commonwealth of Australia, 2025 Future Skills Organisation

  - critically evaluate the key principles of procurement
  - determine the validity of arguments
  - evaluate procurement contract proposals
  - formulate a logical plan of action based on proposed solutions
  - investigate situations and provide recommendations and remedies
  - make effective decisions
  - probe for consistency in information or data presented
- communication, teamwork and leadership skills to:
  - liaise with people working across different levels and in different contexts (e.g. operational staff, government officials)
  - prepare reports to senior management
  - read and interpret an organisation's reports, policies and procedures to establish and review business continuity management framework
  - resolve conflicts
- initiative, enterprise and problem-solving skills to:
  - assess vulnerabilities in organisational processes and infrastructure set-up
  - develop and refine strategies to ensure that procurement processes align with organisational needs
  - evaluate competitive technologies
  - solve problems individually and in teams in response to changing environments
  - translate a range of ideas into appropriate action
- literacy skills to:
  - interpret reports dealing with complex ideas and concepts
  - review complex and unfamiliar information
- numeracy skills to:
  - negotiate adjustments to operational budgets based on benefits realisation plans
  - validate procurement estimation and cost-benefit analysis
- planning and organisational skills to establish and monitor the organisation's procurement processes
- research skills to:
  - locate and interrogate complex and varied sources of information
  - undertake the necessary background research for the development and monitoring of the strategic procurement plans
- technology skills to:
  - compare and recommend new technology solutions to improve organisational outcomes
  - apply understanding of complex information technology issues within the organisation's environment.

Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

- AS/NZS ISO 31000:2009 Risk management
- business continuity issues for the organisation
- organisation's industry and current functionality, including existing data and information systems
- organisation's internal and external dependencies and interdependencies
- organisational policies and procedures, including risk management strategy
- past and current internal, external and industry disruptions
- relevant legislation and regulations that impact on business continuity, such as OHS, environment, duty of care, contract, company, freedom of information, industrial relations, privacy and confidentiality, due diligence and records management
- key principles of procurement.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop a strategy to align IT procurement with organisational goals • undertake direct risk analysis of IT procurement activities and implement procedures that identify where risk occurs and what measures need to be taken to handle the risk • establish warning systems and an ongoing process that includes regular or programmed reviews of the risk profile • develop strategy for the implementation of appropriate processes and procedures that ensure that quality expectations are met.
Context of and specific resources for assessment	Assessment must ensure access to: • relevant strategic level enterprise documentation, including planning, financial and IT infrastructure documentation • relevant legislative policies. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• direct observation of the candidate carrying out project work • verbal or written questioning to assess required knowledge and skills • review of reports and implementation plans • review of a portfolio of the project work undertaken. The preferred assessment method is through a workplace project or through a simulated medium to large enterprise workplace.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Procurement may relate to:	• acquisition of appropriate goods and services at the best possible total cost of ownership to meet the needs of the purchaser in terms of:
	  • location
	  • quality
	  • quantity
	  • time.

Strategic plan may include:	• components from separate disciplines, such as IT or human resources • mission, vision and values

© Commonwealth of Australia, 2025 Future Skills Organisation

	• objectives and targets • organisational environment • part of organisational strategic plan or a stand-alone document • process map outlining organisation's decision-making strategies on resource allocation, including its capital and people.
Risk assessment may include:	• coordinated and economical application of resources to minimise, monitor and control the probability or impact of unfortunate events or to maximise the realisation of opportunities • establishment of a secure environment for IT assets • risk plans • gathering information • identifying, assessing and prioritising risks • identifying and evaluating threats • developing scenarios • ranking risk • identifying counter measures • reporting and following up.
Organisational policy may refer to:	• documentation internal to the organisation that guides actions that are particular to the organisation issuing the policy, and guides processes that are most likely to achieve a desired outcome • process of making important organisational decisions, including the identification of different alternatives, such as programs or spending priorities, and choosing among them on the basis of the impact they will have • political, management, financial and administrative mechanisms arranged to reach explicit goals.
Risk mitigation may include:	• identification of one or more potential solutions to reduce or remove each risk if it arises • implementation of policies or actions that identify risks in an existing or planned process.
Continuous improvement may include:	• efforts that seek incremental improvement over time or breakthrough improvement at once • ongoing effort to improve products, services or processes • processes that are constantly evaluated and improved in the light of their efficiency, effectiveness and flexibility.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT706A Direct outsourced ICT services

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to direct outsourced information and communications technology (ICT) services for a medium to large organisation.

The management of this new arrangement is through a contract that may include a service level agreement (SLA). Setting, tracking and managing SLAs are an important part of outsourcing relationship management (ORM) discipline.

Application of the Unit

Chief information officers in medium to large organisations apply the skills and knowledge in this unit to direct the strategic planning, risk management and security of outsourced and virtualised ICT services for their organisation.

Their job roles combine high-level management and business skills to perform strategic planning and direction of emerging and converging technologies within the ICT industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Direct strategic planning for outsourced IT services	1.1 Identify ***IT services to be outsourced***
	1.2 Establish criteria for ***outsourcing model***
	1.3 Analyse impact on current ***organisational environment***
	1.4 Select an appropriate ***business model*** for outsourcing against identified criteria
	1.5 Research appropriate ***IT service providers (vendor evaluation)*** against identified criteria
	1.6 Develop the ***strategic plan*** for outsourced IT services
2. Lead risk management of outsourced IT services	2.1 Specify relevant ***security requirements***
	2.2 Lead development of ***change-management strategy***
	2.3 Negotiate performance and ***security strategy*** with IT service provider
	2.4 Ensure risk assessment process undertaken for outsourced services complies with ***organisational policy***
	2.5 Ensure ***risk mitigation*** addresses identified risks
3. Monitor performance levels of outsourced IT service performance agreement	3.1 Develop external IT provider ***SLAs***
	3.2 Ensure external IT service provider agreed ***performance levels*** are maintained
	3.3 Monitor the setting, tracking and management of SLAs as an important part of ***outsourcing relationship management*** (ORM)
	3.4 Ensure ***continuous improvement*** of outsourced IT services

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - conduct enterprise resource planning and management
  - investigate a critical incident and provide recommendations and remedies
- communication skills to:
  - resolve conflict
  - prepare reports to senior management
  - present and articulate complex information and ideas clearly
  - read and interpret an organisation's reports, policies and procedures to establish and review business continuity management framework
- initiative, enterprise and problem-solving skills to:
  - act as a positive role model
  - assess vulnerabilities in organisational processes and infrastructure set-up
  - evaluate competitive technologies
  - solve problems individually and in teams in response to changing environments
  - translate a range of ideas into appropriate action
- planning and organisational skills to:
  - establish and monitor organisation's continuous improvement and planning processes
  - undertake the necessary background research for the development and monitoring of the strategic management plans
- technology skills to:
  - compare and recommend new technology solutions to improve organisational outcomes
  - evaluate complex information technology issues within the organisation's environment.

Required knowledge

- AS/NZS ISO 31000:2009 Risk management
- business continuity issues for the organisation
- organisation's current functionality, including existing data and information systems
- organisation's internal and external dependencies and interdependencies

© Commonwealth of Australia, 2025 Future Skills Organisation

- organisational policies and procedures, including risk management strategy
- past and current internal, external and industry disruptions
- relevant legislation and regulations that impact on business continuity, such as OHS, environment, duty of care, contract, company, freedom of information, industrial relations, privacy and confidentiality, due diligence and records management
- organisation's industry.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop strategic directions for outsourcing of IT resources in alignment with organisational goals • conduct risk analysis on outsourced IT services and implement procedures that identify where risk occurs and what measures need to be taken to handle the risk • produce contingency plans in cooperation with external parties • establish warning systems and an ongoing process that includes regular or programmed reviews of the risk profile of outsourced IT services • negotiate and monitor SLAs with external clients.
Context of and specific resources for assessment	Assessment must ensure access to: • relevant strategic level enterprise documentation, including planning, financial and IT infrastructure documentation • relevant legislative policies. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate carrying out project work • verbal or written questioning to assess required knowledge and skills • review of reports and implementation plans • review of a portfolio of the project work undertaken.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Note: The preferred assessment method is through a workplace project or through a simulated medium to large enterprise workplace.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

IT services to be outsourced may include:	• backup or recovery • data cleansing • data storage • disaster recovery • hardware, software or network support • help desk • network infrastructure • programming.
Outsourcing model refers to:	• business model for the procurement of external services approved by the organisation • financial penalties and the right to terminate if SLAs are consistently missed • transfer of responsibility from an organisation to a supplier.
Organisational environment may	• business or management structure • conglomerate of business entities

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• external environment in which a business is operating, including contractors and externally provided services • specific business entity • way in which organisational members perceive and characterise their environment in an attitudinal and value-based manner.
Business model may include:	• broad range of formal and informal descriptions to represent core aspects of a business, including purpose, offerings, strategies, infrastructure, organisational structures, trading practices, and operational processes and policies • business, system, application, network or people in the organisation • framework or strategy to enable business targets to be met.
IT service providers (vendor evaluation) may include:	• individuals or organisations contracted to provide services to the organisation to achieve financial or operational targets • internal departments, external organisations, individual people and employees.
Strategic plan may include:	• components from separate disciplines, such as IT or human resources • mission, vision and values • objectives and targets • organisational environment • part of organisational strategic plan or a stand-alone document • process of the organisation's definition of its strategy or direction, and making decisions on allocating its resources to pursue this strategy, including its capital and people.
Security requirements may include:	• plans to address theft, viruses, standards (including archival, backup, network), privacy, audits, alerts and usually relate directly to security objectives of organisation • relevant government legislation, organisational security policies, customs, expertise and knowledge • system in terms of databases, applications, servers, operating system, gateways, application service provider (ASP) and internet service provider (ISP) • threats relating to eavesdropping, manipulation, impersonation, penetration, denial of service and by-pass, hackers and viruses • threats to security that are, or are held to be, present in the environment, encryption, passwords, hardware, authentication and policies.
Change-management strategy may refer to:	• benchmarks that could include technical, cost savings, performance and quality benchmarks

© Commonwealth of Australia, 2025 Future Skills Organisation

	• business, system, application, network or people in the organisation • change procedures that are verbal, documented, process-based, socially-based or incremental, and may be the result of an impact on quality, cost or OHS • department within the organisation or a third party • formal procedures that must be adhered to • stakeholders, including end user, internal or external client, government body, corporate body and community groups.
Security strategy may include:	• person within a department, a department within the organisation or a third party • privacy, authentication, authorisation and integrity, and usually relates directly to the security objectives of the organisation.
Organisational policy may refer to:	• documentation internal to the organisation that guides actions that are particular to the organisation issuing the policy, and guides processes that are most likely to achieve a desired outcome • process of making important organisational decisions, including the identification of different alternatives, such as programs or spending priorities, and choosing among them on the basis of the impact they will have • political, management, financial and administrative mechanisms arranged to reach explicit goals.
Risk mitigation may include:	• identification of one or more potential solutions to reduce or remove each risk if it arises • implementation of policies or actions that identify risks in an existing or planned process.
SLAs may refer to:	• common understanding about services, priorities, responsibilities, guarantees and warranties • negotiated agreement between two parties where one is the customer and the other is the service provider; this can be a legally binding formal or informal 'contract' • part of a service contract where the level of service is formally defined • specific SLAs that are negotiated up front as part of the outsourcing contract, and are used as one of the primary tools of outsourcing governance.
Performance levels may refer to:	• contracted delivery time or performance of the service • levels of availability, serviceability, performance, operation, or other attributes of the service, such as billing.
Outsourcing relationship management may refer	• elements of organisational structure, management strategy and information technology infrastructure • management of one or more external service providers as

© Commonwealth of Australia, 2025 Future Skills Organisation

to:	part of an outsourcing strategy
	• the three aspects of ORM that companies typically pursue as part of their outsourcing strategy:
	  • IT infrastructure
	  • management strategy
	  • organisational structure.

Continuous improvement may relate to:	• efforts that seek incremental improvement over time or breakthrough improvement at once • ongoing effort to improve products, services or processes • processes that are constantly evaluated and improved in the light of their efficiency, effectiveness and flexibility.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT707A Direct research and business response to new ICT technology

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to direct the research, and plan the business response, to new and emerging technologies in the information and communications technology (ICT) sector. It includes the directing of research, vendor evaluation, feasibility study and proof of concept of these new and emerging ICT technologies.

Application of the Unit

Chief information officers in medium to large organisations apply the skills and knowledge in this unit to direct the investigation and future business direction of new ICT technology in their organisation.

Their job roles combine high-level management and business skills combined with technical experience to perform investigations into the business direction for new and emerging ICT technologies in their organisation.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Direct initial research into new ICT technologies	1.1 Establish and implement procedures to identify ***new ICT technology*** that may support ***business innovation***
	1.2 Confirm ***research purpose*** for the evaluation of new ICT technology as it relates to possible ***business opportunities***
	1.3 Ensure a ***structured research plan*** is prepared in line with the defined research purpose
	1.4 Monitor the implementation of the structured research plan to ensure its outcomes meets the identified research purpose
	1.5 Formulate ***business case*** relating to new ICT technology, including consideration of ***organisational environment***
	1.6 Present business case to the ***business stakeholders*** so that the future business direction is established and agreed
2. Direct evaluation of new ICT technology	2.1 Establish ***evaluation criteria*** and methods of measurement
	2.2 Ensure suitable ***suppliers and vendors*** are appropriately evaluated to provide credibility, quality and support for implementation
	2.3 Oversee the preparation of ***feasibility study*** report into new ICT technology ensuring critical ***risks*** are identified
	2.4 Ensure feasibility study of new ICT technology is accurately presented to business stakeholders so that the future business direction is established and agreed
3. Direct the proof of concept evaluation of new ICT technology	3.1 Ensure vendor's new ICT technology is legally acquired for ***proof of concept*** (POC) evaluation of new ICT technology
	3.2 Establish ***project requirements***, including ***deliverables***, for POC evaluation

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.3 Endorse ***project plan*** for POC evaluation 3.4 Monitor implementation of POC evaluation project to ensure project deliverables are met
4. Determine future business response to new ICT technology	4.1 Oversee preparation of report on evaluation of new ICT technology, including the consequences of not implementing it 4.2 Ensure results of new ICT technology evaluation are accurately presented to stakeholders so that the future ***business response*** is established and agreed

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to evaluate and synthesise information from diverse range of sources
- communication skills to:
  - convey complex and abstract concepts and information in plain English
  - liaise with internal and external personnel on technical, operational and business-related matters
- group facilitation and presentation skills to:
  - gain consensus on concepts and new proposals
  - transfer and collect information
- literacy skills to:
  - interpret manuals
  - process and present written and verbal information to a diverse range of people
  - write reports, design solutions, summarise findings and recommendations in required formats in plain English
- numeracy skills to assess costs, benefits and business options
- planning skills to:
  - estimate scope, time, cost and quality
  - plan communications and risk management
- problem-solving skills to:
  - resolve unpredictable problems, with reference to the new ICT technology
  - solve unknown problems in a range of contexts, particularly in developing new approaches with new ICT technology
- research skills to:
  - determine requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

  - source information from a diverse range of resources
- safety awareness skills to:
  - apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
  - ensure required level of attention to detail to work without injury to self or others, or damage to goods or equipment
  - foresee the possible OHS implications of the new ICT technology
- teamwork skills to contribute to investigating new ICT technology for new roles in the workplace.

Required knowledge

- business knowledge in:
  - client business domain, business function, processes and organisation
  - components of the business planning process relevant to the investigation of the particular new ICT technology
  - current business practices related to conducting investigation into new ICT technology
  - customer and business liaison
  - information gathering and presentation techniques
  - quality assurance practices, to promote reliable investigation processes
  - client business needs, with a view to expanding into new possibilities, as presented by new ICT technology
- ICT knowledge in:
  - broad knowledge of vendor product directions
  - current ICT industry-accepted technologies, including broad knowledge of general features and capabilities, with particular reference to emerging ICT trends
  - current industry and technology information sources
  - industry networks, key individuals and organisations within the ICT industry
  - evaluating new ICT technology.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to	Evidence of the ability to: • research and evaluate appropriate new ICT technology for

© Commonwealth of Australia, 2025 Future Skills Organisation

demonstrate competency in this unit	an organisational need • convey and access conceptual information regarding new ICT technology in relation to organisational needs.
Context of and specific resources for assessment	Assessment must ensure access to: • relevant documentation, feasibility studies and equipment manuals • other site-related documentation. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • the preferred assessment method is through a workplace project or through a simulated medium to large enterprise workplace project • direct observation of the candidate carrying out project work • review of reports and plans completed by the candidate • verbal or written questioning to assess knowledge of organisational procedures • review of a portfolio of the project work undertaken.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

New ICT technology may include:	• hardware technologies:
	  • cloud computing appliances such IBM Cloudburst
	  • hardware enterprise service bus (ESB)
	  • multi-core or multi-threading processors
	  • service-oriented architecture (SOA) appliances
	• mobile technologies:
	  • third generation cellular radio for mobile technology (3G)
	  • digital signature technology for mobile phone users
	  • global system for mobile (GSM) communications
	  • location-based services for mobiles
	• networking technologies:
	  • access gateways
	  • Bluetooth chips for wireless connections over short distances
	  • computer telephony integration
	  • enhanced data rates for GSM evolution (EDGE) to increase GSM network capacity and data rates
	  • fax gateways
	  • general packet radio services (GPRS)
	  • internet telephony
	  • universal mobile telephony system (UMTS)
	  • wireless application protocol (WAP)
	  • xDSL technologies, such as asymmetric digital subscriber line (ADSL)
	• software technologies:
	  • virtualisation
	  • voice verification technology
	• web technologies:
	  • cloud computing
	  • business to business electronic data transfer:
	  • United Nations Electronic Data Interchange for

© Commonwealth of Australia, 2025 Future Skills Organisation

	Administration Commerce and Transport (UN/EDIFACT) • web browsers • XML via internet.
Business innovation may relate to:	• adaptation or change to a process, procedure, product, service or system • new initiatives to the organisation.
Research purpose may be contained in documents:	• agreements • business strategy documents • ICT strategy documents • project brief • research brief.
Business opportunities may relate to:	• ideas for the general development or advancement of an organisation and its programs, services and products though business process re-engineering • ideas to create profits or assets for an organisation.
Structured research plan may relate to:	• planning document, outlining the methods and proposed areas of research into the new ICT technology • information on new ICT technology sourced from a wide range: • archives • community organisations • computer data, including internet • discussions with current industry practitioners • discussions with industry personnel, manufacturers, and technical and sales personnel • government departments • industry associations and organisations • industry journals • libraries (such as text, film, video, sound, graphic) • media (such as film, television, radio, newspapers, multimedia) • media archives • museums and galleries • organisational policies, procedures and journals • personal observations and experience • professional organisations • reference books • technical publications and manuals.
Business case may relate	• analysis of potential impact of research on organisational environment

© Commonwealth of Australia, 2025 Future Skills Organisation

to:	• initial costing and return on investment for the adoption of the technology • report identifying the suitability and potential application of new ICT technology based on the research findings.

Organisational environment may relate to:	• legislative, social and environmental:
	  • award and enterprise agreements
	  • copyright laws
	  • defamation laws
	  • industry codes of practice
	  • intellectual property and confidentiality requirements
	  • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC), Institute of Electrical and Electronics Engineers (IEEE), Internet Engineering Task Force (IETF) and Australian Standards (AS) standards
	  • legal and regulatory policies affecting ICT
	  • national, state and territory legislative requirements
	  • OECD Guidelines for Consumer Protection in the Context of Electronic Commerce
	  • privacy legislation
	  • relevant environmental and sustainability legislation, regulations and codes of practice applicable to industry and organisation
	• organisational policy and procedures:
	  • business ethics
	  • confidentiality
	  • electronic communication
	  • fraud prevention and detection
	  • human resource management
	  • information management
	  • intellectual property
	  • privacy
	  • risk management
	  • security.

Business stakeholders may include:	• customers • departments within organisation • federal government • local government • management • non-government organisations • shareholders

© Commonwealth of Australia, 2025 Future Skills Organisation

	• staff • state government • suppliers.
Evaluation criteria may relate to:	• measures for monitoring and evaluating the efficiency and effectiveness of new ICT technology.
Suppliers and vendors may include:	• businesses, organisations or bodies providing new ICT technology to the organisation • commercial or open-source technologies • profit or not-for-profit • local, national or international businesses.
Feasibility study may relate to:	• study conducted to determine whether feasible solutions exist to a business problem, prior to the commitment of substantial resources.
Risks may include:	• damage to property or equipment • environmental • equipment or system failures • financial, such as economic loss or failure • industrial disputation • natural disasters • OHS, including disease • political events • product failure • professional incompetence • security failure, including criminal or terrorist activities.
Proof of concept refers to:	• gathering evidence to demonstrate that new ICT technology is viable in the organisation's business environment • partially or fully-developed prototype of the application of the new ICT technology.
Project requirements may include:	• budget • outage requirements • preferred vendor and vendor product • project plan • SLAs • specific customer requirements • timelines • urgency.
Deliverables may refer to:	• unique and verifiable product, result or task that is produced to complete a particular project • measurable, tangible, verifiable item produced as part of a project • agreed upon set of evaluation criteria.

© Commonwealth of Australia, 2025 Future Skills Organisation

Project plan refers to:	• broad project description • cost-benefit studies as a guide to the decision-making process • costing estimates and operating budget • preferred equipment and vendors • proposed project timing • resources.
Business response refers to:	• agreed future direction for the business operations of an organisation with respect to the use or implementation of a specific new ICT technology • direction for further research or development.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT708A Direct the development of a knowledge management strategy for a business

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop a knowledge management strategy for a business.

Application of the Unit

Senior management, including strategic business analysts and chief information officers use the skills and knowledge in this unit to set up a strategy to establish knowledge management as a key business enabler.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Analyse existing knowledge management systems	1.1 Evaluate ***existing arrangements*** for the capture and use of business knowledge from internal and external sources 1.2 Differentiate between knowledge management and information management systems within the organisation 1.3 Ensure the effectiveness of existing procedures and systems is evaluated in terms of meeting the needs of clients, organisational aims, objectives and standards 1.4 Identify the need for improvements in the organisation's strategic use of knowledge
2. Evaluate knowledge management options	2.1 Investigate ***barriers to capturing knowledge*** within the organisation 2.2 Review evaluations and recommendations regarding knowledge management software with respect to its usefulness and likeliness to benefit the organisation 2.3 Review investigations into incentives and reward systems to support knowledge management 2.4 Ensure that the required ***processes for maintaining an integrated knowledge management system*** are considered 2.5 Facilitate development of a business case to determine the viability of selected options and recommend a way forward for the organisation
3. Develop a knowledge-management strategy	3.1 Develop the knowledge management business strategy in consultation with senior staff for the capture and use of organisational knowledge 3.2 Ensure that business processes are designed to support knowledge management according to organisational needs and budget 3.3 Ensure that technology requirements for implementation of the strategy are costed and included in

© Commonwealth of Australia, 2025 Future Skills Organisation

	the organisational budget cycle 3.4 Ensure that the processes for the periodic review of ***knowledge management metrics*** within the business are in place to maintain ongoing effectiveness and continuous improvement 3.5 Ensure that the knowledge management strategy meets organisational requirements identified in its overall business plan and business strategy

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical and research skills to determine and document current business processes and knowledge sources
- coaching, mentoring and teamwork skills to ensure support of knowledge management as an ongoing initiative
- communication, negotiation and personal networking skills to influence the adoption of knowledge management disciplines
- initiative and enterprise skills to proactively seek out knowledge management opportunities
- literacy and numeracy skills to review and present statistical data and business cases
- problem-solving and decision-making skills to deal with issues in an acceptable timeframe
- project, planning and organisational change-management skills to ensure the success of knowledge management programs
- technical skills to apply information technology solutions in support of knowledge management initiatives.

Required knowledge

- knowledge management concepts, processes and trends
- relevant organisational policies and legislation that affect business operations, specifically privacy legislation
- internal and external sources of information
- legal, ethical and security issues relating to knowledge management
- organisational change-management theory and methods
- records management and database-management principles as they relate to knowledge management, particularly meta-data.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • analyse and document the effectiveness of existing knowledge management systems • research knowledge management options in marketplace • recommend an approach that meets organisational needs.
Context of and specific resources for assessment	Assessment must ensure access to: • workplace of sufficient complexity to enable the required level of analysis to be carried out in relation to current business processes, existing knowledge management systems and organisational culture • relevant enterprise strategic documentation, including strategic planning documents, financial, IT infrastructure and relevant organisational objectives and policies. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate carrying out the required work • verbal or written questioning to assess required knowledge and skills • review of reports and proposals prepared by the candidate • review of a portfolio of the work undertaken. Note: The preferred assessment method is through a workplace project or through a simulated medium to large enterprise workplace.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level,

© Commonwealth of Australia, 2025 Future Skills Organisation

	language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Existing arrangements may include:	• organisational structures that may support knowledge management:
	  • communities of practice (CoPs)
	  • customer relationship management systems
	  • intranets
	  • libraries
	  • online analytical processing systems
	  • records management systems
	• personal knowledge management through the use of:
	  • checklists
	  • local databases
	  • personal files
	  • spreadsheets.

Barriers to capturing knowledge may include:	• little or no motivation to share knowledge • management not seeing the benefits over the costs • no awareness of the value of knowledge to others, or lack of trust • no process or infrastructure to enable easy capture and retrieval of knowledge • no time • poor communication within the organisation or departmental silos.
Processes for	• alignment of business and knowledge management goals

© Commonwealth of Australia, 2025 Future Skills Organisation

maintenance of an integrated knowledge management system may include:	• business culture that supports teamwork, communication and continuous improvement • IT systems allowing for easy capture, retrieval and collaboration • senior management commitment to knowledge management • staff performance rewards related to sharing knowledge.
Knowledge management metrics could include:	• measures of knowledge capture, e.g. a staff member's number of contributions • measures of quality, e.g. feedback rating on usefulness, age of information • measures of system usage, e.g. number and type of users, what knowledge is being used.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT709A Facilitate business analysis

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to direct internal and external information and communications technology (ICT) services within a medium to large organisation.

Application of the Unit

Chief information officers in medium to large organisations apply the skills and knowledge in this unit to direct the strategic planning, risk management and security of internal and external ICT infrastructure of their organisation.

Their job roles combine high-level management and business skills to perform strategic planning and direction of emerging and converging technologies within the ICT industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Facilitate the elicitation of stakeholder business requirements for enhancements	1.1 Ensure business requirements documentation is complete and according to ***enterprise*** standards 1.2 Ensure that proposed project ***benefits*** align with strategic directions 1.3 Determine the scope, complexity, deliverables and time lines of the ***business process*** enhancements to be undertaken
2. Prioritise enhancements that add value to business operations	2.1 Identify the business operations necessary to analyse the ***business domain*** 2.2 Negotiate requirements definition with ***stakeholders*** 2.3 Develop a process for addressing ***change requests*** in a dynamic environment
3. Provide interface between technical and business stakeholders	3.1 Facilitate the selection of a ***modelling tool*** for a business system 3.2 Facilitate the selection of ***information-gathering tools*** 3.3 Ensure requirements-analysis content addresses the project objectives 3.4 Participate in the development of a ***technical specification***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- analytical skills to evaluate enterprise resource planning and management
- communication skills to:
  - resolve conflict
  - negotiate requirements with stakeholders
  - prepare reports to senior management
  - read and interpret organisational reports, policies and procedures to establish and review business continuity management framework
- initiative, enterprise and problem-solving skills to:
  - act as a positive role model
  - assess vulnerabilities in organisational processes and infrastructure set-up
  - evaluate competitive technologies
  - solve problems individually and in teams in response to changing environments
  - translate a range of ideas into appropriate action
- planning and organisational skills to:
  - establish and monitor the organisation's continuous improvement and planning processes
  - manage teams
  - undertake necessary background research for the development and monitoring of strategic management plans
- technology skills to:
  - compare and recommend new technology solutions to improve organisational outcomes
  - evaluate complex information technology issues within the organisational environment.

Required knowledge

- AS/NZS ISO 31000:2009 Risk management
- business continuity issues for the organisation
- organisation’s industry and current functionality, including existing data and information systems
- organisation's internal and external dependencies and interdependencies
- organisational policies and procedures, including risk management strategy
- past and current internal, external and industry disruptions
- relevant legislation and regulations that impact on business continuity, such as OHS, environment, duty of care, contract, company, freedom of information, industrial relations, privacy and confidentiality, due diligence and records management.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop a strategy to align IT services with organisational goals • conduct risk analysis, including security for IT assets, and implement procedures that identify where risk occurs and what measures need to be taken to handle the risk • produce contingency plans for business continuity • establish warning systems and an ongoing process that includes regular or programmed reviews of the risk profile • confirm sufficient knowledge of security products and organisational security policy • develop strategy for the implementation of appropriate processes and procedures that ensure that quality expectations are met.
Context of and specific resources for assessment	Assessment must ensure access to: • relevant strategic level enterprise documentation, including planning, financial and IT infrastructure • relevant legislative policies. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate carrying out project work • verbal or written questioning to assess required knowledge and skills • review of reports and implementation plans • review of a portfolio of the project work undertaken. Note: The preferred assessment method is through a workplace project or through a simulated medium to large enterprise workplace.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where

© Commonwealth of Australia, 2025 Future Skills Organisation

	appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Enterprise may relate to:	• business or management structure • conglomerate of business entities • external environment in which a business is operating, including contractors and externally provided services • specific business entity • way in which organisational members perceive and characterise their environment in an attitudinal and value-based manner.

Benefits may include:	• better quality product
	• cost reduction
	• creation of solutions
	• greater market share
	• improved:
	  • competitiveness
	  • customer service
	  • efficiency
	  • profitability
	• increased security
	• reduced risks
	• reduced waste

© Commonwealth of Australia, 2025 Future Skills Organisation

	• up-to-date documentation.
Business process may relate to:	• collection of related and structured activities or tasks that produce a specific service • product for a customer or customers.
Business domain may include:	• automotive • education • finance • health • hospitality • information technology • manufacturing • recreation • services • tourism • other transport.
Stakeholders may include:	• community • creditors • employees • government • internal and external customers • owners and shareholders • senior management • suppliers • trade unions.
Change requests may originate from:	• document containing a call for an adjustment of a system • changes in underlying structures or standards • identified inefficiencies • internal or external customer complaints • management process.
Modelling tool may refer to:	• activity diagrams • business process modelling notation (BPMN) • cognition-enhanced natural language information analysis method (CogNIAM) • event-driven process chain (EPC) • extended business modelling language (xBML) • ICAM DEFinition (IDEF0) • simulation • tool to facilitate the representation of the business processes of an enterprise • unified modelling language (UML) • use case diagrams.

© Commonwealth of Australia, 2025 Future Skills Organisation

Information-gathering tools may include:	• quantitative tools:
	  • competitor analysis
	  • market analysis
	  • queuing theory
	  • statistics
	• qualitative tools:
	  • interviews
	  • observation
	  • questionnaires
	  • reviews of existing documentation
	  • SWOT analysis.

Technical specification:	• may relate to explicit set of requirements to be satisfied by:
	  • material
	  • product
	  • service
	• is derived from a requirements analysis.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT710A Synchronise IT projects

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to synchronise IT projects in a medium to large organisation, with an emphasis on costs.

Application of the Unit

Chief information officers in medium to large organisations apply the skills and knowledge in this unit to ensure internal and external information and communications technology (ICT) projects fit within the strategic and economic constraints of the organisation and deliver the expected financial benefits.

Their job roles combine high-level ICT management and business financial skills to perform strategic evaluation and direction of projects within the ICT industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Evaluate project opportunities	1.1 Evaluate ***project proposals*** in a strategic context 1.2 Review ***financial criteria*** to determine economic feasibility of project 1.3 Prioritise projects to leverage financial resources
2. Monitor project performance	2.1 Direct project schedule and budget development 2.2 Direct ***integration of project activities*** 2.3 Evaluate project performance using earned value techniques 2.4 Proactively manage strategic projects' risks and issues 2.5 Determine need and direct project audits 2.6 Identify and take action to address unsatisfactory performance
3. Manage project completion activities	3.1 Direct financial completion 3.2 Establish benefits realisation plans 3.3 Apply project lessons learned strategically

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - assess deficiencies in project processes and set-up

© Commonwealth of Australia, 2025 Future Skills Organisation

    - determine the validity of arguments
    - formulate a logical plan of action based on proposed solutions
    - investigate situations and provide recommendations and remedies
    - make effective decisions
    - probe for consistency in information or data presented
    - validate competitive technologies in a strategic context
- financial skills to:
    - negotiate adjustments to operational budgets based on benefits realisation plans
    - validate project estimation and cost-benefit analysis
- management skills to:
    - apply project-management methods to reduce project and financial risks
    - delegate and communicate
    - maintain an overview of projects and programs
    - oversee project programs
    - plan and organise resources
- interpersonal skills to:
    - maintain appropriate communication
    - negotiate appropriate outcomes
    - provide high-level leadership and personnel management
    - resolve conflict situations
- technology skills to evaluate complex information technology issues within the organisational environment.

Required knowledge

- appropriate cost management and estimating methodologies, techniques and tools, their capabilities and limitations, applicability and outcomes
- business and commercial issues
- cost schedule control systems
- delegation and management of responsibilities for cost management
- differences in work content, risk, processes, tools and techniques that apply in the various phases of recurring project life cycles within a volatile program environment
- direction of project development and management of program budgets
- human resource management policies
- how to apply principles and techniques relating to:
    - negotiation
    - risk management, including risk sharing and transfer
- organisational guidance and attitudes to cost management
- organisational procurement guidelines
- organisational policies, including project governance policies

© Commonwealth of Australia, 2025 Future Skills Organisation

- principles of program project-cost management and its application
- project management systems, tools and techniques
- project specifications and objectives
- public relations policies and strategies
- relationship between cost, time and resources to the project management framework
- political climate and organisation's culture
- use of the budget as a control mechanism.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • select project opportunities that align with organisational strategic and financial goals • identify and justify high priority projects to be undertaken based on trade-offs between benefits, risks and scarce financial resources • develop schedule and budget for selected projects to enable ongoing earned value performance measurement • review project performance and initiate appropriate corrective actions and audit activity where necessary • establish and monitor an agreed project benefits realisation plan.
Context of and specific resources for assessment	Assessment must ensure access to: • relevant strategic level enterprise documentation, including planning, financial and IT infrastructure • relevant organisational policies. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate carrying out the work of overseeing projects being managed by others • verbal or written questioning to assess required knowledge and skills

© Commonwealth of Australia, 2025 Future Skills Organisation

	• review of reports and implementation plans • review of a portfolio of the project work undertaken. Note: The preferred assessment method is through a workplace project or through a simulated medium to large enterprise workplace.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Project proposals may include:	• documents designed to seek authorisation and support for initiating a project within an organisation.
Financial criteria may include:	• internal rate of return (IRR) • net present value (NPV) • payback period • return on investment (RoI).
Integration of project activities may include:	• project activities that are necessary to ensure the project's components are coordinated • change control processes • project plan development and execution.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT711A Manage an information architecture project

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge to manage a web-based information architecture project. This includes information transmission media.

Application of the Unit

Senior managers in medium to large organisations apply analytical and strategic business knowledge to direct the strategic planning to meet current and future business needs.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Define content needs	1.1 Identify strategic intent of website or system from business requirements and ***client*** expectations 1.2 Provide ***direction*** to develop information requirements based on the business and client requirements 1.3 Identify required information and group into business schemes related to the ***business structure*** 1.4 Direct determination of content requirements for each process
2. Contribute to description of system and transmission media	2.1 Consult with network and system specialists 2.2 Analyse features of physical environment to interface information system architecture 2.3 Estimate ***traffic content and volumes*** based on business requirements
3. Supervise development of content structure and navigation plan	3.1 Cluster information in related topics 3.2 Ensure that information hierarchy is in a valid sequence 3.3 Provide direction for clear, valid and intuitive labelling 3.4 Review and commit to feasibility of architecture design 3.5 Develop acceptance criteria
4. Implement navigation system development	4.1 Coordinate fit of navigational systems with business requirements 4.2 Supervise development of navigational search subsystems 4.3 Lead development of consistent and logical labelling systems
5. Finalise testing and accept information architecture model	5.1 Lead construction of information architecture prototype 5.2 Ensure a broad sample of business clients are engaged 5.3 Ensure site content meets business needs 5.4 Lead testing of information architecture prototype to test that it operates on chosen system and transmission media 5.5 Supervise user-acceptance test

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to evaluate information
- literacy skills to:
  - conduct presentations to a group
  - work effectively in a group
  - prepare reports
- conflict management skills to deal with grievances, disputes or disagreements
- information technology skills for word processing and desktop research
- initiative and enterprise skills to identify improvements to quality
- literacy skills to prepare reports
- planning and organisational skills to plan, prioritise and organise own work
- problem-solving skills to resolve issues in the workplace
- research skills to gather data and information.

Required knowledge

- equity and diversity principles to apply to project
- OHS requirements
- organisational policy and procedures as they apply to the project
- personal safety issues
- public sector legislation, codes of practice and other formal agreements that directly impact on business operations
- technical knowledge of telecommunications networks
- workplace and industry environment as it applies to project.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

© Commonwealth of Australia, 2025 Future Skills Organisation

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • determine the human factors that need to be analysed when managing people and groups • conduct business meetings applying effective communication techniques • determine essential requirements of a product applying quality management principles • monitor and implement training for staff • resolve problems and conflicts in a business environment • support human resource management program.
Context of and specific resources for assessment	Assessment must ensure access to: • computer system and web-host workplace • relevant enterprise documentation, including human resource (HR) and quality management policies. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate running a productive business meeting and effective interview techniques • verbal or written questioning to assess the required knowledge and skills • review of quality reports prepared by the candidate • evidence of consultations with staff and management.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• internal or external customer • owner, management or shareholders.
Direction may include:	• intended audiences • long and short-term goals for the site • types of client interactions • website intent.
Business structure may include:	• branch • business unit • conglomerate.
Traffic content and volumes may include:	• hits • page views • packet sniffing • network traffic.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT712A Develop a business intelligence framework

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge to manage business intelligence, including data mining and analysis.

Application of the Unit

Senior managers in medium to large organisations apply analytical and strategic business knowledge to direct the strategic planning to meet current and future business needs.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Elicit business intelligence requirements	1.1 Articulate the benefits of ***business intelligence***
	1.2 Select appropriate ***system development methodology*** from a range of options
	1.3 Evaluate impact of business intelligence on the enterprise
	1.4 Select appropriate business model for data repository
	1.5 Adopt a ***metadata standard*** for the enterprise
	1.6 Establish appropriate data analysis techniques
2. Direct business intelligence data manipulation	2.1 Identify data sources and scope
	2.2 Endorse selected data-manipulation methods
	2.3 Review and commit to feasibility of architecture design
	2.4 Develop acceptance criteria
	2.5 Endorse selected ***data-modelling techniques*** and processes
	2.6 Endorse a ***load balancing algorithm*** for optimum processing
	2.7 Sign off design specifications
3. Endorse business intelligence solution architecture	3.1 Ensure data-warehousing management techniques and processes are according to specifications
	3.2 Lead scoping of logical data models
	3.3 Supervise selection of ***middleware*** tools
	3.4 Review and commit to searchable ***data repository*** solution
4. Finalise testing and accept framework	4.1 Finalise physical data model
	4.2 Complete testing overall model
	4.3 Test security
	4.4 Test integrity
	4.5 Perform user-acceptance test

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to evaluate information
- literacy skills to:
  - conduct oral presentations to a group
  - demonstrate leadership in a group
  - prepare and overview reports
- conflict-management skills to deal with grievances, disputes or disagreements
- information technology skills to analyse and oversee research
- initiative and enterprise skills to identify improvements to quality
- planning and organisational skills to plan, prioritise and organise own work
- problem-solving skills to resolve issues in the workplace
- research skills to validate data and information.

Required knowledge

- equity and diversity principles as they apply to the project
- OHS requirements
- organisational policy and procedures as they apply to the project
- overview knowledge of behaviour theories:
  - responsibility, achievement as in Herzberg's two factor
  - affiliation management after McClelland
  - motivation after Vroom
- personal safety issues
- public sector legislation, codes of practice and other formal agreements that directly impact on business operations
- technical knowledge of business intelligence procedures
- workplace and industry environment as it applies to project.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • determine the human factors that need to be analysed when managing people and groups • conduct business meetings applying effective communication techniques • determine essential requirements of a product, applying quality management principles • monitor and implement training for staff • resolve problems and conflicts in a business environment • support human resource management program.
Context of and specific resources for assessment	Assessment must ensure access to: • a business intelligence focus • relevant enterprise documentation, including HR and quality management policies. Where applicable, physical resources should include equipment modified for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of the candidate running a productive business meeting and using effective interview techniques
	• verbal or written questioning to assess the candidate's required knowledge of:
	  • business intelligence
	  • data warehousing
	  • data modelling
	  • business domain
	• review of quality reports prepared by the candidate on the development of the business intelligence framework
	• evidence of candidate's consultations with staff and management.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English

© Commonwealth of Australia, 2025 Future Skills Organisation

	speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Business intelligence may include:	• analytics • benchmarking • business performance management • data mining • online analytical processing • predictive analytics • reporting • text mining.
System development methodology may include:	• agile unified process (AUP) • prop-typing • rational unified process (RUP) • spiral • systems development life cycle (SDLC) • waterfall.
Metadata standard may include:	• common warehouse meta-model (CWM) • data documentation initiative (DDI) • digital object identifier (DOI) • Dublin core • eGovernment Metadata Standard (E-GMS) • ISO 23081 • ISO/IEC 11179 • multimedia content description interface (MPEG-7) • online information exchange (ONIX).
Data-modelling techniques may include:	• Bachman diagrams • Barker's notation • Chen's notation

© Commonwealth of Australia, 2025 Future Skills Organisation

	• data vault modelling (DVM) • Extended Backus-Naur form • IDEF1X • object role modelling (ORM) • object-relational mapping • relational model.
Load balancing algorithm may include:	• biasing algorithm • round-robin algorithm.
Middleware may include:	• application servers • web servers.
Data repository may include:	• component-repository management • digital repository • information repository • repository open-service interface definition • software repository.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT713A Manage IT services

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to apply the principles of service quality management and to develop a code of practice for information technology (IT) service management.

Application of the Unit

This unit applies to individuals who work in senior IT service roles and are responsible for managing an IT service.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Prepare to manage IT services	1.1 Identify ***quality requirement principles*** to provide IT service provision according to business needs and expectations 1.2 Research and evaluate appropriate service processes 1.3 Analyse continual improvement processes to align and realign IT services to business needs
2. Develop quality requirements for IT service management	2.1 Identify specific quality requirements to improve ***service management processes*** 2.2 Align IT services with the business, applying ***service management concepts*** 2.3 Develop strategies for control, delivery and support of ***IT services***
3. Develop a code of practice for IT service management	3.1 Research and evaluate best practice processes 3.2 Document best practice for IT service management 3.3 Implement identified best practice processes 3.4 Evaluate, monitor and improve IT service management

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to evaluate best practice processes in IT service management
- communication skills to liaise with internal and external personnel on technical, operational and business-related matters
- literacy skills to:
  - develop enterprise procedures, manuals and specifications
  - interpret technical documentation

© Commonwealth of Australia, 2025 Future Skills Organisation

  - write reports in required formats
- planning and organisational skills to plan, prioritise and monitor own work and that of others
- problem-solving and contingency-management skills to adapt procedures to local requirements and reconfigure depending on differing operational contingencies, risk situations and environments
- research skills to research industry best practice.

Required knowledge

- detailed knowledge of:
  - IT service management
  - quality assurance procedures in IT services
  - industry best practice processes in IT services
- overview knowledge of:
  - basic technical terminology in relation to service management.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop and implement procedures and processes to improve the quality of IT service management • evaluate, monitor and improve IT service management.
Context of and specific resources for assessment	Assessment must ensure access to: • current service organisational chart • current service logs and procedures • organisational mission statement • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• verbal or written questioning to assess candidate's knowledge of service management principles • review of candidate's documented strategies for delivery and support of IT services • evaluation of candidate's code of practice for IT service management.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Quality requirement principles may include:	• Capability Maturity Model Integration (CMMI) • ISO standard 17025/IEC standard 20000.
Service management processes may include:	• availability management • capacity management • change management • configuration management • continuity management • incident management • problem management • release management • security management.
Service management	• CMMI

© Commonwealth of Australia, 2025 Future Skills Organisation

concepts may include:	• Six Sigma Business Process Management • total quality management (TQM).
IT services may include:	• application management • information and communications technology (ICT) infrastructure management • security management • service delivery • service support • software asset management.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAICT814A Develop cloud computing strategies for a business

Modification History

Release	Comments
Release 1	This version first released with ICA11 Information and Communications Technology Version 2.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop a cloud computing strategy for a business.

Application of the Unit

This unit applies to senior management, including strategic business analysts and chief information officers who set up a strategy to establish cloud computing services as a key business enabler.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENTS	PERFORMANCE CRITERIA
	and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Analyse existing business and information and communications technology (ICT) system assets	1.1. Review business ***assets*** and identify the most appropriate for possible cloud deployment 1.2. Evaluate each asset's ***risk tolerance*** to the business for possible cloud deployment
2. Select the most suitable deployment and/or delivery model for each asset	2.1. Map each asset to potential cloud ***deployment models*** 2.2. Review and select most relevant ***delivery model*** for each asset 2.3. Document ***security risks*** to the business of using the identified deployment and delivery models
3. Develop a cloud implementation strategy	3.1. Develop a cloud implementation plan incorporating the most appropriate deployment and delivery models in line with enterprise requirements 3.2. Develop costings for the technology requirements of the implementation proposal 3.3. Develop processes for the periodic review of the ***cloud service metrics*** 3associated with implementation proposal

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills
analytical and research skills to determine and document current business processes and cloud service sources • coaching, mentoring and teamwork skills to ensure support of cloud computing strategies as an ongoing initiative • communication, negotiation and personal networking skills to influence the adoption of cloud computing strategies

© Commonwealth of Australia, 2025 Future Skills Organisation

• initiative and enterprise skills to proactively seek out cloud computing opportunities • literacy and numeracy skills to review and present statistical data and business cases • problem-solving and decision-making skills to deal with issues in an acceptable timeframe • project, planning and organisational change-management skills to ensure the success of cloud computing implementation projects • technical skills to apply information technology solutions in support of cloud computing initiatives
Required knowledge
• cloud computing concepts, processes and trends • relevant enterprise policies and legislation that affect business operations, specifically privacy legislation • legal, ethical and security issues relating to cloud computing • organisational change-management theory and methods

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • analyse and document the effectiveness of existing cloud computing deployment and delivery models • research cloud computing options in the marketplace • develop a cloud computing implementation strategy that meets enterprise needs.

Context of and specific resources for assessment	Assessment must ensure access to:
	• workplace of sufficient complexity to enable the required level of analysis to be carried out in relation to current business processes and possible future cloud computing solutions
	• relevant enterprise strategic documentation, including:
	  • strategic planning documents
	  • financial, ICT infrastructure and relevant enterprise objectives and policies.
	Where applicable, physical resources should include equipment modified for people with special needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate carrying out the required work • verbal or written questioning to assess required knowledge and skills • review of cloud implementation strategy prepared by the candidate • review of a portfolio of the work undertaken. Note: The preferred assessment method is through a workplace project or through a simulated medium to large enterprise workplace.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating *conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.*

Assets may include:	• applications • data • functions • processes.
Risk tolerance may	• compliance and audit with both internal and external policies

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• disaster recovery and traditional security requirements • governance and enterprise risk management incorporating such aspects as agreement breaches and data protection • physical country location • responsibility for data confidentiality, integrity and availability • service level agreements to protect sensitive data.
Deployment models may include:	• community cloud • hybrid cloud • private cloud • public cloud.
Delivery model may include:	• infrastructure as a service (IaaS) • platform as a service (PaaS) • software as a service (SaaS).
Security risks may include:	• anti-virus measures • application security • encryption implementation • ICT systems security • network firewalls • physical access control • physical location of cloud servers, plant security.
Cloud service metrics may include:	• measures of access speed • measures of quality, e.g. feedback rating on usefulness • measures of usage.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK301A Provide network systems administration

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to technically manage elements of a network, including contributing to disaster recovery plan.

Application of the Unit

This unit applies to frontline technical support personnel responsible for administering a network.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Provide client access and security	1.1 Provide logons, passwords and applications file access to ***users*** and prepare ***documentation*** in line with ***organisational requirements*** 1.2 Examine records of user accounts to determine access privileges and usage 1.3 Take necessary action to ensure maintenance of ***system*** integrity and security
2. Provide input into and disseminate disaster recovery plan	2.1 Provide input into the organisation's ***disaster recovery plan*** 2.2 Disseminate disaster recovery plan to users as required
3. Monitor network performance	3.1 Perform diagnostic tests associated with administering the network or system 3.2 Analyse and respond to diagnostic information 3.3 Monitor ***software*** usage, including inappropriate or illegal use 3.4 Delete illegal software from the system 3.5 Monitor ***hardware*** response time and other performance indicators 3.6 Determine and action methods for improving network and systems efficiency according to ***organisational guidelines***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - investigate and assess client needs
  - provide one-to-one instruction
- customer-service skills to communicate with clients in a range of contexts at various levels
- literacy skills to:
  - develop reports
  - interpret technical manuals
- planning and organisational skills to provide input into the disaster recovery plan
- technical skills to perform:
  - diagnostic tests to monitor network performance
  - system administration tasks.

Required knowledge

- advanced knowledge of software features supported by the organisation
- approaches to backup and restoring computer data
- disaster recovery policy
- features and functions of file access
- in-house and vendor support
- OHS legislation relating to the use of equipment
- operating systems:
  - functions and basic features
  - supported by the organisation
- organisational access and security procedures
- organisational and technical systems
- organisational procedures for protection against and elimination of computer viruses
- policy and procedures for deleting, restoring and archiving files
- procedures for creating logons
- security and network guidelines and procedures
- software copyright responsibilities.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

© Commonwealth of Australia, 2025 Future Skills Organisation

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • sustain the operation of the network through maintenance of network integrity and perform diagnostic tests • contribute to the formulation of a disaster recovery plan and provide the client with an optimised network that complies with organisational guidelines • improve network and systems efficiency according to organisational guidelines • provide appropriate access to the network for users • maintain, limit or enhance user access according to authorised requests.
Context of and specific resources for assessment	Assessment must ensure access to: • live network • systems administration tools currently used in industry • organisational policy and procedures • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• review of documentation completed by candidate for provision of client access and security
	• documented input into disaster recovery plan
	• direct observation of candidate:
	  • performing diagnostic tests and responding to diagnostic information
	  • performing user maintenance tasks
	• verbal or written questioning to assess candidate's knowledge of methods for improving network and systems efficiency.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Users may include:	• contractors • departments within an organisation • persons within a department • support staff • third parties.
Documentation may follow:	• audit trails • client training • equipment inventory maintenance • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • naming standards • project-management templates and report writing • satisfaction reports • version control.
Organisational requirements may be in reference to:	• diagnostic policy • preventative maintenance • problem solution processes • roles and technical responsibilities in the IT department • vendor and product service level support agreements • work environment.
System may include:	• application • business • computers • financial system • information system • management system • network • software.
Disaster recovery plan may include:	• backup plans • disaster recovery activities • impact assessment • key roles and responsibilities

© Commonwealth of Australia, 2025 Future Skills Organisation

	• maximum tolerable outage • recovery time • risk analysis • zero data loss.

Software may include:	• application:
	  • database
	  • internet browser
	  • spreadsheet
	  • word-processing
	• commercial
	• customised
	• in-house
	• programming:
	  • assembler
	  • compiler
	  • development tools
	• system:
	  • computer security
	  • device drivers
	  • operating system.

Hardware may include:	• modems or other connectivity devices • networks • personal computers • remote sites • servers • workstations.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access • virus risk.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK302A Identify and resolve network problems

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to document network-related problems, determine the resources required, solve the client problem or escalate the problem to a new support level.

Application of the Unit

This unit applies to frontline technical support personnel responsible for maintaining network continuity by isolating and rectifying network problems as they arise.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Determine client requirements and identify if problem exists	1.1 Log calls from help-desk support staff 1.2 Determine and document ***problem*** based on ***client*** requirements
2. Determine whether problem is covered by policy	2.1 Verify the scope and coverage of maintenance and technical ***support agreements*** relative to the problem and client requirements 2.2 Provide assistance according to ***organisational guidelines***
3. Carry out maintenance support on identified problem	3.1 Conduct diagnostic tests around identified problem 3.2 Complete maintenance according to organisational guidelines 3.3 Obtain new ***components*** as part of the resolution, where necessary 3.4 Store or dispose of components according to organisational guidelines and ***environmental guidelines***
4. Prepare maintenance report and confirm solution	4.1 Prepare maintenance report according to organisational guidelines and support agreements 4.2 Refer unresolved ***maintenance requirements*** to appropriate higher level service area 4.3 Follow up with the client to determine ***solution*** success and close the report

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- communication skills to:
  - follow up with client
  - provide assistance according to organisational guidelines
  - provide clear and precise advice when logging calls from help-desk support staff
- literacy skills to:
  - document initial problem and recommendations to solve problem
  - prepare maintenance report in line with organisational guidelines and support agreements
- problem-solving skills to:
  - determine problems based on diagnostic tests
  - solve unknown problems in a range of contexts
- team participation skills to escalate maintenance
- technical skills to undertake maintenance tasks

Required knowledge

- environmentally sound recycling and disposal procedures
- networking procedures, including:
  - call logging
  - contracting and maintenance requirements
  - problem escalation procedures
- inventory processes
- network operating systems
- organisational information relating to network problems
- technical support agreements
- features and functions of technical systems.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to	Evidence of the ability to: • document network-related problems and determine the required resources

© Commonwealth of Australia, 2025 Future Skills Organisation

demonstrate competency in this unit	• solve client problems or escalate the problem according to organisational guidelines • maintain the network with minimal disruption to clients.
Context of and specific resources for assessment	Assessment must ensure access to: • network • hardware • diagnostic tools, components and software • records and reports • organisational guidelines and procedures • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of candidate:
	  • identifying client problem and verifying the scope of support agreements
	  • conducting diagnostic tests and carrying out maintenance support
	• verbal or written questioning to assess candidate's knowledge of organisational escalation procedures
	• review of documentation provided by candidate about client's problem and maintenance requirements.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Problem may include:	• issues affecting immediate work environment:
	  • servers
	  • workstations
	• routine and non-routine problems.

Client may include:	• employees • external organisations • individuals • internal departments.
Support agreements may include:	• cost • performance from escalated support levels • replacement • time • warranty.
Organisational guidelines may include:	• client-liaison policy • contracting arrangements relating to IT purchasing • logged call procedures • maintenance agreements • preventative maintenance and diagnostic policy • security procedures • warranties.
Components may include:	• CD and DVD drives • central processing unit (CPU) • complementary metal oxide semiconductor (CMOS) battery • fax or modem cards • interface cards • motherboards • power supply • random access memory (RAM).

Environmental guidelines may include:	• appropriate disposal or recycling of e-waste:
	  • cathode ray tube (CRT) monitors
	  • printed circuit boards
	  • redundant hardware

© Commonwealth of Australia, 2025 Future Skills Organisation

	• recycling of packaging:
	  • cardboard
	  • paper
	  • polystyrene.

Maintenance requirements may include:	• on-site response • remote diagnostics • return to depot.

Solution may include:	• hardware:
	  • new
	  • upgrade
	• implementing a new system
	• software:
	  • new
	  • upgrades
	• user training.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK303A Configure and administer a network operating system

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit defines the competency required to create the network configuration required by a client and to set up and use administrative tools to manage the network.

Application of the Unit

This unit applies to frontline technical support personnel who are required to maintain network continuity through changing requirements.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Assess network features	1.1 Determine ***organisational policies*** and administration arrangements used to administer the ***network***
	1.2 Determine the type of ***network operating system*** (NOS) and interfaces used by the existing network and potential compatibility issues caused by integration of other networks
	1.3 Identify the risks associated with administration of a network to minimise the loss of data or service during operations
	1.4 Determine network administration tools that can be used with the NOS to manage network performance and enforce organisational policies
2. Administer and support the system using administration interfaces	2.1 Use interfaces to format hard drives, set up security restrictions and establish user log-in information to administer a basic network
	2.2 Use administration tools to develop a map of ***system*** interaction to determine the data required by particular ***users*** and how often the data is accessed
	2.3 Examine existing ***applications*** and ***software*** and plan required upgrades or reconfigurations to new system or applications
	2.4 Test reconfiguration for successful interface with existing system to ensure compatibility
3. Set up and manage the network file system	3.1 Create a required file and folder structure using appropriate administration and system tools
	3.2 Set the security, access and sharing of ***file system*** to meet user requirements
	3.3 Identify and implement the virus protection requirements for the network in line with organisational procedures
	3.4 Test and document the file system to ensure that appropriate access is available to the user groups

© Commonwealth of Australia, 2025 Future Skills Organisation

	according to organisational standards
4. Administer user services and user accounts	4.1 Determine the user services required, and implement using the appropriate administration and system tools 4.2 Create users and groups as required to facilitate user security and network access according to user authorisation 4.3 Verify successful access by users to authorised network data and resources, and record outcomes 4.4 Set or modify ***user settings*** to ensure compliance with security and access policies 4.5 Review procedures and take action to ensure that users who are no longer part of the organisation have their accounts disabled, deleted or modified
5. Provide and support backup security	5.1 Scan and clean the network of viruses before performing ***backup*** of the network 5.2 Determine ***security risks*** to which data is exposed and provide appropriate ***prevention methods*** and recovery processes 5.3 Report identified security risks to ***appropriate person*** 5.4 Implement systems to provide backup and service restoration capability in the event of a disaster according to organisational policies 5.5 Document and disseminate the disaster-recovery procedures

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - determine NOS types and compatibility issues
  - determine risks associated with administration of a network
- communication skills to:
  - inform clients of technical procedures
  - liaise with clients and team members across different levels and in different contexts

© Commonwealth of Australia, 2025 Future Skills Organisation

  - undertake active listening with clients and team members
  - use open-ended questioning techniques
- literacy skills to:
  - document created file system
  - document disaster-recovery procedures
  - interpret organisational policies
- planning skills to plan upgrades and reconfigurations to new systems or applications
- technical skills to:
  - administer and configure NOS
  - identify security gaps and secure with appropriate hardware and software
  - implement systems to provide backup and service restoration capability
  - monitor user accounts according to organisational policy
  - perform compatibility testing after upgrade or reconfiguration
  - scan and clean the network of viruses before backup
  - test successful access by users to authorised network data and resources
  - test the file system access.

Required knowledge

- antivirus software, its operation, installation and update procedures
- current industry standard NOS
- facilities available in the operating environment
- features and capabilities of networking technologies
- implementation of network security in a local area network (LAN):
  - file and folder permissions
  - users and group settings
- monitoring aspects of network performance or traffic:
  - system administration tools
  - third-party tools.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

© Commonwealth of Australia, 2025 Future Skills Organisation

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • use network administrative tools to carry out system administration tasks • manage the network file system • create the network configuration required by the client • provide user services and user accounts • provide backup and service restoration capability.
Context of and specific resources for assessment	Assessment must ensure access to: • user network requirements • antivirus software • network administration tools • a live network with a representative range of networked environments and operating systems • a server • technical records, organisational policies, access policy and documentation • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of candidate:
	  • managing a network using network administration and system tools
	  • performing virus scans, virus removal and virus updates
	• review of organisational backup schedules created
	• verbal or written questioning to assess candidate's knowledge of the facilities available in the operating environment.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Organisational policies may include:	• diagnostic • how and what the organisation will operate • maintenance • OHS • security • user enrolment.
Network may include:	• data • embedded systems • LAN • personal digital assistant (PDA) • radio frequency identification (RFID) network • smartphones • internet • virtual private network (VPN) • voice network • wide area network (WAN) • wireless network.

Network operating system may include:	• embedded OS:
	  • digital media players
	  • PDAs
	  • robots
	  • routers
	  • smartphones:
	  • Android
	  • BlackBerry
	  • Symbion
	  • Windows CE
	• Fabric or XPATH OS by Brocade
	• JunOS by Juniper Networks
	• Linux
	• Mac
	• Open Enterprise Server or Netware by Novell

© Commonwealth of Australia, 2025 Future Skills Organisation

	• SAN-OS by Cisco • Windows Server OS.
System may include:	• application servers • billing system • computers • file servers • financial system • information system • management system • network • printer server • software • storage system • user management system.
Users may include:	• departments within an organisation • persons within a department • third parties.
Applications may include:	• database programs • email programs • internet browsers • multimedia applications • spreadsheets • voice applications • word-processing.

Software may include:	• application
	• commercial
	• customised
	• in-house
	• programming:
	  • assembler
	  • compiler
	  • development tools
	• system:
	  • computer security
	  • device drivers
	  • operating system.

File system may include:	• folder structures • multiple or single logical disks and complex directory • multiple or single servers.
User settings may	• log-in

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• passwords • security • usernames.
Backup may include:	• more comprehensive and complex backup facilities across the network • simple single tape-unit backup.

Security risks may include:	• file and folder sharing
	• open or free networks
	• operating system vulnerability:
	  • service packs
	  • security updates
	• social engineering
	• theft
	• trojan horses
	• unauthorised access:
	  • adware
	  • hackers
	  • identity fraud
	  • malware
	  • phishing
	  • spyware
	• viruses
	• web browser risks
	• worms.

Prevention methods may include:	• anti-spam software
	• anti-spyware
	• antivirus software
	• ensuring proper security certificate are used:
	  • secure socket layer (SSL)
	• file encryption
	• firewalls
	• password best practice:
	  • change frequency
	  • complexity of password construction
	  • password confidentiality
	  • re-use
	  • use
	• user awareness and education
	• wireless encryption:
	  • wi-fi protected access (WPA and WPA2)

© Commonwealth of Australia, 2025 Future Skills Organisation

	• wired equivalent privacy (WEP).
Appropriate person may include:	• network administrator • network manager • supervisor • system administrator.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK304A Administer network peripherals

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manage an environment of networked peripheral devices, in order to provide services to client users.

Application of the Unit

This unit applies to frontline technical support personnel responsible for connecting, maintaining and administering peripheral devices attached to networks.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Install peripherals to a network	Plan the location of ***peripherals*** to provide appropriate services to ***users*** and to take into consideration ***OHS standards***
	Connect peripherals to ***network***, using vendor-approved method and technology
	Connect peripherals to computers in the network using parallel, serial or other direct connection methods
	Add peripheral accessories or upgrades to ***printer***, such as memory or high-volume paper trays
	Test peripherals for correct operation
2. Configure peripheral services to manage peripherals	Install ***software*** required to manage local and network-connected peripherals
	Use meaningful names for peripherals and control queues
	Configure security and access to allow appropriate users to make use of peripherals
	Configure workstation for peripherals to allow ***applications*** to work with peripherals
3. Administer and support peripheral services	Assign priority to control queues
	Use peripheral management software supplied as part of the ***network operating system*** (NOS) or by third parties
	Create templates for use on the network
	Configure settings on the network to create maintenance schedules, usage logs, and cost-centre usage statistics
	Demonstrate to the user the methods for using peripheral services from their application or workstation
4. Maintain peripherals and fix common problems	Establish and follow a regular maintenance schedule as recommended by peripheral manufacturer
	Replace ***consumables*** and ***components*** when required
	Fix peripheral mishaps and malfunctions
	Monitor peripheral usage and traffic and recommend

© Commonwealth of Australia, 2025 Future Skills Organisation

	additional peripherals if needed Determine failures of peripheral services or devices and rectify as required

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to determine failures of peripheral services or devices
- communication skills to:
  - demonstrate use of peripheral services to users
  - discuss network issues with clients and team members
  - educate users about the causes of network problems and how to minimise their recurrence
  - liaise with clients and team members across different levels and in different contexts
- literacy skills to:
  - follow a regular maintenance schedule as recommended by peripheral manufacturer
  - use meaningful names when configuring the peripheral device's name or new profile
- planning skills to plan the installation of peripherals
- problem-solving skills to:
  - fix peripheral mishaps and malfunctions
  - rectify failures of peripheral services or devices
- technical skills to:
  - administer peripheral services
  - configure network settings
  - configure security and access for users
  - install software
  - replace components
  - test peripherals for correct operation
  - use peripheral management software
  - use the peripheral device's logging or monitoring features to monitor the health of the peripheral.

Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

- configuration of peripherals for network use
- current industry standard network peripherals
- general construction and operation of peripheral devices to facilitate troubleshooting.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • plan and install peripherals, and connect to network and test operation • manage the use of peripheral services with workstations • maintain networked peripherals according to a maintenance schedule • rectify faulty peripheral services or devices.
Context of and specific resources for assessment	Assessment must ensure access to: • range of peripherals • network administration tools • live network with a representative range of networked client server environments and operating systems • technical records, organisational policies and documentation • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of candidate:
	  • managing the use of peripheral services with workstations
	  • rectifying faulty peripherals
	  • maintaining networked peripherals
	• verbal or written questioning to assess candidate's knowledge of networked peripherals
	• review of network peripheral entries prepared by candidate.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally

© Commonwealth of Australia, 2025 Future Skills Organisation

	appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Peripherals may include:	• Bluetooth device • Firewire (IEEE 1394) device • keyboard • laptop • mobile phone • modem • mouse • multimedia kit • pen • personal digital assistant (PDA), such as palmtop • printer • scanner • speaker • tape cartridge • touch pad • universal serial bus (USB) device • wireless fidelity (wi-fi) router.
Users may include:	• departments within an organisation • persons within a department • third parties.
OHS standards may include:	• electrical safety • ergonomics in the workplace: • correct posture

© Commonwealth of Australia, 2025 Future Skills Organisation

	• style and adjustments of chair • type of desk • type of monitor • working position • length of time in front of computer • lighting level • placement of light fittings • repetitive strain injury (RSI) prevention • safe lifting methods • ventilation.
Network may include:	• data • local area network (LAN) • private lines • the internet • use of the public switched telephone network (PSTN) for dial-up modems only • voice • virtual private network (VPN) • wide area network (WAN).
Printer may include:	• ink jet • laser • network.

Software may include:	• application
	• commercial
	• customised
	• in-house
	• programming:
	  • assembler
	  • compiler
	  • development tools
	• system:
	  • computer security
	  • device drivers
	  • operating system.

Applications may include:	• database programs • email programs • internet browsers • spreadsheets • system browsers • word-processing.

© Commonwealth of Australia, 2025 Future Skills Organisation

Network operating system may include:	• Linux • Mac • multi-user capability operating system • Novell NetWare 5 or above • Windows 2000 or above.

Consumables may include:	• disks:
	  • CD
	  • DVD
	• ink cartridges
	• toner cartridges.

Components may include:	• CD and DVD drives • central processing unit (CPU) • complementary metal oxide semiconductor (CMOS) battery • fax or modem cards • interface cards • motherboards • motherboards • power supply • random access memory (RAM).

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK305A Install and manage network protocols

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to install and manage network protocols in a networking environment.

Application of the Unit

This unit applies to network administrators who are required to ensure that appropriate protocols have been installed in networks to allow user functionality. The role will also involve the maintenance of installed protocols.

This unit requires the application of transmission control protocol or internet protocol (TCP/IP) and OSI models. Protocols transcend organisational size and network complexity.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Install and manage network protocols	1.1 Select, test and validate appropriate ***network protocol services***
	1.2 Design a ***network*** addressing system, with subnet and host IDs, including appropriate ***devices***
	1.3 Configure hosts and workstations to use IP addresses either manually or through automatic allocation of addresses, such as found with dynamic host configuration protocol (DHCP)
2. Identify network protocol applications	2.1 Review a range of well-known network protocol ***applications***
	2.2 Evaluate client user requirement and recommend network-protocol services
	2.3 Apply IP addressing scheme according to approved policy and procedures

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to evaluate client user requirements and map to appropriate protocols
- learning skills to ensure currency with protocols development
- literacy skills to interpret technical manuals
- organisational skills to plan, prioritise and organise work
- problem-solving skills to develop and refine configuration protocols

© Commonwealth of Australia, 2025 Future Skills Organisation

- technical skills to:
  - configure workstations
  - develop strategic initiatives when designing a network addressing system
  - test components using available technology
  - write detailed technical notes.

Required knowledge

- client business domain, including client organisation structure and business functionality
- current communications technologies and their associated protocols
- current industry-accepted hardware and software products and general features and capabilities
- network protocols currently in use in organisation and industry
- vendor product range and development directions.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • configure, test and validate network protocols in order to facilitate interconnectivity • install and manage network protocols in a network, and troubleshoot when problems arise.
Context of and specific resources for assessment	Assessment must ensure access to: • a live network • application software and operating system • appropriate learning and assessment support when required • modified equipment for people with special needs • networked computers • organisational guidelines • technical documentation and installation manuals • vendor software.
Method of assessment	A range of assessment methods should be used to assess practical

© Commonwealth of Australia, 2025 Future Skills Organisation

	skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of communications technologies and network protocols • direction observation of candidate configuring network or application protocols • review of candidate's analysis of client user requirements and final recommendations • evaluation of performance test results conducted by candidate.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Network protocol services may include:	• address resolution protocol (ARP) • DHCP • electronic mail protocols • file transfer protocol (FTP) • H.323 protocol • hypertext transfer protocol (HTTP) • internet protocol (IP) • internet protocol version 4 (IPv4) • internet protocol version 6 (IPv6) • simple network management protocol (SNMP)

© Commonwealth of Australia, 2025 Future Skills Organisation

	• simple object access protocol (SOAP) • TCP/IP • wireless application protocol (WAP).
Network may include:	• large and small local area networks (LANs) • virtual private networks (VPNs) • wide area networks (WANs) • wireless local area networks (WLANs).
Devices may include:	• emulators • gateways • routers.
Applications may include:	• FTP • HTTP • hypertext transfer protocol secure (HTTPS) • secure shell • secure socket layer (SSL) • simple mail transfer protocol (SMTP) • Telnet (not secure).

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK306A Evaluate characteristics of cloud computing solutions and services

Modification History

Release	Comments
Release 1	This version first released with ICA11 Information and Communications Technology Version 2.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop an understanding of cloud computing characteristics in order to evaluate them. It involves a basic review and analysis of cloud computing delivery and deployment models and an evaluation of the benefits and challenges of implementing cloud computing solutions and services.

Application of the Unit

This unit applies to those engaged in reviewing a cloud computing solution for an enterprise.

Licensing/Regulatory Information

Users should confirm licensing, legislative, regulatory, or certification requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Prepare to review cloud technology solutions and services	1.1. Identify ***common terminology, characteristics and concepts*** of cloud computing solutions and services 1.2. Identify ***major organisational roles*** affected by cloud computing solutions and services 1.3. Identify ***key business requirements*** most suitable for transferring to cloud computing solutions and services
2. Identify differences between cloud delivery models	2.1. Identify characteristics associated with the different ***cloud delivery models*** 2.2. Identify any other emerging cloud delivery models 2.3. Evaluate advantages and disadvantages of combining different cloud delivery models
3. Review performance of different types of cloud deployment models	3.1. Identify characteristics associated with different ***cloud deployment models*** 3.2. Identify any other emerging cloud deployment models 3.3. Evaluate advantages and disadvantages of combining different deployment models
4. Evaluate benefits and challenges of using cloud computing solutions and services	4.1. Identify possible benefits of adopting cloud solutions and services 4.2. Identify possible challenges of adopting cloud solutions and services 4.3. Review and document the impact of implementing a cloud delivery model 4.4. Provide feedback to ***appropriate personnel***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills
communication skills to: • communicate with peers and supervisors in relevant cloud computing technological

© Commonwealth of Australia, 2025 Future Skills Organisation

areas • seek assistance and expert advice from relevant people in the cloud computing industry area • literacy and numeracy skills to interpret technical documentation, equipment manuals and specifications • research skills to locate appropriate sources of information regarding cloud computing solutions • technical skills to: • identify features of cloud computing solutions and services • test and evaluate cloud computing solutions and services
Required knowledge
• current technology trends and directions in information and communications technology (ICT), and major industry technology standards used in cloud computing solutions and services • vendor product directions in cloud computing solutions and services • current industry hardware and software products, and their general features, capabilities and application, especially where applied to cloud computing solutions and technologies

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • determine the most appropriate cloud computing solution for the business • provide feedback on the most appropriate cloud computing solution and service.
Context of and specific resources for assessment	Assessment must ensure access to: • information on cloud computing solution technologies currently used in industry • business requirements • documents detailing work health and safety (WHS) standards, environmental guidelines and enterprise requirements • modified equipment for people with special needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of features and functions of cloud computing industry-specific technologies • presentation on the use of cloud computing industry-specific technologies by industry • report outlining the most appropriate use of cloud computing technologies for a business.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating *conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.*

Common terminology, characteristics and concepts may include:	• cloud service:
	  • delivery models
	  • deployment models
	• elasticity
	• measured usage
	• multi-tenancy
	• on-demand usage
	• resilient computing

© Commonwealth of Australia, 2025 Future Skills Organisation

	• scaling:
	  • horizontal
	  • vertical
	• ubiquitous access
	• virtualisation.

Major organisational roles may include:	• cloud provider • cloud resource administrator • cloud service owner.
Key business requirements may include:	• data conversion requirements • hardware and software requirements • interface requirements • operational requirements • user requirements.
Cloud delivery models may include:	• infrastructure as a service (IaaS) • platform as a service (PaaS) • software as a service (SaaS).
Cloud deployment models may include:	• community cloud • hybrid cloud • private cloud • public cloud.
Appropriate personnel may include:	• authorised business representative • client • supervisor.

•

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK401A Install and manage a server

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to install and manage a server. Server management includes initial configuration and testing as well as ongoing administration and troubleshooting. Server management includes initial configuration and testing, ongoing administration, software distribution and updates, profiling and monitoring servers and troubleshooting.

Application of the Unit

This unit applies to those employed in network management or server administration roles who are required to install and manage server operating systems.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Prepare to install a server	1.1 Prepare for work, according to site-specific safety requirements and enterprise OHS processes and procedures 1.2 Obtain ***server applications*** and features from ***appropriate person*** 1.3 Choose the most suitable operating system features and ***network services*** with reference to required server solution and technical ***requirements*** 1.4 Review required installation options 1.5 Analyse data migration requirements 1.6 Back up local data in preparation for installation 1.7 Arrange access to site and advise client of deployment and potential down time
2. Install server as required by the specification	2.1 Create ***disk-partitioning scheme*** 2.2 Create ***file systems*** and virtual memory 2.3 Install ***network operating system*** 2.4 Install and configure server applications and network services 2.5 Reconnect and reconfigure connectivity devices 2.6 Patch the operating system and applications to ensure maximum security and reliability 2.7 Restore local data to new server
3. Configure and administer the server	3.1 Configure ***network directory service*** 3.2 Create and manage ***accounts*** to facilitate security and network access 3.3 Configure ***user environment*** using operating system policies and scripts

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.4 Create directory structure and quotas to meet client requirements 3.5 Configure and manage ***print services*** 3.6 Set the security, access and sharing of ***system resources*** to meet client requirements 3.7 Implement ***security policy*** to prevent unauthorised access to the ***system*** 3.8 Implement ***backup and recovery*** methods to enable restoration capability in the event of a disaster 3.9 Configure ***update services*** to provide automatic updates for operating system and applications
4. Monitor and test the server	4.1 Test server for benchmarking against client specification and requirements according to test plan, and record outcomes 4.2 Analyse the error report and make changes as required 4.3 Use troubleshooting tools and techniques to diagnose and correct ***server problems*** 4.4 Test required changes or additions 4.5 Validate changes or additions against specifications
5. Complete documentation and clean up worksite	5.1 Make and document server configuration and operational changes 5.2 Complete client report and notification of server status 5.3 Clean up and restore worksite to client's satisfaction 5.4 Secure sign-off from appropriate person

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business-related matters
- literacy skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - interpret technical documentation
  - write reports in required formats
- numeracy skills to:
  - take test measurements
  - interpret results
  - evaluate performance and interoperability of network
- planning and organisational skills to plan, prioritise and monitor own work
- problem-solving and contingency-management skills to:
  - adapt configuration procedures to requirements of network
  - reconfigure depending on differing operational contingencies, risk situations and environments
- research skills to interrogate vendor databases and websites to implement different configuration requirements to meet security levels
- technical skills to:
  - select and use server and network diagnostics
  - test application software and hardware to suit different network applications.

Required knowledge

- features of:
  - current network operating systems (NOS)
  - current server applications compatibility issues and resolution procedures
- broad knowledge of:
  - compatibility issues and resolution procedures
  - desktop applications and operating systems as required
  - documentation skills for networks
  - error logging and reporting
  - high availability options for file systems, such as RAID and replication
  - network directory services
  - network service configuration
  - performance tuning options
  - user authentication
- detailed knowledge of:
  - best practice for implementing backup and recovery procedures
  - boot process
  - operating system help and support utilities
  - operating system installation methods, including installation from: CD or DVD, universal serial bus (USB) boot disk, network and script (automated install)
  - print management
  - process and task management, including process termination

© Commonwealth of Australia, 2025 Future Skills Organisation

- task-scheduling utilities
- troubleshooting tools and techniques, including network diagnostic utilities
- user account and password management.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • install and configure server • configure network connectivity • manage the server operating system, including user accounts, file, network directory and print services • perform backup and recovery • update operating system and software • monitor and test server • troubleshoot server and network failures. Candidates should demonstrate competency in at least two different network operating systems.

Context of and specific resources for assessment	Assessment must ensure access to:
	• site where server installation may be conducted
	• relevant server specifications:
	  • cabling
	  • networked (LAN) computers
	  • server diagnostic software
	  • switch
	  • client requirements
	  • WAN service point of presence
	  • workstations
	• relevant regulatory documentation that affects installation activities
	• appropriate learning and assessment support when required.
	Where applicable, physical resources should include equipment modified for people with special needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate installing or updating a server • verbal or written questioning of required skills and knowledge • evaluation of prepared report that outlines testing procedures, test results and recommendation to server changes.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Server applications may include:	• database and data warehousing • directory services • file sharing • line of business applications • management • messaging • name services • network and remote access • printer sharing • terminal services • web applications.

© Commonwealth of Australia, 2025 Future Skills Organisation

Appropriate person may include:	• authorised business representative • client • information technology (IT) support manager • network administrator • network manager • small or medium enterprise (SME) customer • small office home office (SOHO) customer • supervisor.
Network services may include:	• dynamic host configuration protocol (DHCP) • dynamic name system (DNS) • file transfer protocol (FTP) • firewall • hypertext transfer protocol (HTTP or HTTPS) • internet message access protocol (IMAP) • network file system (NFS) • network time protocol (NTP) • post office protocol (POP) • proxy • server messages block (SMB) • simple mail transfer protocol (SMTP) • simple network management protocol (SNMP) • structured query language server (SQLS) • transmission control protocol or internet protocol (TCP/IP).
Requirements may be in reference to:	• application • business • database • network • people in the organisation • platform • system.
Client may include:	• external organisations • individuals • internal departments • internal employees.
Disk partitioning scheme may include:	• extended partitions • logical partitions • logical volumes • partitions • RAID • swap space.
File systems may	• EXT

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• FAT • HFS+ • NFS • new technology file system (NTFS).
Network operating system may include the latest versions of:	• Linux • Mac • Unix • Windows.
Network directory service may include:	• Hesiod • Kerberos • LDAP • NIS • Novell Directory Services (NDS) • Red Hat Directory Services • SMB or Samba • Windows Active Directory Services.
Accounts may include:	• computer accounts • groups • other objects defined by the operating system (OS) or network directory service • system and application accounts • user accounts.
User environment may include:	• automatic mounting or mapping of file systems or network shares • login defaults and options • password security, including length, ageing and expiry • user-desktop environment.
Print services may include:	• print drivers • print queues • print server • print spool location • printer pools.
System resources may include:	• applications • databases • files and directories • network file systems or shares • printers • SharePoint sites • websites.
Security policy may include:	• firewall • SE Linux

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Windows Group Policy.
System may include:	• application • business • computers • database system • financial system • information system • management system • network • software • website.
Backup and recovery may include:	• automated backups using operating system backup and job scheduling tools • backup and recovery of mail systems • backup and recovery of network directory service objects • backups using third-party software • database backup and recovery • volume-shadow copies.
Update services may include:	• Pup • Red Hat Network • Windows Server Update Services • Yum.
Server problems may include:	• disk failure • email hostname resolution • internet connectivity logged system errors • misconfigured networking.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK402A Install and configure virtual machines for sustainable ICT

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop and implement virtualisation technologies with the goal of providing a more sustainable information and communications technology (ICT) environment.

Application of the Unit

This unit applies to those who work in the network area of organisations and are responsible for the use of virtual machines to increase sustainability.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Identify virtualisation benefits and features	1.1 Research and determine ***government and industry*** guidelines and policies for use of desktop and server virtualisation 1.2 Identify benefits of virtualisation of desktop and server environments 1.3 Identify available features of current ***virtualisation software*** 1.4 Select virtualisation solution based on current and future needs of the client
2. Install and configure virtualisation software	2.1 Identify, clarify and organise requirements of the ***client*** relating to virtualisation technologies, following ***organisational requirements*** 2.2 Identify the ***hardware*** and software, infrastructure components, required to be installed and configured to meet technical requirements 2.3 Install and configure software to provide support for virtualisation of desktop and server operating systems 2.4 Configure virtualisation software application features to accommodate required functionality, relating to client and business needs
3. Install and configure virtual machines	3.1 Install virtual machine consistent with client, ***commercial and business requirements*** 3.2 Configure virtual machine consistent with client, commercial and business requirements 3.3 Test functionality of installed virtual machine
4. Configure virtual networks of virtual machines	4.1 Configure IP addressing to match chosen network configuration 4.2 Configure virtual network as host only configuration 4.3 Configure virtual network as bridged configuration

© Commonwealth of Australia, 2025 Future Skills Organisation

	4.4 Configure virtual network as network address translation (NAT) configuration 4.5 Configure services to operate under current network configuration 4.6 Test functionality of virtual network configuration
5. Back up and restore virtual machines	5.1 Back up virtual machine state on shutdown 5.2 Restore state on start-up of virtual machine 5.3 Back up virtual hard drive and software configuration files 5.4 Restore virtual hard drive and software configuration files

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - convey and clarify information
  - liaise with clients
- literacy skills to:
  - develop and document virtualisation configurations and processes
  - record researched information
- planning skills to plan methods for integrating and maintaining a virtualised machine environment
- problem-solving skills to:
  - apply solutions in networks, including virtualised machine environments
  - deploy rapid deployment of solutions to problems involving virtualised machine environment
- safety awareness skills to apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
- technical skills to apply current best practice to implement sustainability options through virtualisation methodologies and technologies.

Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

- overview knowledge of:
  - current government and industry policies and guidelines related to developing sustainable ICT environments
  - current technologies and processes designed to produce a sustainable ICT environment
- detailed knowledge of:
  - available tools and software applications required to manage virtual machines
  - structure, function and business organisation of client
  - configuration of software applications required to manage virtual machines
  - configuration required to integrate virtual machines into existing network design.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • display knowledge of current sustainability practice related to ICT network design • develop, implement and maintain virtual machine environments.
Context of and specific resources for assessment	Assessment must ensure access to: • site or prototype where virtual machine environments may be implemented • network technical requirements • software tools to support implementation of virtual machines • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of emerging policies related to:
	  • current recommendations on sustainability options in ICT design
	  • benefits of virtualisation

© Commonwealth of Australia, 2025 Future Skills Organisation

	• verbal or written questioning to assess candidate's knowledge of:
	  • installation and configuration of virtualisation software
	  • installation and configuration of virtual machines
	  • configuration of virtual machines into network design
	• direct observation of candidate demonstrating:
	  • installation and configuration of virtualisation software
	  • installation and configuration of virtual machines
	  • configuration of virtual machines into network design
	• review of documentation prepared by candidate to:
	  • record research of current recommendations on sustainability options in ICT design and the benefits of virtualisation
	  • record the process of installing and configuring virtual machines.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Government and industry may include:	• Australian Computer Society • Australian government • Climate Savers Computing Initiative • state government • The Green Grid:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• AMD • APC • Dell • HP • IBM • Intel • Microsoft • Sun Microsystems • VMware.
Virtualisation software may include:	• KVM • Microsoft Virtual PC • Microsoft Virtual Server • Parallels Desktop for Mac • Sun Virtual Box • VMware • Xen.
Client may include:	• external organisations • individuals • internal departments • internal employees.
Organisational requirements may include:	• how and what the organisation wants in regard to work environment • preventative maintenance and diagnostic policy • problem-solving processes • roles and technical responsibilities in network management • vendor and product service level support agreements.
Hardware may include:	• personal computers • servers • workstations.
Commercial and business requirements may include:	• availability • backup and recovery of data • confidentiality • firewalls • hacking prevention • integrity • password logons • remote access to internal network.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK403A Manage network and data integrity

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to implement and manage security functions throughout a network.

Application of the Unit

This unit applies to middle managers, such as information security managers, network engineers and network technicians, responsible for implementing and managing the organisational disaster recovery and asset protection policy and procedures.

The role involves leading the development of asset protection processes, determining threats and implementing controls to mitigate risk.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Ensure compliance with company network and security policies	1.1 Review company ***security policies*** 1.2 Audit and record security access 1.3 Ensure user accounts are controlled 1.4 Ensure secure file and resource access
2. Conduct audit on system assets	2.1 Use appropriate ***tools*** and techniques to conduct audit on system hardware and software ***assets*** 2.2 Develop a system to record assets 2.3 Use system to develop reports on assets for management
3. Implement an antivirus solution	3.1 Research appropriate ***antivirus*** and anti-malware solutions 3.2 Implement antivirus or anti-malware solution 3.3 Test antivirus and anti-malware solution functionality
4. Implement systems to protect assets from threats	4.1 Determine ***environmental threats*** to data 4.2 Document systems to protect from environmental threat 4.3 Implement system to protect data from environmental threat
5. Develop a backup solution	5.1 Determine appropriate ***backup type*** to meet systems needs 5.2 Investigate current backup media options 5.3 Implement a backup solution 5.4 Demonstrate functionality of backup solution 5.5 Demonstrate restore of data from backup media

© Commonwealth of Australia, 2025 Future Skills Organisation

	5.6 Implement a real time backup and data ***sync solution***
6. Monitor network performance	6.1 Determine available ***network*** performance ***monitoring tools*** 6.2 Implement network performance monitoring tools to monitor network 6.3 Produce report on network performance

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - convey and clarify information
  - liaise with clients
- initiative and enterprise skills to apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
- literacy skills to:
  - develop and document network and data integrity processes
  - interpret and prepare technical documentation
  - record asset audit information
- planning skills to develop methods for maintaining network and data integrity
- problem-solving skills to:
  - apply solutions in networks, including systems management processes
  - deploy rapid solutions to problems involving management of network assets
- technical skills to apply current best practice to methodologies and technologies.

Required knowledge

- broad knowledge related to:
  - auditing and control of user access
  - asset tracking and auditing
  - backup, restore and rollback procedures
  - current antivirus solutions and techniques
  - system and network monitoring tools and related functions
- detailed knowledge of:

© Commonwealth of Australia, 2025 Future Skills Organisation

- client organisation structure and business functionality
- tools and applications required to manage network and data integrity
- network management and disaster recovery processes.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify user access control issues • use appropriate tools to conduct audit on system assets • implement and test antivirus solution • employ systems to negate environmental threats • demonstrate features of data backup, restore and system roll back • perform network monitoring using a variety of current standard tools • add network controls according to network and data integrity policies.
Context of and specific resources for assessment	Assessment must ensure access to: • site or prototype where network and data integrity strategies may be implemented and managed • use of network support tools currently used in industry • organisation's security policies, manufacturer recommendations and network and data integrity protection standards • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of emerging policies related to:
	  • access control
	  • asset auditing

© Commonwealth of Australia, 2025 Future Skills Organisation

	• antivirus protection • fallback and backup strategies • environmental and physical threats • system monitoring • direct observation of candidate demonstrating management of disaster recovery and related strategies in a range of situations • review of documentation prepared by candidate to manage network and data integrity.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Security policies should include:	• data security • physical security • remote access • user logon.

Tools should include:	• hardware and software audit tools:
	  • MSINFO32
	  • DXdiag
	  • Microsoft Software Inventory Analyzer (MSIA)
	• E-Z Audit
	• hardware and software logs.

Assets may include:	• company information and branding

© Commonwealth of Australia, 2025 Future Skills Organisation

	• computers • data • personal information • servers.
Antivirus may include:	• AVG • EICAR (test virus string) • McAfee • Microsoft Security Essentials • Norton Antivirus or Endpoint • Trendmicro.
Environmental threats may include:	• earthquake • fire • flood • power failure, spike or surge • theft.
Backup type must include:	• copy • differential • folder and drive synchronisation • full and normal incremental • RAID.
Sync solution may include:	• Folder Sync • Shadowprotect • Yadis.
Network may include:	• internet • LAN • WAN • WLANs.
Monitoring tools may include:	• Microsoft server performance monitor • Windows network monitor • Windows performance monitor • Windows resource monitor • Windows task manager • Wireshark.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK404A Install, operate and troubleshoot a small enterprise branch network

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use appropriate tools, equipment, software and protocols to install, operate and troubleshoot a small enterprise branch network.

Application of the Unit

This unit demonstrates the skills required for an entry-level network support position. It covers networking fundamentals, wide area network (WAN) technologies, basic security, routing and switching fundamentals, and configuring simple networks.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Describe the operation of data networks	1.1 Describe the purpose and functions of various ***network elements*** 1.2 Use the open system interconnections (OSI) and transmission control protocol or internet protocol (TCP/IP) models to explain how data flows in a network 1.3 Describe the purpose and basic operation of the protocols in the OSI and TCP/IP models 1.4 Identify and correct common network problems at layers 1, 2, 3 and 7 using a layered model approach
2. Implement a small switched network	2.1 Select the appropriate media, cables, ports, and connectors to connect switches to other network devices and hosts 2.2 Explain network segmentation, basic traffic management and basic switching concepts 2.3 Perform, save and verify initial switch configuration tasks 2.4 Verify network status and switch operation using ***basic utilities*** 2.5 Implement and verify ***basic security for a switch***
3. Implement an IP addressing scheme and IP services to meet network requirements	3.1 Describe the need and role of addressing in a network 3.2 Create and apply an addressing scheme to a network 3.3 Assign and verify valid IP addresses to hosts, servers and networking devices in a local area network (LAN) environment 3.4 Describe the operation and benefits of using private and public IP addressing 3.5 Implement static and dynamic addressing services for hosts in a LAN environment

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.6 Enable ***network address translation (NAT)*** for a small network with a single internet service provider (ISP) and connection and verify operation 3.7 Configure ***dynamic host configuration protocol (DHCP) and domain name system (DNS)*** operation on a router
4. Implement a small routed network	4.1 Select the appropriate media, cables, ports, and connectors to connect routers to other network devices and hosts 4.2 Describe basic routing concepts 4.3 Perform, save and verify basic router configuration tasks 4.4 Configure and verify a classless routing protocol 4.5 Verify device configuration and network connectivity using basic utilities 4.6 Implement password and physical security
5. Implement and verify WAN links	5.1 Describe different methods for connecting to a WAN 5.2 Configure and verify basic WAN serial connection
6. Troubleshoot a small enterprise branch network	6.1 Identify and resolve common ***switched network issues*** 6.2 Identify and correct IP addressing issues 6.3 Troubleshoot DHCP, NAT and DNS operation on a router 6.4 Identify and resolve ***common routing problems*** 6.5 Troubleshoot basic ***WAN connection problems***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to establish client requirements
- problem-solving skills to troubleshoot and debug switch and router network issues
- technical skills to assess and implement security requirements.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required knowledge

- overview knowledge of:
  - classless routing protocols
  - WAN link protocols
- detailed knowledge of:
  - basic routing concepts, small enterprise network switches and routers
  - classful routing protocols (RIPv1)
- purpose and basic operation of the protocols in the open system interconnection (OSI) and TCP/IP models.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design an IP addressing scheme to suit requirements • install, configure and test the network elements to ensure interoperability within the network • apply network topologies, protocols and security issues • apply solutions and troubleshoot defined network problems.
Context of and specific resources for assessment	Assessment must ensure access to: • site where network installation may be conducted • small enterprise routers and switches • network design documentation • equipment specifications • hardware and software • organisational guidelines • computers • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• direct observation of the candidate installing, configuring and testing a new or updated network • evaluation of prepared documentation that outlines testing procedures, test results, recommendation to network changes and completion records • verbal or written questioning of required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Network elements may include:	• adaptors • communications cables and connectors • hubs • routers • servers • switches.
Basic utilities may include:	• ping • traceroute (tracert) • Telnet • secure shell (SSH) • ipconfig.
Basic security for a switch may include:	• port security • port deactivation.

© Commonwealth of Australia, 2025 Future Skills Organisation

NAT, DHCP and DNS may include:	• calling line identification (CLI) configuration • graphical user interface (GUI) configuration.
Switched network issues may include:	• auto-negotiation problems • configuration issues • media issues • switch-hardware failures.
Common routing problems may include:	• configuration issues • dynamic-routing protocols • hardware failures • media issues • static routes.
WAN connection problems may include:	• configuration issues • hardware failures • incorrect passwords • media issues • protocol mismatches.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK405A Build a small wireless local area network

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to build and arrange connectivity to a basic wireless local area network (WLAN).

Note: If more than one wireless zone is required, then refer to ICANWK417A Build an enterprise wireless network.

Application of the Unit

This unit applies to the development of a small wireless local area network where it is appropriate to use one wireless access point or wireless router in a small to medium-sized enterprise.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Confirm client and equipment requirements	1.1 Identify, clarify and organise ***client*** requirements according to network needs and ***organisational requirements*** 1.2 Ensure an appropriate person has given the authority for wireless network access 1.3 Evaluate requirements along with business needs and translate into technical requirements 1.4 Identify ***components*** to be installed in order to meet the technical requirements 1.5 Select position for access point, based on ***user*** requirements and environmental conditions 1.6 Arrange for preliminary work to be carried out to meet cabling and power requirements
2. Select, install and configure wireless access point	2.1 Select access point device based on current and future client needs 2.2 Install and configure access point to provide wireless access to ***network*** 2.3 Configure services 2.4 Test access point and verify wireless connection and security arrangements 2.5 Select, install and configure appropriate wireless card where necessary for legacy equipment
3. Configure network	3.1 Configure security and other key parameters consistent with ***commercial and business requirements*** 3.2 Test ***security*** and firewall arrangements with appropriate test equipment 3.3 Test the network with user equipment for general

© Commonwealth of Australia, 2025 Future Skills Organisation

	compatibility and access
4. Train users	4.1 Determine devices to be connected to the network 4.2 Demonstrate how pairing and log-on arrangements are established to user 4.3 Inform users of wireless network etiquette and traffic capacity issues 4.4 Develop user ***documentation***
5. Monitor and administer wireless network	5.1 Monitor wireless network performance using diagnostic ***tools*** 5.2 Debug networking issues to maintain trouble-free wireless connection 5.3 Document current settings and store securely

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with client to determine functional requirements of network
- literacy skills to document client requirements
- problem-solving skills to troubleshoot and debug:
  - connectivity issues
  - security issues
- research skills to determine most suitable solution for client
- technical skills to:
  - design, develop and implement various wireless network solutions
  - implement wireless networking strategies and configure wireless network software and hardware
  - implement WLANs.

Required knowledge

- features of security threats
- overview knowledge of:
  - audit and intrusion detection systems

© Commonwealth of Australia, 2025 Future Skills Organisation

  - auditing and penetration testing techniques
  - authentication methods
  - network protocols and operating systems
  - security protocols, standards and data encryption
- detailed knowledge of:
  - bandwidth and quality of service
  - factors affecting signal quality
  - layer 2 and layer 3 design issues
  - SOHO
  - transmission control protocol or internet protocol (TCP/IP) protocols and applications
  - wireless security strategies
  - wireless topologies
  - WLAN solutions.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop, implement and maintain wireless networks • install, configure and test wireless access points • test security and network to business specifications • develop user training material • monitor and resolve wireless network issues.
Context of and specific resources for assessment	Assessment must ensure access to: • network technical requirements • network infrastructure, including wireless hardware and software • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

	of underpinning knowledge and skills • direct observation of candidate performing the tasks required to successfully create a small WLAN • documentation produced in a small project environment that reflects understanding of client requirements and the technical skills required for a small WLAN.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• external organisations • individuals • internal departments • internal employees.
Organisational requirements may include:	• preventative maintenance and diagnostic policy • problem-solving processes • roles and technical responsibilities in network management • vendor and product service level support agreements • work environment.

Components may include:	• wireless access and software
	• hardware:
	  • asymmetric digital subscriber line (ADSL) modems
	  • antennas and other connectivity devices
	  • mobile equipment

© Commonwealth of Australia, 2025 Future Skills Organisation

	• modems • wireless access points • networks • personal computers • power controllers • remote sites • servers • UPS • workstations • cabling: • category 5e • category 6 • category 7 • coaxial and fibre.
User may include:	• department within the organisation • person within a department • third party • community members.
Network may include:	• domestic • small enterprise WLANs.
Commercial and business requirements may include:	• availability • backup and recovery of data • confidentiality • firewalls • hacking prevention • integrity • password logons • remote access to internal network.
Security may include:	• AAA • Diameter • EAP or LEAP • IPSec • PKM • smart cards • SSL • tokens • WEP • WPA or WPA2.
Documentation may follow:	• audit trails • client training

© Commonwealth of Australia, 2025 Future Skills Organisation

	• International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • maintaining equipment inventory • naming standards • project management templates and report writing • satisfaction reports • version control.
Tools may include:	• data and voice integration measurements • network performance software.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK406A Install, configure and test network security

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to install, configure and test network security in an information and communications technology (ICT) network.

Application of the Unit

This unit applies to information technology (IT) professionals who install, configure and test secure networks of any size.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Assess network security threats and vulnerabilities to identify risk	1.1 Assess and report on current ***system*** security, according to required ***asset*** security level 1.2 Determine additional ***network, software, hardware*** and system ***security threats*** and ***vulnerabilities*** 1.3 Use identified threats and vulnerability information to identify security risks 1.4 Make recommendations to management to address security deficiencies, according to current and future ***commercial and business requirements***
2. Implement countermeasures for identified vulnerabilities and threats	2.1 Implement required level of ***perimeter security*** based on current and future business needs 2.2 Assess and implement best practice ***server*** and network ***hardening techniques*** and measures 2.3 Implement secure authentication and user account controls 2.4 Secure ***data integrity*** and transmission
3. Test and verify functionality and performance of security system implemented	3.1 Design test items to verify key function and performance measures against criteria 3.2 Conduct function and performance tests recording results 3.3 Modify and debug security system as necessary 3.4 Develop documentation on current system settings and file for future reference
4. Provide systems for monitoring and maintaining security	4.1 Monitor current network security, including physical aspects, using appropriate third-party testing software where applicable 4.2 Review logs and audit reports to identify and record security incidents, intrusions or attempts 4.3 Carry out spot checks and audits to ensure that

© Commonwealth of Australia, 2025 Future Skills Organisation

	procedures are not being bypassed 4.4 ***Document*** newly discovered security threats, vulnerabilities and risks in a report for presentation to ***appropriate person*** to gain approval for changes to be made

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse systems evaluation
  - review system security logs for breaches
- communication skills to liaise with clients
- literacy skills to write reports for evaluating system security status according to organisational security policies
- numeracy skills to undertake a cost-benefit comparison
- problem-solving skills to:
  - determine intrusion detection
  - troubleshoot and debug
- research skills to identify and analyse network security methodologies and technologies
- technical skills to:
  - develop enterprise policies strategies and procedures
  - implement local area network (LAN), wide area network (WAN), virtual private network (VPN) and wireless local area network (WLAN) solutions
  - implement security strategies and configure network security software and hardware
  - install hardware and software related to improving network security
  - undertake a network security risk assessment.

Required knowledge

- authentication issues
- overview knowledge of:
  - client business domain, including client organisation structure and business functionality
  - features and capabilities of networking technologies

© Commonwealth of Australia, 2025 Future Skills Organisation

  - privacy issues and privacy legislation
  - security information sources
  - risk analysis
- common VPN issues, including bandwidth and dynamic security environment
- configuring routers and switches
- current industry-accepted hardware and software security products, with broad knowledge of general features and capabilities
- function and operation of VPN concepts, including encryption, firewalls, packet tunnelling and authentication
- network protocols and operating systems
- organisational issues surrounding security
- security perimeters and their functions
- security protocols, standards and data encryption
- security threats, including eavesdropping, data interception, data corruption, data falsification
- types of VPNs, including site-to-site, user-to-site internet traffic and extranets
- systems and procedures related to:
  - audit and intrusion detection systems
  - auditing and penetration testing techniques
  - cryptography
  - LAN, WLAN and WAN
  - screened subnets
  - transmission control protocols or internet protocols (TCPs/IPs) and applications
  - use of virus detection software.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • assess and identify security threats, vulnerabilities and risks • determine appropriate countermeasure for threat, vulnerability or risk • implement countermeasure per threat or risk • install, configure and test network elements to ensure perimeter security • test and verify function and performance of selected security

© Commonwealth of Australia, 2025 Future Skills Organisation

	measures • monitor network for suspicious activity taking appropriate action where necessary • document newly discovered threats, vulnerabilities and risks, including change recommendations for approval.
Context of and specific resources for assessment	Assessment must ensure access to: • site where secure network installation may be conducted • network security documentation • equipment specifications • network components • hardware and software • firewalls (hardware and software) • live network • organisational guidelines • networked (LAN) computers • WAN service point of presence • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • documentation of current system security analysis that outlines required enterprise security requirements • identification of additional security threats and vulnerabilities • verbal or written questioning to assess candidate's knowledge of network security • direct observation of candidate performing tasks required to successfully install, configure and test a secure network • direct observation of candidate performing tasks required to successfully test function and performance of secure network • direct observation of candidate performing tasks required to successfully monitor and document newly discovered security threats, vulnerabilities and risks.

© Commonwealth of Australia, 2025 Future Skills Organisation

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

System may include:	• applications • databases • gateways • operating systems • servers • WAN communication links • workstations.
Asset may include:	• data and information • intellectual property • physical assets.
Network may include:	• intranets • large and small LANs • internet • VPNs • WANs • WLANs.
Software may include:	• applications: • commercial

© Commonwealth of Australia, 2025 Future Skills Organisation

	• customised • in-house • packaged • encryption modules • operating systems • security: • antivirus • firewall • spyware • utilities: • audit • network monitoring.
Hardware may include:	• analog modems • digital subscriber line (DSL) modems • firewall devices • network cabling • wired and wireless networks • notebooks • personal computers • routers • servers • switches • workstations.
Security threats may include:	• by-pass • denial of service • eavesdropping • elevation of privilege • hacking • impersonation • manipulation • penetration • repudiation • viruses or malicious code.
Vulnerabilities may relate to:	• application bugs • communications devices • firmware flaws • firewall misconfigurations • operating system bugs • poor bandwidth control measures • transmitting data in plain text • unnecessary services and protocols

© Commonwealth of Australia, 2025 Future Skills Organisation

	• weak authentication techniques • weak permissions • weak physical security.
Commercial and business requirements may include:	• availability • backup and recovery of data • confidentiality • firewalls • hacking prevention • integrity • password logons • remote access to internal network.
Perimeter security may include:	• access control • auditing • authentication • authorisation • hardware or software firewalls • identification • network address translation (NAT) • surveillance.
Server may include:	• application • web • email • file and print • firewall • file transfer protocol (FTP) • proxy, cache • voice over internet protocol (VoIP).
Hardening techniques may include:	• demilitarised zones (DMZ) • encryption • intrusion detection system (IDS) • operating system patch application and management • rigid shared resource permissions • service pack application • strong firewall configurations, including unused port blocking • strong physical security • strong user authentication techniques • unused services and protocols disablement.
Data integrity may include:	• encryption • hash encoding • protocol control • VPN.

© Commonwealth of Australia, 2025 Future Skills Organisation

Document may include:	• audit trails • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • naming standards • project management templates • report writing principles • security analysis report • version control.
Appropriate person may include:	• supervisor • authorised business representative • client.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK407A Install and configure client-server applications and services

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to install, configure and maintain client-server application services in a networked environment.

Application of the Unit

This unit applies to network administrators and network support staff who implement the installation and configuration of client-server based software. This includes installing, maintaining and supporting server-side applications as well as client applications on network workstations, in both Windows-based and Linux-based networks.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine client -server software requirements	1.1 Select a ***client-server solution*** that best fits the desired outcome for a given scenario 1.2 Select hardware required to implement the client-server solution for the desired outcome 1.3 Select an appropriate host operating system for the chosen client -server software
2. Obtain and configure server application software, according to industry best practice	2.1 Investigate the range of client-server products available for the desired outcome, including commercial and open source 2.2 Identify hardware requirements 2.3 Identify available operating system platforms to host the client-server software
3. Install, configure, and manage services to meet business requirements	3.1 Install client-server software to both server and client hardware according to business guidelines 3.2 Configure the client-server software, according to vendor guidelines 3.3 Monitor client-server performance to ensure performance, according to business requirements 3.4 Manage the installation of upgrades and patches to the client-server software environment 3.5 Back up and maintain client-server software
4. Assess configuration effect on overall network design	4.1 Identify ***appropriate utilities*** to monitor and determine network performance 4.2 Create network performance benchmarks prior to and on completion of client-server software installation 4.3 Compare benchmarks to assess performance effect on network after installation of client-server software

© Commonwealth of Australia, 2025 Future Skills Organisation

5. Test and sign off	5.1 Test operation of the client-server software to ensure client requirements are met 5.2 Obtain sign-off from appropriate person

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to evaluate business and reporting requirements
- communication skills to liaise with internal and external personnel on technical, operational and business-related matters
- literacy skills to:
  - interpret technical documentation
  - write reports in required formats
- planning and organisational skills to analyse and organise business operating system requirements
- problem-solving and management skills to adapt, maintain and troubleshoot configuration and operational requirements of client-server software and reconfigure according to business requirements
- numeracy skills to analyse required memory, hard disk and performance requirements
- research skills to determine best-fit software to satisfy business requirements
- technical skills to:
  - select and use server and network diagnostics
  - test application software and hardware to suit different client server applications.

Required knowledge

- broad knowledge of:
  - client-server concepts
  - computer hardware and software skills
  - IP addressing
  - networking fundamentals
  - operating systems
- detailed knowledge of:
  - operating system help and support utilities
  - procedures for implementing backup and recovery

© Commonwealth of Australia, 2025 Future Skills Organisation

- software installation and configuration, including user account and password management
- troubleshooting tools and techniques, including network diagnostic utilities.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • install and configure server-based client-server software • install and configure client software to communicate with appropriate server software • test operation of client-server software • identify and implement required updates for client-server software • monitor performance of client server software • backup and maintain client-server software.
Context of and specific resources for assessment	Assessment must ensure access to: • administrative access to a client server-based network • appropriate client-server software • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate installing or updating client-server software • verbal or written questioning of required skills and knowledge • evaluation of prepared report outlining testing procedures, test results and recommendations.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally

© Commonwealth of Australia, 2025 Future Skills Organisation

	appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client-server solution may include:	• accounting client server software • customer relationship management (CRM) • database management software • enterprise resource planning (ERP) • file transfer protocol (FTP) services • information services software • mail services • payroll • SharePoint services • support desk • web services.
Appropriate utilities may include:	• proprietary • third party • those included with the host operating system.

Unit Sector(s)

_Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK408A Configure a desktop environment

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to install, configure and support a desktop or workstation operating system in a networked environment.

Application of the Unit

This unit applies to those employed in technical information technology (IT) support roles who are required to install and support desktop operating systems in a networked environment.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Prepare to install a desktop operating system	1.1 Prepare for work according to site-specific safety requirements and enterprise OHS processes and procedures 1.2 Obtain ***desktop applications*** and features from ***appropriate person*** 1.3 Review required installation options and ***file systems*** 1.4 Determine and apply knowledge of licensing, hardware and system requirements 1.5 Analyse data migration requirements 1.6 ***Back up local data*** in preparation for installation 1.7 Arrange access to site and advise ***client*** of deployment and potential down times
2. Install desktop operating system	2.1 Install or upgrade ***desktop operating system*** using appropriate ***installation or update method*** 2.2 Install desktop applications according to identified requirements 2.3 Configure ***network settings*** to connect workstation to network 2.4 Patch the operating system and applications to ensure maximum security and reliability 2.5 Restore local data to new workstation
3. Configure desktop environment	3.1 Configure ***hardware devices*** 3.2 Administer ***user environment*** 3.3 Create file and directory structure using appropriate administration and system tools 3.4 Configure access to ***external data*** 3.5 Configure desktop applications according to business requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

4. Operate command line interface	4.1 Open a command line interface 4.2 Run commands and scripts from the command line interface 4.3 Manipulate files using the command line
5. Configure desktop security	5.1 Modify default user settings to ensure that they match the organisational security policies 5.2 Modify file and directory ownership and permissions to ensure data security requirements are met 5.3 Ensure password security 5.4 Check that the appropriate legal notices are displayed at logon 5.5 Implement ***security options*** for ***network protocols*** 5.6 Configure ***security settings*** for desktop applications according to business requirements
6. Monitor and test the desktop	6.1 Test desktop environment to ensure that client, functionality and ***performance*** requirements have been met 6.2 Analyse and respond to diagnostic information 6.3 Use troubleshooting tools and techniques to diagnose and correct ***desktop problems*** 6.4 Document the desktop environment, according to organisational policy

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel regarding desktop requirements and issues
- literacy skills to interpret technical documentation
- numeracy skills to:
  - take test measurements
  - interpret results
  - evaluate performance of the desktop workstation

© Commonwealth of Australia, 2025 Future Skills Organisation

- problem-solving skills to address desktop problems reported by the client
- research skills to interrogate vendor databases and websites to resolve desktop problems
- technical skills to select and use desktop operating system and network diagnostics to test desktop functionality and performance.

Required knowledge

- features of:
  - current desktop applications, compatibility issues and resolution procedures
  - current desktop operating systems
- broad knowledge of:
  - command line interface and scripts
  - controlling the boot process
  - error logging and reporting
  - file naming conventions related to selected operating system
  - guidelines for selecting a secure password
  - network protocols and transmission control protocol or internet protocol (TCP/IP) network connectivity
  - operating systems and their functions, including file system, memory management and process scheduling
  - printer driver and queue management
  - process or task management, including process termination
  - tools available for remote assistance and administration
  - troubleshooting tools and techniques, including network diagnostic utilities
  - user account, group and password administration
- detailed knowledge of:
  - file system navigation and manipulation utilities, including edit, copy, move and search
  - operating system help and support utilities.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and	Evidence of the ability to:

© Commonwealth of Australia, 2025 Future Skills Organisation

evidence required to demonstrate competency in this unit	• install and configure a desktop operating system • attach the desktop to the network • configure the desktop operating system, including user accounts, file and print services and security • perform backup and recovery • update operating system and software • monitor and troubleshoot the desktop environment. Candidates should demonstrate competency in at least two different desktop operating systems.

Context of and specific resources for assessment	Assessment must ensure access to:
	• site where server installation may be conducted
	• relevant server specifications:
	  • cabling
	  • local area network (LAN)
	  • diagnostic software
	  • switch
	  • client requirements
	  • WAN service point of presence
	  • desktop workstations
	• relevant regulatory documentation that affects installation activities
	• appropriate learning and assessment support when required.
	Where applicable, physical resources should include equipment modified for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate installing or updating a desktop operating system • direct observation of the candidate configuring a desktop operating system • verbal or written questioning of the required skills and knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking

© Commonwealth of Australia, 2025 Future Skills Organisation

	background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Desktop applications may include:	• CAD software • database • email client • internet browser • line-of-business applications • printer sharing • publishing and presentation software • remote-access clients • spreadsheet • technical software • word processor.
Appropriate person may include:	• authorised business representative • client • IT support manager • network administrator • network manager • small office home office (SOHO) customer • small or medium enterprise (SME) customer • supervisor.
File systems may include:	• EXT • FAT • HFS+ • NFS • new technology file system (NTFS).
Back up may be performed using:	• operating system backup utilities • third-party software • network copy

© Commonwealth of Australia, 2025 Future Skills Organisation

	• zip utilities.
Local data may include:	• files and directories • user home directories • user profiles.
Client may include:	• external organisations • individuals • internal departments • internal employees.
Desktop operating system may include:	• Linux • Mac • Windows.
Installation or update method may include:	• CD, DVD • installation as a virtual machine • Pup • Red Hat Network • universal serial bus (USB) boot disk • Windows Server Update Services • Yum.
Network settings may include:	• default gateway • DNS server • firewall • IP address and subnet mask (static or dynamic).
Hardware devices may include:	• device drivers • disk drives • keyboard • modem • monitor • mouse • network interfaces • printer • scanner • USB drive.
User environment may include:	• users and groups • login defaults and options • login scripts • graphical environment • environmental variables and prompts • authentication and authorisation • user profiles • unmask • prompt.

© Commonwealth of Australia, 2025 Future Skills Organisation

External data may include:	• applications • databases • file transfer protocol (FTP) sites • network file systems or shares • SharePoint sites • USB drives • websites.
Security options and ***security settings*** may include:	• anti-spam software • antivirus software • internet-browser privacy security settings • operating system firewall utilities • proxy settings • SE Linux • Windows Group Policy.
Network protocols may include:	• dynamic host configuration protocol (DHCP) • dynamic name system (DNS) • file transfer protocol (FTP) • hypertext transfer protocol (HTTP and HTTPS) • internet message access protocol (IMAP) • network file system (NFS) • network time protocol (NTP) • post office protocol (POP) • server messages block (SMB) • simple mail transfer protocol (SMTP) • simple network management protocol (SNMP) • TCP/IP.
Performance may be affected by:	• desktop environment • driver versions • hard drive cache • mobile computing performance issues • network • page files, swap files and virtual memory • power options • processor scheduling • services.
Desktop problems may include:	• disk and storage problems, such as file system full, file system fragmentation, and disk failure • hardware device problems, such as printer configuration and display settings • network connectivity problems, such as cable unplugged or dynamic IP address not received • workstation boot problems.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK409A Create scripts for networking

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to undertake scripted programming tasks for networking-related activities.

Application of the Unit

This unit applies to those employed in network or systems administration roles.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	with the evidence guide.

Elements and Performance Criteria

1. Develop algorithms to represent solutions to a given problem	1.1 Consult with ***client*** and key ***stakeholders*** to identify the problem and associated script requirements 1.2 Employ abbreviated software development cycle to script creation 1.3 Develop an algorithm to solve the problem and meet client requirements 1.4 Develop an algorithm which takes account of expected possible situations 1.5 Develop an algorithm which is guaranteed to end 1.6 Demonstrate use of structure, sequence, selection and iteration
2. Create code	2.1 Select appropriate ***scripting language*** 2.2 Demonstrate understanding and application of basic language syntax rules and best practices 2.3 Select and use language data types, operators and expressions to create clear and concise code 2.4 Use techniques of selection, iteration and sequence to control script execution flow 2.5 Use techniques for sequential file input and output to retrieve and store information 2.6 Obtain and use user input to affect the operation of the script 2.7 Apply internal document principles to created code 2.8 Follow ***organisational guidelines*** for developing maintainable code when creating scripts 2.9 Adhere to ***coding standards*** when creating scripts
3. Use operating system tools	3.1 Use searching and sorting tools to select information from the logging output of ***operating system*** (OS) 3.2 Implement controls to ensure that where significant events occur, script creates and maintains a log of operations via operating system logging mechanism

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.3 Register and run scripts with OS scheduling facility
4. Test and debug code	4.1 Engineer, document and conduct simple tests to confirm code meets design specification 4.2 Identify areas that are not covered or are covered incorrectly in the script 4.3 Take action to ensure that code complies with security policy 4.4 Take action to ensure that code operates with proper permissions 4.5 Use script debugging techniques suitable for use with scripting language to detect and resolve errors of syntactical, logical and design origin
5. Document script	5.1 Create technical-level documentation 5.2 Create user-level documentation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with external and external personnel to discuss problems and requirements
- literacy skills to:
  - produce and evaluate technical documents
  - produce user and peer documentation
- problem-solving and contingency-management skills to:
  - debug syntax and semantic errors in the program during testing
  - develop algorithmic solutions to a given problem
- technical skills to:
  - create scripts to automate operating system tasks
  - execute scripts
  - interact with user via script
  - manipulate and extract information contained in files
  - use inbuilt scripting options for a variety of scenarios.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required knowledge

- overview knowledge:
  - algorithm design
  - operating system components, such as command line interface, log files, program scheduling utilities, development methodologies, tools and utilities and testing methods
- debugging for a variety of scripting scenarios
- programming structured control constructs: sequence, selection, iteration
- scripting techniques and language syntax.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop an algorithmic statement of a solution for a set process • design, document, construct and test a small single-purpose OS utility application in response to a problem description • create scripted programs that access information stored in files on the system and use system utility programs to sort or find information within these files • validate and record script results.
Context of and specific resources for assessment	Assessment must ensure access to: • technical requirements • software development environment • software testing environment • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning of required skills and knowledge, such as: algorithm design, structured control constructs, basic scripting development methodologies and

© Commonwealth of Australia, 2025 Future Skills Organisation

	their application • evaluation of algorithm design • evaluation of a small single-purpose OS utility application • evaluation of completed test plan and documentation.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• external organisations • information and communications technology (ICT) company • individuals • internal departments • internal employees • service industry.
Stakeholders may include:	• development team • information technology (IT) manager or representative • network engineer • project team • systems administrator • user.
Algorithm may	• flow chart • pseudocode

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• structured English.
Scripting language may include:	• C, C++ • JavaScript • Linux shell scripts • Perl • Python • VBScript • VB.Net • Windows PowerShell.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access • virus risk.
Coding standards may include:	• GNU coding standard • Java coding standard • organisation standards.
Operating system may include:	• Linux • Mac • Novell • Windows.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK410A Install hardware to a network

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to plan, manage and install new hardware components in a network.

Application of the Unit

This unit applies to those employed in technical information technology (IT) support roles, such as network administrators, who are required to install and support network hardware in a peer-to-peer or client-server networked environment.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Determine network hardware requirements	1.1 Assess client ***network hardware*** and cabling requirements, considering compatibility with existing ***application software*** and ***operating system*** 1.2 Analyse requirements against local area network (LAN), wide area network (WAN), wireless networks, and mobile equipment access design limitations and ***organisational guidelines*** 1.3 Evaluate ***client*** requirements according to organisational guidelines, corporate purchasing procedures, licensing arrangements and budget
2. Obtain network hardware	2.1 Contact vendors and obtain technical specifications 2.2 Evaluate or test hardware according to client requirements and organisational guidelines 2.3 Document recommendations and provide copies to ***appropriate person*** 2.4 Determine and document licensing requirements and security issues 2.5 Acquire hardware according to recommendations and organisational procedures 2.6 Organise cabling infrastructure where required
3. Install network hardware	3.1 Conduct installation with minimal disruption to clients 3.2 Install hardware according to appropriate installation procedures 3.3 Configure and test the installation to ensure that it meets client needs
4. Provide instruction and support for installed products	4.1 Determine and document client instructions and needs 4.2 Provide one-to-one or group instruction to client and users, as required 4.3 Obtain client evaluation and feedback, to ensure that

© Commonwealth of Australia, 2025 Future Skills Organisation

	client requirements have been met

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to assess current client hardware and future requirements
- communication skills to:
  - discuss client requirements and specifications
  - interpret client budget requirements
  - interpret technical and hardware installation manuals
  - provide client instruction
- literacy skills to write technical notes and reports
- numeracy skills to plan, prioritise and organise work
- planning and organisational skills to maintain the continuity of network operations and business functions during network installation tasks
- research skills to document licensing requirements and security issues
- technical skills to:
  - evaluate client equipment for requirements
  - use application and diagnostic software.

Required knowledge

- overview knowledge of:
  - current industry, data and voice networking, security products, devices and procedures
  - current industry-accepted network protocols
  - organisational contracting procedures and responsibilities
  - system diagnostic software
- current industry-accepted network hardware and software products
- hardware and software installation procedures
- LAN capabilities and characteristics, such as network type, IP addressing, switch or hub operation
- network connections, including types of cables and cabling distance limitations and wireless connections
- operating systems sufficient to enable basic installation
- set-up and configuration procedures

© Commonwealth of Australia, 2025 Future Skills Organisation

- software packages supported by the organisation.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • evaluate client user requirements and hardware installation • install a range of network hardware by planning, managing and supporting the installation of new components in a network, according to organisational policies and procedures.
Context of and specific resources for assessment	Assessment must ensure access to: • vendor hardware and software components • application software and operating system • hardware maintenance tools • live network • networked computers • organisational guidelines • technical documentation and installation manuals • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's underpinning knowledge • direct observation of candidate installing network devices • review of instructional guides for client or group presentation prepared by candidate • evaluation of performance test results prepared by candidate.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level,

© Commonwealth of Australia, 2025 Future Skills Organisation

	language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Network hardware may include:	• access points • firewalls • gateways • hubs • IP cameras • mobile phones • modems • network bridges • network interface cards • network printers • network scanners or multifunction devices • network-attached storage (NAS) • personal digital assistants (PDAs) • print servers • routers • switches.
Application software may include:	• database programs to handle data and voice functionality • email programs • internet browsers • spreadsheets • system browsers • word processing.
Operating system may	• Linux • Mac

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• Windows.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access • virus risk.
Client may include:	• clubs • external organisations • individuals • internal departments • internal employees.
Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK411A Deploy software to networked computers

Modification History

Version	Comments
ICANWK411A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to plan, manage and support the installation of new or upgraded software to networked computers according to vendor and organisation specifications.

Application of the Unit

This unit applies to those involved in installing, configuring, maintaining and supporting software, such as network administrators and network support staff.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine operating system and software and hardware requirements	1.1 Assess ***client*** software and licensing requirements, considering compatibility with existing application software and operating system 1.2 Assess ***hardware*** requirements 1.3 Analyse requirements against local area network (LAN), wide area network (WAN), and wireless networks within organisational guidelines 1.4 Evaluate client requirements according to organisational guidelines, corporate purchasing procedures and budget
2. Obtain deployment software to automate deployment	2.1 Evaluate ***deployment software*** according to client requirements and organisational guidelines 2.2 Contact ***vendors*** and obtain technical specifications, including support arrangements and licensing 2.3 Acquire software and licences, according to organisational procedures 2.4 Store software licences and manuals, according to organisational guidelines
3. Automate installation of operating system via network	3.1 Plan and deploy ***operating system*** according to appropriate vendor installation procedures with minimal disruption to network and clients 3.2 Configure and test installation to ensure that it meets client needs and vendor specifications 3.3 Install updates and patches
4. Automate installation of software packages via network	4.1 Plan and deploy ***software packages*** according to appropriate vendor installation procedures with minimal disruption to network and clients 4.2 Configure and test installation to ensure that it meets client needs and vendor specifications

© Commonwealth of Australia, 2025 Future Skills Organisation

	4.3 Install updates and patches
5. Test and sign off	5.1 Test installed operating system and software for error-free performance, identifying and resolving problems 5.2 Determine and document security and licensing issues 5.3 Obtain client evaluation and feedback, to ensure that client requirements have been met

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with a client to determine functional requirements of network
- literacy skills to document client requirements
- problem-solving skills to troubleshoot and debug:
  - deployment issues
  - configuration issues
- research skills to determine most suitable solution for client
- technical skills to:
  - implement LANs
  - implement various software deployment solutions.

Required knowledge

- overview knowledge of:
  - network protocols and operating systems
  - organisational contracting procedures and responsibilities
  - software licensing requirements and documentation
  - transmission control protocols or internet protocols (TCPs/IPs) and applications
- detailed knowledge of:
  - current industry standards related to software deployment
  - deployment software configuration
  - configuration of automated deployment processes
  - operating system deployment
  - software package deployment
  - troubleshooting deployment processes.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify client software requirements • plan and deploy automatic installation of operating system and software • configure and test installation, ensuring client needs are met.
Context of and specific resources for assessment	Assessment must ensure access to: • site or prototype where deployment processes may be implemented • live network • software tools to support implementation of deployment processes • technical documentation and installation manuals • organisational guidelines • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of underpinning knowledge and skills • direct observation of candidate performing the tasks required to successfully implement automated deployment processes • documentation produced in a small project environment that reflects the understanding of client and technical skills required.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally

© Commonwealth of Australia, 2025 Future Skills Organisation

	appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• external organisations • individuals • internal departments • internal employees.
Hardware may include:	• networks • network interface card (NIC) • personal computers • servers • workstations.
Deployment software may include:	• Acronis • Altiris • Ghost • remote installation services (RIS) and wireless distribution system (WDS) • Windows Server tools.
Vendors may include:	• Adobe • Apple • Citrix • Linux or Unix • Microsoft • Novell • open source.

© Commonwealth of Australia, 2025 Future Skills Organisation

Operating system may include:	• Linux • Mac • Unix • Windows.
Software packages may include:	• office applications • utilities.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK412A Create network documentation

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to determine network requirements, and produce and evaluate appropriate network documentation.

Application of the Unit

This unit applies to the development of appropriate network documentation and is relevant to job roles, such as network administrator, network technician and network support.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Determine network documentation requirements	1.1 Consult with ***appropriate personnel*** 1.2 Identify network documentation standards 1.3 Define ***network configuration*** 1.4 Develop ***naming standards*** and ***labelling schemes*** 1.5 Develop ***network addressing scheme*** and verify, using ***calculations***
2. Design network diagrams and checklists	2.1 Identify network ***software mapping tools*** 2.2 Use network software mapping tools to design ***network diagrams*** 2.3 Develop ***plans and checklists*** 2.4 Develop ***manuals***
3. Produce network documentation	3.1 Validate documentation structure with appropriate personnel 3.2 Produce network diagrams 3.3 Produce network plans and checklists 3.4 Produce procedure and policy manuals 3.5 Prepare documentation for publication
4. Complete network documentation	4.1 Check network documentation with appropriate personnel 4.2 Select appropriate ***media*** 4.3 Publish network documentation 4.4 Record and store essential network documentation 4.5 Notify appropriate personnel of the completed network documentation

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business-related matters
- literacy skills to develop network documentation maintain records in required formats
- numeracy skills to interpret technical data
- planning and organisational skills to plan, prioritise and monitor own work
- research skills to gain and maintain current industry technical knowledge
- technical skills to:
  - apply network design methodologies
  - determine organisational requirements
  - identify the technical requirements, constraints and manageability issues for a given organisational network
  - use appropriate software tools.

Required knowledge

- open systems interconnect (OSI) layered communication model
- overview knowledge of network requirements related to:
  - applications
  - life cycles
  - manageability
  - quality of service
- network design concepts related to:
  - financial constraints
  - network topologies
  - organisation requirements
  - physical constraints
  - security issues.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • determine client requirements • design network documentation according to standards • produce network documentation according to design specifications.
Context of and specific resources for assessment	Assessment must ensure access to: • relevant network documentation • legislation and standards documentation • industry codes of practice • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate developing and producing network documentation • review of documents that detail design and development • verbal or written questioning to assess required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Appropriate personnel may include:	• customer • manager • network manager • supervisor.
Network configuration may include:	• file systems • hardware • protocols • servers • users • wired • wireless • workstations.
Naming standards may include:	• abbreviations • consistency • generated • geography • host names • legal and special characters • location • name length • parse • platform • theme • usage type.
Labelling schemes may include:	• cabling • hardware.
Network addressing scheme may include:	• dynamic • static • subnet.
Calculations may include binary:	• conversion • division • multiplication

© Commonwealth of Australia, 2025 Future Skills Organisation

	• number system • subtraction.
Software mapping tools may include:	• commercial • open source • vendor.
Network diagrams may include:	• logical • network • physical • structure • topology.
Plans and checklists may include:	• installation • network plans • OSI reference • patches • pre-installation • test plans • updates.
Manuals may include:	• forms • hardware • maintenance • policy • procedure • security • servicing • technical • user.
Media may include:	• document • online • paper • web page.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK414A Create a common gateway interface script

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to define and produce common gateway interface (CGI) script and install that script on a server.

Application of the Unit

This unit applies to individuals in the network or web development area who are required to use CGI scripting as a common means of interacting with websites, providing security access to directories and databases.

Internet access to server CGI scripts provides a powerful means to control a wide variety of operations on the server.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Define specification for CGI script	1.1 Determine the functionality of the CGI ***form***
	1.2 Define the functionality of the CGI script
	1.3 Choose the appropriate ***language*** in which to write the CGI script
	1.4 Determine ***server requirements***
2. Create CGI form and write script	2.1 Produce a hypertext markup language (HTML) web document that uses the form elements required by the ***CGI script specification*** and includes the uniform resource locator (URL) for the CGI script
	2.2 Write the CGI script to function as required by the CGI script specification
3. Test CGI script	3.1 Configure the ***server***, if required, that will host the CGI script
	3.2 Upload the CGI script to the server
	3.3 Run the CGI form and assess its output
	3.4 Reiterate until the specification for the CGI script is met

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business-related matters

© Commonwealth of Australia, 2025 Future Skills Organisation

- literacy skills to write network documentation in required formats and maintain records
- numeracy skills to interpret technical data
- planning and organisational skills to plan, prioritise and monitor own work
- research skills to gain and maintain current industry technical knowledge
- technical skills to:
  - interpret and write HTML
  - use basic operating system commands
  - use file transfer protocol (FTP) clients.

Required knowledge

- detailed knowledge of:
  - a scripting language
  - CGI 1.1/1.2 specifications
  - security issues surrounding CGI
  - web servers
- overview knowledge of:
  - Copyleft and Free Software Foundation
  - special features relating to copyright and intellectual property.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • review the requirements • produce CGI forms and scripts to meet the requirements • upload scripts to a server • test the script, and rework until requirements is met.
Context of and specific resources for assessment	Assessment must ensure access to: • web servers • ebusiness website • FTP or file transfer client software • server access

© Commonwealth of Australia, 2025 Future Skills Organisation

	• appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of:
	  • scripting language
	  • security issues surrounding CGI
	• evaluation of candidate's CGI form
	• review of candidate's CGI script.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Form may include:	• hidden form tags • on or off flags • scrollable text box • selection lists • single selection buttons • submit and reset • text box.

© Commonwealth of Australia, 2025 Future Skills Organisation

Language for CGI may include:	• AppleScript • C or C++ • Perl • Python • shell script • Visual Basic.
Server requirements may include:	• ability to FTP documents to a server • remote desktop • secure shell access • Telnet to a server or Telnet-only access on another server • VPN.
CGI script specifications may include:	• CGI/1.1 specification • CGI/1.2 specification.
Server may include:	• Apache HTTP server • BEA Weblogic servers • email servers • file and print servers • FTP servers • IBM VisualAge and WebSphere • iPlanet-Enterprise • Lotus Domino • Microsoft-Internet-Information-Server • NetDynamics • Netscape Enterprise Server, Netscape-FastTrack, Netscape-Commerce • proxy servers • Sun Microsystems iPlanet Web Server • Sun Microsystems Java Web Server.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK416A Build security into virtual private networks

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to build security into a virtual private network (VPN).

Application of the Unit

This unit applies to networking staff who are required to ensure that VPNs contain required security.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement.*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Configure router to provide for network security monitoring and management	1.1 Create and apply audit rules consistent with ***policies, standards, protocols and management systems***
	1.2 Configure router to provide appropriate level of asset security and monitoring of security consistent with ***commercial and business requirements***
	1.3 Monitor and manage system to assess the level of security and attempts to breach security of ***framework components***
	1.4 Employ appropriate ***hardware*** and ***software*** to monitor and address security issues and provide VPN solutions
2. Secure a site-to-site VPN	2.1 Configure internet key exchange (IKE) and internet protocol security (IPSec)
	2.2 Configure site-to-site IPSec VPN using pre-shared keys
	2.3 Configure site-to-site IPSec VPN using digital certificates
3. Secure a remote access VPN	3.1 Configure a VPN server
	3.2 Install and administer a router-management console
	3.3 Develop documentation on current ***system*** settings and framework components and file securely for future reference

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to undertake a network security risk assessment
- initiative and enterprise skills to develop enterprise policies, strategies and procedures
- literacy skills to:
  - interpret audit rules
  - produce security documentation

© Commonwealth of Australia, 2025 Future Skills Organisation

- numeracy skills to undertake a cost-benefit comparison
- technical skills to:
  - implement LAN, WLAN, VPN and WAN solutions
  - implement security strategies and configure network security software and hardware.

Required knowledge

- characteristics of:
  - auditing and penetration testing techniques
  - configuration of routers and switches
  - security protocols, standards and data encryption
- detailed knowledge of:
  - authentication issues
  - network protocols and operating systems
  - processes and techniques related to security perimeters and their functions
  - security threats, including eavesdropping, data interception, data corruption and data falsification
  - transmission control protocol or internet protocol (TCP/IP) protocols and applications
  - VPNs features, issues and functions
- overview knowledge of:
  - audit and intrusion detection systems
  - LAN, WLAN and WAN
  - organisational issues surrounding security cryptography
  - screened subnets
  - virus detection software.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop basic security functionality for either VPN, LANs, WANs or WLANs • implement such security • maintain such security

© Commonwealth of Australia, 2025 Future Skills Organisation

	• document the security implemented and its maintenance.
Context of and specific resources for assessment	Assessment must ensure access to: • network technical requirements • network infrastructure, including servers and security hardware and software • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of:
	  • VPNs
	  • WANs
	  • security protocols
	• review of candidate's documentation of installed security and its maintenance
	• evaluation of candidate's security implementation on a VPN.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

Policies may include:	• audit systems • incident response procedures • network intrusion detection systems.

Standards, protocols and management systems may include:	• AAA security
	• access control lists, context-based control lists
	• data over cable service interface specification
	• domain name system security extensions
	• generic routing encapsulation
	• IEEE 802.11 Protocol standard for secure wireless local area network products
	• internet group management protocol
	• IP security protocol
	• network port addresses translation (NAT or PAT)
	• point-to-point network tunnelling protocol
	• secure:
	  • electronic transactions
	  • multi-purpose internet mail extensions
	  • shell
	  • socket layer and transport layer security.

Commercial and business requirements may include:	• availability • backup • confidentiality • firewalls • hacking prevention • integrity • password logons.
Framework components may include:	• deployment of public key infrastructure (PKI), CA and key management services • firewall technologies • multi-platform directory services supporting relevant standards • operating system capable of providing access control, audit services • support for generalised security services interfaces, personnel security • trusted hardware and operating system at selective desktops, servers, network points and mainframes.
Hardware may include:	• desktop and laptop computers, networked and stand-alone • firewall devices • network-monitoring appliances • routers • switches

© Commonwealth of Australia, 2025 Future Skills Organisation

	• wired and wireless networks.
Software may include:	• audit • encryption modules • operating system • packaged software but can be supplied from many varying vendors and can include security • virus checking.
System may include:	• applications • databases • external service providers, such as internet service providers (ISPs) and digital certification suppliers • gateways • operating system • servers.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK417A Build an enterprise wireless network

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to build an enterprise, community or mesh wireless network within and outside buildings.

Application of the Unit

This unit applies to individuals working in senior design roles in the networking area who are required to develop complex wireless networks for organisations.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement.*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Confirm client requirements and network equipment required	1.1 Identify and clarify organisational ***requirements*** of the client 1.2 Evaluate client requirements along with business needs in order to translate into technical requirements 1.3 Review existing network design ***documentation*** to ensure it is authorised, current and complete 1.4 Identify ***network topology*** 1.5 Identify the ***components*** required to be installed to meet the technical requirements 1.6 Contact vendors and service suppliers to obtain specifications and availability of identified components 1.7 Ensure preliminary work is completed within the required timeframe
2. Prepare for installation	2.1 Ensure client and ***users*** are aware of date and time of installation 2.2 Gather, prepare and check installation and safety equipment 2.3 Assess on-site safety arrangements for installers and users
3. Select, install and configure access points and other wireless devices	3.1 Select appropriate ***hardware*** based on identified components 3.2 Install and configure hardware to provide wireless access to network 3.3 Ensure connections are secured against intrusion or data access by unauthorised persons, are safe for users, and are protected from the environment 3.4 Configure ***security***, monitoring, logging and quality of service features consistent with ***standards*** and protocols 3.5 Ensure test equipment is calibrated 3.6 Test wireless network systems performance and verify that it meets enterprise requirements and is consistent with standards and protocols

© Commonwealth of Australia, 2025 Future Skills Organisation

4. Select, install and configure antennas	4.1 Select appropriate antennas based on design plan 4.2 Safely install and configure antennas to provide wireless access to network 4.3 Measure and assess signal strength within and outside building 4.4 Resolve and report radio frequency interference issues
5. Secure wireless network	5.1 Identify possible security threats to ***assets*** 5.2 Configure client server and helper security devices 5.3 Configure associations and filters
6. Train users	6.1 Provide training for users to establish and manage network connections 6.2 Resolve pairing and log-on difficulties for users 6.3 Inform users of wireless network etiquette and traffic capacity issues 6.4 Advise users of help-desk contact details
7. Monitor and administer wireless network	7.1 Monitor wireless network performance using diagnostic ***tools***, including appropriate software 7.2 Debug networking issues to maintain trouble-free wireless connection 7.3 Document current settings and store securely consistent with ***commercial and business requirements***
8. Finalise build process	8.1 Review network for performance issues, planned maintenance or upgrade requirements 8.2 Report to client with network documentation and recommendations for performance issues 8.3 File documentation according to organisational outlines

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to design, develop and implement various wireless network solutions

© Commonwealth of Australia, 2025 Future Skills Organisation

- communication skills to:
  - communicate with users
  - liaise with vendors and obtain prices and product details
  - train users
- numeracy skills to prepare a cost-benefit analysis
- planning and organisational skills to plan and manage project according to time lines and cost schedules
- problem-solving skills to troubleshoot and debug
- technical skills to:
  - implement local area networks (LANs)
  - implement wireless networking strategies and configure wireless network software and hardware.

Required knowledge

- detailed knowledge of:
  - audit and intrusion detection systems
  - auditing and penetration testing techniques
  - bandwidth and quality of service
  - factors affecting signal quality
  - layer 2 and layer 3 design issues
  - small office home office (SOHO) and enterprise LANs
  - transmission control protocols or internet protocols (TCPs/IPs) and applications
  - wireless security strategies
  - wireless topologies
  - wireless local area network (WLAN) and wireless area network (WAN) solutions
- overview knowledge of:
  - features of security threats
  - network protocols and operating systems
  - security protocols, standards and data encryption.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for	Evidence of the ability to:

© Commonwealth of Australia, 2025 Future Skills Organisation

assessment and evidence required to demonstrate competency in this unit	• develop and maintain wireless networks.
Context of and specific resources for assessment	Assessment must ensure access to: • network technical requirements • network infrastructure, including wireless hardware and software • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: verbal or written questioning to assess candidate's knowledge of: • wireless topologies • wireless security networks • wireless security strategies • review of candidate's client report and supporting documentation with recommendations.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Requirements may include:	• how and what the organisation wants in regard to work environment • preventative maintenance and diagnostic policy • problem solution processes • roles and technical responsibilities in network management • vendor and product service level support agreements.
Client may include:	• external organisations • individuals • internal departments • internal employees.
Documentation may follow:	• audit trails • client training • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • maintaining equipment inventory • naming standards • project-management templates and report writing • satisfaction reports • version control.
Network topology may include:	• cabled, connected or single zone • carrier links • free space optics • indoor and outdoor installations • local multi-point distribution service (LMDS) • multi-channel multi-point distribution service (MMDS) • multiple zone • satellite connections • stand-alone or multi-zone wireless networks.

Components may include:	• hardware, such as:
	  • antennas and other connectivity devices
	  • digital subscriber line (DSL) modems
	  • mobile equipment

© Commonwealth of Australia, 2025 Future Skills Organisation

	• modem wireless access points • networks • personal computers • power controllers • remote sites • servers • uninterruptible power supplies (UPS) • workstations • cabling, such as: • category 5e, 6 and 7 • coaxial • fibre optic • software, such as: • commercial applications • customised • in-house • organisation specific • packaged • wireless access.
Users may include:	• community members • department • department within the organisation • third party.
Hardware may include:	• access points • bridges • other wireless devices.
Security may include:	• authentication, authorisation and accounting (AAA) • diameter • IP security (IPSec) • lightweight extensible authentication protocol (LEAP) • privacy key management (PKM) • secure sockets layer (SSL) • smart cards • tokens • wi-fi protected access (WPA) • wired equivalent privacy (WEP).

© Commonwealth of Australia, 2025 Future Skills Organisation

Standards may include:	• International Organization for Standardization (ISO), International Electrotechnical Commission (IEC), Institute of Electrical and Electronics Engineers (IEEE), Internet Engineering Task Force (IETF), International Telecommunication Union (ITU) and Australian Standards (AS) • organisational • project.
Assets may include:	• data and information • intellectual property • physical assets.
Tools may include:	• cable testing • carrier-connection tests • data and voice-integration measurements • equipment testing • frequency and spectrum analysers • network performance software • policing and shaping tools • power meters • radiation meter.
Commercial and business requirements may include:	• availability • backup and recovery of data • confidentiality • firewalls • hacking prevention • integrity • password logons • remote access to internal network.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK418A Implement backbone technologies in a local area network

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to implement core layer (backbone) connectivity in a local area network (LAN) for applications between floors in a multi-storey building or between separate buildings.

This unit focuses on configuring high-speed (high-bandwidth) channels between high-end switches.

Application of the Unit

This unit applies to individuals in the network area who are required to enable backbone connectivity in a LAN.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Define network	1.1 Identify current and future ***network*** requirements based on the organisation's business and ***technical requirements*** 1.2 Design an appropriate structure to meet ***client*** requirements, such as video, audio or data application services 1.3 Design a network addressing system with subnet and host identities (IP addressing) and virtual LANs (VLANs) 1.4 Identify and document resource requirements according to network design
2. Install and configure network backbone	2.1 Install and configure switches and routers according to network requirements and ***resources*** 2.2 Install ***network protocol suites*** using configurations on switch uplink ports as required by network design specifications 2.3 Configure hosts and workstations for network access
3. Test and validate network	3.1 Test network connectivity to ensure operation parameters are met between hosts on segments or VLANs 3.2 Make adjustments as required 3.3 Validate and document network performance

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- analytical skills to analyse organisation's current technical environment and requirements
- communication skills to liaise with clients and team members
- literacy skills to write technical reports
- numeracy skills to subnet a network
- planning and organisational skills to prioritise tasks and contingency arrangements
- technical skills to:
  - configure trunking on uplink ports
  - implement optic fibre and ether-channel technologies
  - install ethernet switches with gigabit and 10 gigabit interfaces
  - undertake basic cabling.

Required knowledge

- current and emerging industry practice associated with:
  - bandwidth limitations, measuring and testing
  - ethernet switch functions (frame switching: store-and-forward, fast-forward, fragment-free)
  - ethernet switches
  - internetworking protocol suites, such as TCP/IP, IPX, DECnet, AppleTalk and IPv6
  - LAN and WAN network topologies (three-layer LAN hierarchy: core distribution and access)
  - MAC addresses, network layer protocols
  - NICs (fast ethernet, gigabit and 10-gigabit ethernet)
  - OSI layer modelling
  - routers
  - virtual LANs.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate	Evidence of the ability to: • build an ATM LAN that provides the required services and communication standards • document resource requirements and network performance.

© Commonwealth of Australia, 2025 Future Skills Organisation

competency in this unit	
Context of and specific resources for assessment	Assessment must ensure access to: • local area network infrastructure • switches with various interfaces: fast-, one-, 10 gigabit-ethernet • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of:
	  • network hardware
	  • LAN and WAN topologies
	  • VLANs
	  • TCP/IP
	  • internet protocol version 4 (IPv4)
	  • internet protocol version 6 (IPv6)
	• review of completed documentation of a network's performance
	• direct observation of candidate installing and testing backbone technology.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Network may include:	• data • large and small LANs • private lines • use of the PSTN for dial-up modems only • voice • VPNs.
Technical requirements may relate to:	• application • business • database • network • people in the organisation • platform • system.
Client may include:	• external organisations • individuals • internal departments • internal employees.
Network protocol suites may include:	• IPv6 (layer 3 protocol only) • TCP/IP (IPX/SPX, DECnet, AppleTalk are legacy protocols).

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK419A Identify and use current virtualisation technologies

Modification History

Release	Comments
Release 1	This version first released with ICA11 Information and Communications Technology Version 2.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use virtualisation technology in line with identified industry standards.

The unit emphasises the importance of constantly reviewing and demonstrating work processes, skills and techniques to ensure that the quality of the entire business process is maintained at the highest level possible through the appropriate application of virtualisation technology.

Application of the Unit

This unit applies to those engaged in ongoing review and research in order to identify and apply industry technologies or techniques to improve aspects of the enterprise's activities.

Licensing/Regulatory Information

Users should confirm licensing, legislative, regulatory, or certification requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

ELEMENTS	PERFORMANCE CRITERIA

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Prepare to use virtualisation technologies	1.1. Identify enterprise requirements and determine the need for ***desktop virtualisation software***
	1.2. Identify ***virtualisation vendors*** and the different types of ***virtualisation technology*** they offer
	1.3. Identify, review and select desktop virtualisation software where appropriate
	1.4. Select suitable desktop virtualisation software
2. Use desktop virtualisation software to assist in solving organisational problems	2.1. Test desktop virtualisation software
	2.2. Use features and functions of desktop virtualisation software in an organisational context, in line with ***environmental factors***
	2.3. Demonstrate depth of knowledge of the desktop virtualisation technologies to an accepted industry standard
	2.4. Access and use ***sources of information*** relating to the desktop virtualisation technology
3. Evaluate desktop virtualisation software performance	3.1. Review the effect of desktop virtualisation software on the benefits to the enterprise
	3.2. Seek ***feedback*** from users, where appropriate, and update desktop

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills
research skills to locate appropriate sources of information regarding virtualisation

© Commonwealth of Australia, 2025 Future Skills Organisation

technology
• communication skills to:
  • communicate with peers and supervisors
  • seek assistance and expert advice
  • seek feedback from users
• literacy skills to interpret technical documentation, equipment manuals and specifications
• safety awareness skills to work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
• technical skills to:
  • identify features of virtualisation technology
  • test and evaluate virtualisation technology
  • use virtualisation technology

Required knowledge
• current technology trends and directions in information and communications technology (ICT), specifically in the major industry technology standards used in virtualisation technology • vendor product directions relating to virtualisation technology • current industry hardware and software products and their general features, capabilities and application • information-gathering techniques • environmental and sustainability policies of own workplace

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify current new and emerging virtualisation technology • identify and use features and functions of industry-specific virtualisation technologies.
Context of and specific resources for assessment	Assessment must ensure access to: • site where industry-specific technologies may be used

© Commonwealth of Australia, 2025 Future Skills Organisation

	• industry-specific technologies currently used in industry • documents detailing work health and safety (WHS) standards, environmental guidelines and enterprise requirements • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of features and functions of industry-specific virtualisation technologies • direct observation of candidate using industry-specific technologies • simulation of industry-specific uses of the industry specific technologies.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating *conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.*

Desktop virtualisation software may include:	• Elasticity • Hyper V (Microsoft) • KVM • measured usage • Microsoft Virtual PC

© Commonwealth of Australia, 2025 Future Skills Organisation

	• multi-tenancy • Parallels Desktop for Mac • resilient computing • Sun Virtual Box • VMware fusion (Mac) • VMware player • VMware workstation.
Virtualisation vendors may include:	• Citrix • Microsoft • Oracle • Parallels • Proxmox • Red Hat • Virtual Bridges • VMware.
Virtualisation technology may include:	• application virtualisation • data virtualisation • desktop virtualisation • network virtualisation • server virtualisation • storage virtualisation.
Environmental factors may include:	• correct disposal by an authorised body of redundant hardware • energy efficient consumption • green technology • recycling.
Sources of information may include:	• appliance software and technical connections guidance and other outputs supplied by vendors • documents • test pages • web pages.
Feedback may include:	• interviews • meetings.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK501A Plan, implement and test enterprise communication solutions

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manage deployment and administration of an enterprise messaging environment and enterprise-wide content management and collaboration tools.

Application of the Unit

This unit applies to an information technology (IT) professional who configures and deploys software to supply mail, collaboration and messaging services in an enterprise environment.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Plan, implement and test an enterprise email solution	1.1 Plan implementation to provide mail services to meet business requirements 1.2 ***Prepare existing network*** for ***mail server*** installation 1.3 Install and configure mail servers 1.4 Configure users, mailboxes, address lists, distribution lists and user constraints 1.5 Configure ***mail-client access*** 1.6 Configure ***message integrity*** and anti-spam, antivirus and anti-phishing measures 1.7 Configure message transport to deliver mail within and outside enterprise 1.8 Monitor ***mail-system performance*** 1.9 Implement ***measures to provide high availability and data recovery*** 1.10 Test functionality
2. Plan, implement and test remote access to email	2.1 Plan ***remote access*** to mail 2.2 Configure mail system to provide remote access 2.3 Test remote mail access
3. Plan, implement and test an enterprise web portal or content management solution	3.1 Plan namespace and server roles and deploy ***web portal or content-management software*** 3.2 Configure access and ***security*** 3.3 Configure ***network infrastructure*** 3.4 Manage design and customisation of portal and related services 3.5 Monitor performance and logs 3.6 Implement measures to provide high availability and disaster recovery

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.7 Test functionality
4. Plan, implement and test business collaboration tools	4.1 Plan namespace and server roles and deploy ***business collaboration software***
	4.2 Configure access and security
	4.3 Configure network infrastructure
	4.4 Customise to meet business requirements
	4.5 Monitor performance and logs
	4.6 Implement measures to provide high availability and disaster recovery
	4.7 Test functionality

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business-related matters
- literacy skills to:
  - interpret technical documentation
  - write reports in required formats
- numeracy skills to:
  - take test measurements
  - interpret results
  - evaluate performance and interoperability of communication services
- planning and organisational skills to plan, design and implement a communications solution
- problem-solving skills in a predictable range of network and software compatibility problems
- research skills to interrogate vendor databases and websites
- technical skills to install and configure multiple server applications in a complex network environment.

Required knowledge

- detailed knowledge of:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - mail server application
  - some business collaboration tools
  - web portal or content management software
- overview knowledge of:
  - administering database servers to support portal applications
  - backup and restoration of data
  - firewall configuration
  - network load-balancing for applications
  - network server or directory administration
  - networking infrastructure
  - security and authentication practices
  - web server administration.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design and implement an enterprise mail system • design and implement an enterprise web portal or content management system • design and implement business collaboration tools • configure network, servers and application software to provide optimal performance, meet security requirements and avoid known conflicts • configure applications to meet customisation requirements • monitor and test the performance of aspects of the solution.
Context of and specific resources for assessment	Assessment must ensure access to: • site where server applications can be installed • networked servers • workstations • switch • wide area network (WAN) service point of presence • client requirements • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment

© Commonwealth of Australia, 2025 Future Skills Organisation

	modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of design report for an enterprise communication solution • direct observation of the candidate installing and configuring an enterprise communication solution • verbal or written questioning of required skills and knowledge • evaluation of report that outlines testing procedures, test results and changes made as a result of testing • review of report that outlines the design process, including challenges faced and how these were addressed • evaluation of design and implementation of the system in terms of performance and suitability for business needs.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Prepare existing network may include:	• checking for incompatibilities with existing systems • configuring domain names system (DNS) to support mail

© Commonwealth of Australia, 2025 Future Skills Organisation

	server • installing any prerequisites • reconfiguring other network services to support mail • removing unsupported legacy components • updating server operating systems to latest version • using vendor tools to check network for readiness to install mail server.
Mail server may include:	• Axigen Mail Server • Linux or Unix Sendmail • Microsoft Exchange • Open Xchange Server • Postfix.
Mail-client access may include:	• authentication • certificates • internet message access protocol (IMAP) • integration with other services, such as file sharing • mobile devices • post office protocol (POP).
Message integrity may include:	• certificates • encryption • Information Rights Management • secure or multipurpose internet mail extensions (SMIME or MIME) • transport layer security (TLS).

Mail-system performance may include:	• connectivity:
	  • mail clients to server
	  • simple mail transfer protocol (SMTP) client to server
	  • SMTP server to server
	• databases
	• mail flow.

Measures to provide high availability and data recovery may include:	• automatic server failover • backups of configuration • backups of databases • clustering • deleted item retention • replicating databases.
Remote access may include:	• web-based mail client • virtual private network (VPN) • mobile phone or other device.
Web portal or content-management	• IBM websphere • JBoss

© Commonwealth of Australia, 2025 Future Skills Organisation

software may include:	• Microsoft SharePoint • Moodle or Equella • Oracle.
Security may include:	• access policies • application authentication • database permissions • information rights management • roles and site permissions.
Network infrastructure may include:	• firewall configuration • name resolution • network load balancing.
Business collaboration software may include:	• Cisco collaboration tools • Domino or Lotus • Groupwise (Novell) • Microsoft SharePoint • Moodle or Equella • wiki engines.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK502A Implement secure encryption technologies

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to ensure secure encryption is selected, implemented and monitored in an information and communications technology (ICT) network, either locally or both.

Application of the Unit

This unit applies to information technology (IT) professionals who may select, implement and monitor a secure encryption environment in any size enterprise. The encryption system may include local file encryption and encryption across computer networks.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine encryption methods	1.1 Analyse enterprise data ***security*** requirements 1.2 Create a new or review an existing ***security plan*** to determine appropriate ***encryption*** methods 1.3 Review a range of ***encryption technologies*** and rank the most appropriate options 1.4 Assess the costs associated with each encryption option 1.5 Document encryption options and costs and forward to ***appropriate person*** for decision
2. Implement encryption	2.1 Apply encryption technologies to the enterprise system 2.2 Analyse effect of encryption technologies on ***user*** roles and responsibilities 2.3 Inform user of new encryption technologies and effect it has on their responsibilities
3. Monitor encryption	3.1 Analyse implementation of the encryption technologies, confirming function and performance 3.2 Review help-desk records for problems concerning implementation and take appropriate action 3.3 Review system logs for encryption issues and compromises 3.4 Document encryption issues and compromises, notifying appropriate person

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- analytical skills to:
  - analyse enterprise data security requirements and help-desk records
  - monitor and assess encryption systems
  - review a range of encryption software and tools
  - review security plan and conduct a detailed survey, including effect on user
  - review system security logs for breaches
- communication skills to:
  - convey and clarify complex information
  - liaise with users and clients
- literacy skills to:
  - create and interpret a data security analysis report
  - interpret an enterprise security plan
  - interpret and prepare technical documentation that includes encryption options and costs
- numeracy skills to make estimates and comparison of costs (cost-benefit analysis)
- planning and organisational skills to analyse effect on user and plan for organisational change
- problem-solving skills to troubleshoot, debug and correct connectivity and security issues
- research skills to:
  - assess and compare encryption options
  - determine data security threats, risks and countermeasures
- technical skills to:
  - develop enterprise policy and procedures
  - implement best practice encryption systems
  - implement local area network (LAN) or wireless local area network (WLAN), virtual private network (VPN) or wide area network (WAN) solutions
  - monitor encryption system for issues and compromises
  - test and prove function of chosen encryption system
  - undertake a network security risk assessment.

Required knowledge

- certificate-related infrastructure (certificate authorities, registration authorities, repository services)
- common asymmetric key algorithms and their usage
- common symmetric key algorithms and their usage, such as:
  - advanced encryption standard (AES)
  - data encryption standard (DES)
  - triple data encryption algorithm (triple DES)
  - Blowfish

© Commonwealth of Australia, 2025 Future Skills Organisation

- encryption strength
- encryption types (public key, secret key, hash key)
- functions and features of:
  - access control permissions
  - digital signatures
  - symmetric encryption, asymmetric encryption and one-way encryption
  - timestamps
- one-way message digests, such as message digest algorithm 5 (MD5) and secure hash algorithm (SHA)
- public key infrastructure (PKI), pretty good privacy (PGP) and GNU Privacy Guard (GnuPG)
- replay security
- sources of security threats, including eavesdropping, data interception, data corruption, data falsification and authentication issues
- transmission control protocol or internet protocol (TCP/IP) protocols and applications
- security problems and challenges that arise from organisational issues
- wired equivalent privacy (WEP), wi-fi protected access (WPA) and wi-fi protected access 2 (WPA2).

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • analyse enterprise data security requirements • create new or review existing security plan to determine the appropriate encryption methods • rank and document appropriate encryption methods • implement encryption systems informing users of any affects • monitor and document encryption issues and compromises notifying appropriate person.
Context of and specific resources for assessment	Assessment must ensure access to: • site where encryption installation may be conducted • live network • servers • encryption software • encryption tools

© Commonwealth of Australia, 2025 Future Skills Organisation

	• appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of security analysis and planning report that outlines enterprise security requirements and security plan, including challenges faced and how these were addressed • evaluation of documentation demonstrating review of suitable encryption systems, ranking the most appropriate • verbal or written questioning to assess candidate's knowledge of encryption types, algorithms, functions and features • direct observation of candidate performing tasks required to successfully implement and monitor a chosen encryption system.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Security may include:	• access policies

© Commonwealth of Australia, 2025 Future Skills Organisation

	• data protection requirements:
	  • encryption
	  • permissions
	  • secure remote access
	  • tamper identification
	  • user authentication and control
	• information rights management
	• roles and site permissions.

Security plan may include:	• enterprise processes • enterprise requirements • enterprise security policies • enterprise work practices and procedures • security analysis report.
Encryption may include:	• asymmetric public-key ciphers • digital signatures • PGP • PKI • PKZIP • Rivest, Shamir and Adelman (RSA) • secure shell (SSH) • secure socket layer (SSL) • symmetric ciphers.
Encryption technologies may include:	• Blowfish Advanced CS • Cryptainer LE • GnuPG • inbuilt operating system file encryption systems • new PKI • open VPN • PGP.
Appropriate person may include:	• authorised business representative • client • supervisor.
User may include:	• department within the enterprise • person within an enterprise department • third party.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK503A Install and maintain valid authentication processes

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design, develop, install and maintain authentication processes. Security of information and personnel is of increasing importance to organisations. Authentication is a control or protective measure put into place by an organisation to reduce the vulnerability of the system.

Authentication controls include passwords, personal identification numbers (PINs), smart cards, biometric devices and other Authentication protocols.

Application of the Unit

This unit applies to middle managers, such as information security managers, network engineers or security analysts, responsible for implementing and monitoring the organisational security management system.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine authentication requirements	1.1 Determine user and enterprise security requirements with reference to enterprise security plan 1.2 Identify and analyse authentication options according to user and enterprise requirements 1.3 Select the most appropriate authentication and authorisation processes
2. Configure authentication software or tools	2.1 Create an authentication realm and reuse as required to protect different areas of ***server*** 2.2 Add ***users*** and authorisation rules to new realm according to business needs 2.3 Describe user attributes and user attribute set-up 2.4 Set up an authentication filter and authorisation parameters on the appropriate server according to business requirements
3. Apply authentication methods	3.1 Develop or obtain authentication ***protocols*** as required 3.2 Develop and distribute related ***methods*** to users according to business need 3.3 Brief user on authentication system and their responsibilities according to enterprise security plan 3.4 Apply authentication system to ***network*** and user according to system product requirements 3.5 Record and store permission and configuration information in a secure central location
4. Monitor authentication system	4.1 Review the authentication system according to user and enterprise security and quality of service requirements 4.2 Ensure ongoing security monitoring using incident

© Commonwealth of Australia, 2025 Future Skills Organisation

	management and reporting processes, according to enterprise security plan 4.3 Adjust authentication system if required

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse network information
  - plan approaches to technical problems or management requirements
- communication skills to:
  - convey and clarify complex information
  - liaise with clients
- literacy skills to interpret and prepare technical documentation, including recording authentication events related to network security design and incident response
- planning skills to plan control methods for managing authentication processes
- problem-solving skills to:
  - apply solutions in complex networks, including systems processes
  - instigate rapid deployment of solutions to problems involving authentication failure and security incidents
- technical skills to apply best practice to systems authentication methodologies and technologies.

Required knowledge

- overview knowledge of:
  - problems and challenges dealing with organisational authentication issues
  - resource accounting through authentication
  - common virtual private network (VPN) issues, including quality of service (QoS) considerations, bandwidth, dynamic security environment
  - function and operation of VPN concepts
- authentication adaptors
- biometric authentication adaptors
- digital certificates, such as VeriSign, X.509, and SSL
- function and operation of authentication

© Commonwealth of Australia, 2025 Future Skills Organisation

- network authentication services, such as Kerberos and NT LAN Manager (NTLM)
- features of common password protocols, such as:
  - challenge handshake authentication protocol (CHAP)
  - challenge phrases
  - password authentication protocol (PAP)
  - remote authentication dial-in user service (RADIUS) authentication
- token cards.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design and deploy authentications solutions to the business technology environment and business needs • configure authentication software or tools • monitor and test authentication process after implementation • ensure authentication solutions are current.
Context of and specific resources for assessment	Assessment must ensure access to: • site or prototype where network authentication may be implemented and managed • network support tools currently used in industry • organisational security policies related to authentication, manufacturer recommendations and current authentication standards, including biometric authentication adaptors • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of:
	  • current and emerging authentication processes
	  • features and limitations in vendor solutions, operating systems and software
	• direct observation of candidate demonstrating management of

© Commonwealth of Australia, 2025 Future Skills Organisation

	authentication processes in a range of complex systems • review of documentation prepared by candidate to manage authentication processes.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Server may include:	• application or web • building environmental assessment (BEA) Weblogic • Certificate authority • email • file and print • firewall • file transfer protocol (FTP) • IAS - RADIUS • IBM VisualAge and WebSphere • Microsoft domain controllers • Novell Directory Services (NDS) • proxy or cache • routing and remote access, e.g. using virtual private network (RRAS-VPN).
Users may include:	• external client • intranet

© Commonwealth of Australia, 2025 Future Skills Organisation

	• remote.
Protocols may include:	• CHAP and PAP • Kerberos • lightweight directory access protocol (LDAP) • network level authentication • NTLM • open LDAP • simple and protected GSSAPI negotiation mechanism (SPNEGO) • security support provider interface (SSPI).
Methods may include:	• certificates • challenge response • face, voice and unique bio-electric signals • fingerprint • ID card • other biometric identifier • pass phrase • password • PIN • retinal pattern • security token • signature • software token.
Network may include:	• data • internet • large and small local area networks (LANs) • national wide area networks (WANs) • private lines • use of the public switched telephone network (PSTN) for dial-up modems only • voice • VPNs.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK504A Design and implement an integrated server solution

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to carry out the design and implementation of an integrated server solution to enable multiple operating system platforms to co-exist on the same network.

Application of the Unit

This unit applies to officers employed in network or systems engineering roles where they are required to support multiple operating systems in a complex computing environment of medium to large organisations. Officers may be required to:

- ensure multiple operating systems co-exist on the same network
- implement a network authentication model that allows users to login using the same user credentials
- provide a secure method of sharing files between operating system platforms.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Prepare for the design and installation of an integrated server solution	1.1 Consult with client and key ***stakeholders*** to identify ***server integration requirements*** 1.2 Prepare for work, according to site-specific safety requirements and enterprise OHS processes and procedures 1.3 Arrange access to site and advise client of deployment and potential down times 1.4 Consult appropriate personnel to ensure the task is coordinated effectively with others involved at the worksite
2. Plan and design integrated server solution	2.1 Research and review authentication methods available for integration of network ***operating systems*** 2.2 Select appropriate ***authentication methods and protocols*** 2.3 Research redundancy and replication requirements for selected authentication model 2.4 Produce the integrated server design, including authentication, file sharing and security
3. Install and configure the integrated server solution	3.1 Implement integrated authentication solution 3.2 Implement integrated ***file sharing*** solution 3.3 Configure workstations for integrated environment 3.4 Implement ***security*** for the integrated server environment
4. Test and reconfigure network servers	4.1 Test server for benchmarking against client specification and requirements according to test plan, and record outcomes 4.2 Analyse error report and make changes as required 4.3 Use troubleshooting tools and techniques to diagnose and correct integration problems

© Commonwealth of Australia, 2025 Future Skills Organisation

	4.4 Test required changes or additions 4.5 Validate changes or additions against specifications
5. Complete and document network design and installation	5.1 Make and document server configuration and operational changes 5.2 Complete client report and notification of server status 5.3 Clean up and restore worksite to client's satisfaction 5.4 Secure sign-off from appropriate person

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business-related matters
- literacy skills to:
  - interpret technical documentation
  - write reports in required formats
  - read and interpret enterprise procedures, manuals and specifications
- numeracy skills to:
  - take test measurements
  - interpret results
  - evaluate performance and interoperability of network
- planning and organisational skills to plan, prioritise and monitor own work
- problem-solving and contingency-management skills to adapt configuration procedures to requirements of network and reconfigure, depending on differing operational contingencies, risk situations and environments
- safety-awareness skills to:
  - apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
  - follow enterprise OHS procedures
  - work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- research skills to interrogate vendor databases and websites to find appropriate integration solutions
- technical skills to:
  - design an integrated server solution

© Commonwealth of Australia, 2025 Future Skills Organisation

- identify the technical requirements, constraints and manageability issues for given customer integration requirements
- implement an integrated server design
- select and use server and network diagnostics, test application software and hardware to suit integrated environment.

Required knowledge

- authentication methods and protocols, such as lightweight directory access protocol (LDAP) and Kerberos
- compatibility issues and resolution procedures
- current network operating systems (NOS)
- current server applications, compatibility issues and resolution procedures
- documentation required for networks
- error and event logging and reporting
- file and print management
- file system security
- high availability options for servers
- network file systems and shares
- network service configuration and security
- operating system help and support utilities
- performance monitoring tools and tuning options
- process or task management
- task scheduling utilities
- troubleshooting tools and techniques, including network diagnostic utilities
- user authentication and directory services.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • produce design documents to integrate multiple server operating systems for authentication, file sharing and security • install and configure the integrated solution, according to the produced design • monitor and test the solution

© Commonwealth of Australia, 2025 Future Skills Organisation

	• troubleshoot integration problems.

Context of and specific resources for assessment	Assessment must ensure access to:
	• site where server installation may be conducted
	• relevant server specifications:
	  • multiple operating system platforms
	  • cabling
	  • networked (LAN) computers
	  • server diagnostic software
	  • switch
	  • client requirements
	  • workstations
	• relevant regulatory documentation that affects installation activities
	• appropriate learning and assessment support when required.
	Where applicable, physical resources should include equipment modified for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of design report for an integrated server solution • direct observation of the candidate installing and configuring the integrated server solution • verbal or written questioning of required skills and knowledge • evaluation of design and implementation of system in terms of integrated functionality and suitability for business needs.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• external organisations • information and communications technology (ICT) company • individuals • internal departments • internal employees • service industry.
Stakeholders may include:	• development team • information technology (IT) manager or representative • project team • sponsor • user.
Server Integration requirements may refer to:	• automatic synchronisation of passwords • central or synchronised identity management system to store information about users • data availability for mobile devices • login with same user credentials across multiple platforms • password security across platforms • secure file sharing across multiple platforms • single sign-on.
Operating systems may include:	• Linux • Mac • mobile device • Unix • Windows Server.
Authentication methods and protocols may incorporate a combination of:	• enterprise single sign-on • Kerberos • LDAP • network basic input/output system (NetBIOS) • network information system (NIS) • Novell Directory Services (NDS) • pluggable authentic modules (PAM) • public key authentication and digital certificates • Red Hat Directory Services

© Commonwealth of Australia, 2025 Future Skills Organisation

	• server messages block or Samba • two-factor and multi-factor authentication • winbind • Windows Active Directory Services.
File sharing must be across multiple platforms and may include:	• distributed file systems • network file system (NFS) • server messages block (SMB) or Samba.
Security must be across multiple platforms and may include:	• authentication, authorisation and access control • directory server security • encryption • Kerberos security, such as pre-authentication and ticket validation • network share permissions • password security • secure socket layer (SSL) certificates • transport layer security (TLS).

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK505A Design, build and test a network server

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design, install and test a server in a complex network environment.

Application of the Unit

This unit applies to those employed in network or systems engineering roles, such as network engineers who are required to design and build network servers in a complex computing environment of medium to large organisations.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Plan and design network servers to meet business requirements	1.1 Consult with ***client*** and key ***stakeholders*** to identify requirements 1.2 Assess business problems, opportunities, scope, objectives and budget, confirming details with appropriate person 1.3 Analyse and document data migration requirements 1.4 Review requirements to identify ***network server specifications*** 1.5 Produce detailed documentation for the design and configuration of the network services, ***server applications***, ***security*** and ***redundancy*** 1.6 Prototype design and update documentation as necessary 1.7 Produce installation checklists as part of the quality assurance process 1.8 Develop the test plan to ensure that the system meets client requirements, performance standards and quality expectations 1.9 Obtain client sign-off for the design report
2. Prepare for network server installation	2.1 Prepare for work, according to site-specific safety requirements and enterprise OHS processes and procedures 2.2 Identify safety hazards and implement risk control measures in consultation with appropriate personnel 2.3 Consult appropriate personnel to ensure the task is coordinated effectively with others involved at the worksite 2.4 Back up local data in preparation for installation
3. Build and configure the servers according to design	3.1 Install ***network operating system*** to design specifications using installation checklists 3.2 Install additional tools or third-party software applications as required by the design 3.3 Patch the operating system and applications to ensure maximum security and reliability

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.4 Configure ***network services*** and applications 3.5 Implement security design to prevent unauthorised access to ***system*** 3.6 Reconnect and reconfigure connectivity devices 3.7 Configure ***update services*** to provide automatic updates for operating system and applications 3.8 Restore local data to new server 3.9 Implement backup and recovery methods to enable restoration capability in the event of a disaster
4. Test and reconfigure network servers	4.1 Test server for benchmarking against client specification and requirements according to test plan, and record outcomes 4.2 Analyse the error report and make changes as required 4.3 Use troubleshooting tools and techniques to diagnose and correct ***server problems*** 4.4 Test required changes or additions 4.5 Validate changes or additions against specifications
5. Complete and document network design and installation	5.1 Make and document server configuration and operational changes 5.2 Complete client report and notify of server status 5.3 Clean up and restore worksite to client's satisfaction 5.4 Secure sign-off from appropriate person

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business-related matters
- literacy skills to:
  - read and interpret enterprise procedures, manuals and specifications
  - interpret technical documentation
  - write reports in required formats
- numeracy skills to:
  - take test measurements

© Commonwealth of Australia, 2025 Future Skills Organisation

    - interpret results
    - evaluate performance and interoperability of network
- planning and organisational skills to plan, prioritise and monitor own work
- problem-solving and contingency-management skills to:
    - deal with unexpected situations on the basis of safety and specified work outcomes
    - adapt configuration procedures to requirements of network and reconfigure depending on differing operational contingencies, risk situations and environments
- safety awareness skills to:
    - apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
    - follow enterprise OHS procedures
    - work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- research skills to interrogate vendor databases and websites to implement different configuration requirements to meet security levels
- technical skills to:
    - identify the technical requirements, constraints and manageability issues for given customer server requirements
    - design a server and associated network services
    - install a server design
    - select and use server and network diagnostics, test application software and hardware to suit different network applications.

Required knowledge

- features of:
    - current network operating systems (NOS)
    - current server applications compatibility issues and resolution procedures
- detailed knowledge of:
    - network service configuration, including:
        - domain name system (DNS)
        - dynamic host configuration protocol (DHCP)
        - file transfer protocol (FTP)
        - mail
        - network time protocol (NTP)
        - proxy
        - server messages block (SMB)
        - web
    - network service management, including start, stop, restart and start on boot
    - network service security

© Commonwealth of Australia, 2025 Future Skills Organisation

- server firewall configuration
- troubleshooting tools and techniques, including network diagnostic utilities
- operating system installation methods, including installation from: CD, DVD, universal serial bus (USB) boot disk, network and script (automated install), deployment services
- user authentication and directory services
- best practice procedures for implementing backup and recovery
- error and event logging and reporting
- documentation skills for networks
- boot process and diagnosing boot failures
- operating system rescue environment
- operating system help and support utilities
- storage options, including file systems and disk partitioning schemes
- performance monitoring tools and tuning options
- compatibility issues and resolution procedures
- high availability options for servers
- file and print management
- process or task management
- task scheduling utilities.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • produce design report for a server (or servers) with complex user and network service requirements • install and configure the server according to the produced design • monitor and test the server • troubleshoot server and network failures • configure a wide range of server network and security services, including DNS, DHCP, web and proxy, mail, FTP and firewall.
Context of and specific resources for assessment	Assessment must ensure access to: • site where server installation may be conducted • relevant server specifications:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• cabling • networked (LAN) computers • server diagnostic software • switch • client requirements • wide area network (WAN) service point of presence • workstations • relevant regulatory documentation that affects installation activities • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of design report for a server in a complex network environment • direct observation of the candidate installing or updating a server in a complex network environment • verbal or written questioning of required skills and knowledge • evaluation of report that outlines testing procedures, test results and recommendation to server changes • evaluation of design and implementation of the system in terms of performance and suitability for business needs.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• external organisations • information and communications technology (ICT) company • individuals • internal departments • internal employees • service industry.
Stakeholders may include:	• development team • information technology (IT) manager or representative • project team • sponsor • user.
Requirements may refer to:	• application • business • database • network • people in the organisation • performance • platform • system • technical needs.
Network server may include:	• multiple • physical • virtual.

Specifications may include:	• IP addressing, such as:
	  • IPsec
	  • IPv4 and IPv6
	  • subnetting
	  • supernetting
	• DHCP, including:
	  • options
	  • relay agents
	  • exclusions

© Commonwealth of Australia, 2025 Future Skills Organisation

	• fixed addresses and address ranges • pre-boot eXecution environment (PXE) boot • scopes • routing, including: • default gateway • open shortest path first (OSPF) • persistent routing • routing internet protocol (RIP) • static routing • authentication services, including: • biometrics • enterprise single sign-on • Hesiod • Kerberos • lightweight directory access protocol (LDAP) • network information system (NIS) • Novell Directory Services (NDS) • pluggable authentication modules (PAM) • public key infrastructure (PKI) and digital certificates • public key authentication • Red Hat Directory Services • security tokens and smart cards • SMB or Samba • two-factor and multifactor authentication • Windows Active Directory Services • file services, including: • disk partitioning schemes, such as partitions, extended partitions, logical partitions, RAID, logical volumes, swap space • disk quotas • distributed file systems • encrypted file systems • files, directories, shares and their permissions • file systems, such as NTF-based data.gb (NTFD), file allocation table (FAT), EXT, hierarchical file system (HFS) • network file systems (NFS) • RAID • shadow copy services • SMB or Samba

© Commonwealth of Australia, 2025 Future Skills Organisation

	• print services, including:
	  • print drivers
	  • print queues
	  • print server
	  • print spool location
	  • printer pools
	• name resolution services may include detailed DNS configuration, such as:
	  • cache-only name server
	  • client configuration
	  • conditional forwarding
	  • DNS record types, such as A, PTR, MX, NS
	  • DNS zones
	  • dynamic updates
	  • external forwarders
	  • master and slave name servers
	  • replication
	  • root hints
	  • Time to Live (TTL)
	  • WINS and DNS integration
	• web and proxy services, including:
	  • Apache
	  • extranet
	  • HTTP or HTTPS
	  • internet information server (IIS)
	  • intranet
	  • internet security and acceleration (ISA) server
	  • squid
	  • secure socket later (SSL) certificates
	  • virtual hosts
	  • website security, access control and authentication
	• mail services, including:
	  • dovecot
	  • IMAP or IMAPS
	  • mail filtering and virus scanning
	  • Microsoft exchange
	  • POP3
	  • procmail
	  • sendmail
	  • simple mail transfer protocol (SMTP)

© Commonwealth of Australia, 2025 Future Skills Organisation

	• FTP services, including:
	  • access to home directories
	  • anonymous FTP
	  • FTP authentication
	  • FTP server
	  • securing FTP
	  • very secure FTP (VSFTP)
	• firewall, including:
	  • incoming and outgoing traffic filtering
	  • IP tables
	  • ISA server
	  • kernel level firewalls
	  • Microsoft Windows Firewall
	  • SmoothWall
	  • third-party firewalls
	  • traffic filtering by ports and protocols
	• remote access, including:
	  • dial-up
	  • inbound or outbound filters
	  • internet connection sharing (ICS)
	  • network address translation (NAT)
	  • remote authentication dial-in user service (RADIUS)
	  • RADIUS proxy
	  • remote access policy
	  • remote access protocols
	  • routing and remote access services (RRAS)
	  • secure shell (SSH)
	  • terminal services
	  • VPN
	  • wireless
	• hardware
	• NOS
	• network services
	• server applications
	• security
	• redundancy.

Server applications may include:	• database and data warehousing • directory services • file sharing • line of business applications

© Commonwealth of Australia, 2025 Future Skills Organisation

	• management • messaging • name services • network and remote access • terminal services • web applications • Windows media server • Microsoft SharePoint.
Security may include:	• access control lists • authentication • encryption • file and directory permissions • firewalls • network service security • network share permissions • password security • physical security • SE Linux • security for system resources, such as printers, databases, SharePoint sites, applications and websites • transmission control protocol (TCP) wrappers • Windows group policy.
Redundancy may include:	• dual boot read-only memory (ROMs) • error correcting random access memory (RAM) • failover clustering • multiple fans • multiple power supplies • redundant array of inexpensive or independent disks (RAID) • replication • uninterruptible power supply (UPS).
Network operating system may include:	• Linux OS • Unix OS • Windows Server OS.
Network services may include:	• DHCP • DNS • FTP • firewall • hypertext transfer protocol (HTTP or HTTPS) • internet message access protocol (IMAP) • network file system (NFS) • NTP

© Commonwealth of Australia, 2025 Future Skills Organisation

	• post office protocol (POP) • print services • proxy • SMB • simple mail transfer protocol (SMTP) • simple network management protocol (SNMP) • structured query language server (SQL) • transmission control protocol or internet protocol (TCP/IP).
System may include:	• application • business • computers • database system • financial system • information system • management system • network • software • website.
Update services may include:	• Potentially Unwanted Program Remover (PUP) • Red Hat Network • Windows Server Update Services • Yellow Dog Update Manager (YUM).
Backup and recovery may include:	• automated backups using operating system backup and job scheduling tools • backup and recovery of mail systems • backup and recovery of network directory service objects • backups using third-party software • database backup and recovery • volume shadow copies.
Server problems may include:	• disk failure • email problems • file system problems • hostname resolution problems • internet connectivity problems • logged system errors • misconfigured networking • security breaches • web server problems.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK506A Configure, verify and troubleshoot WAN links and IP services in a medium enterprise network

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use appropriate tools, equipment, software and protocols to install, operate, and troubleshoot medium enterprise switches.

Application of the Unit

This unit applies to the installation, operation and troubleshooting of medium enterprise networks. Job roles include help-desk technician and network support technician.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. _Prepare to install medium enterprise WAN links	1.1 Prepare for given work according to legislation, OHS codes, regulations and standards 1.2 Arrange access to the site according to required procedure 1.3 Review existing ***network*** design ***documentation*** to ensure it is current and complete 1.4 Select the ***network elements*** required to be installed to meet the technical ***requirements*** 1.5 Contact vendors and service suppliers to obtain specifications and availability of identified components 1.6 Develop plans, with prioritised tasks and contingency arrangements, for installation of components with minimum disruption to ***client*** 1.7 Liaise with ***appropriate person*** to obtain approval for the plans, including security clearance and timing
2. Configure WAN links	2.1 Describe different methods for connecting to a wide area network (WAN) 2.2 Configure and verify a ***basic serial WAN configuration*** 2.3 Configure and verify at least two ***WAN protocols*** 2.4 Describe ***virtual private network (VPN) technology*** 2.5 Configure and verify a site to site ***VPN*** 2.6 Describe asymmetric digital subscriber line (ADSL) technology 2.7 Configure and verify an ADSL connection
3. Configure and verify IP services on a router	3.1 Explain the operation and benefits of using dynamic host configuration protocol (DHCP) 3.2 Configure and verify DHCP operation on a router 3.3 Implement static and dynamic addressing services for hosts in a local area network (LAN) environment

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.4 Explain the basic operation of network address translation (NAT) 3.5 Configure NAT for given network requirements 3.6 Implement and verify NAT in a medium-sized enterprise branch office network 3.7 Describe the basic operation and configuration of internet protocol version 6 (IPv6)
4. Secure a network using router services	4.1 Describe the purpose and types of access control lists (ACLs) 4.2 Configure and apply ACLs based on network filtering requirements 4.3 Configure and apply ACLs to provide secure access to the router
5. Troubleshoot medium enterprise WAN links	5.1 Troubleshoot ***WAN implementation issues*** 5.2 Rectify WAN problems 5.3 Document solutions

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business-related matters
- literacy skills to:
  - interpret technical documentation
  - write reports as required
- numeracy skills to:
  - take test measurements
  - interpret results
  - evaluate performance and interoperability of network
- planning and organisational skills to:
  - coordinate the process in liaison with others
  - plan, prioritise and monitor own work
- problem-solving and contingency-management skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - adapt configuration procedures to requirements of network
  - reconfigure depending on differing operational contingencies, risk situations and environments
  - troubleshoot and debug WAN issues
- research skills to investigate appropriate hardware to meet requirements
- technical skills to select and configure networking devices and assess and implement security requirements.

Required knowledge

- overview knowledge of IPv6
- detailed knowledge of:
  - ACLs
  - router calling line identification (CLI) configuration
  - router debug commands.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• plan and prepare for the WAN link installation task
	• install and configure WAN links
	• configure and troubleshoot the following IP services:
	  • NAT
	  • DHCP
	  • ACLs
	• configure and troubleshoot ADSL links
	• configure and troubleshoot VPNs.

Context of and specific resources for assessment	Assessment must ensure access to: • site where network installation may be conducted • hardware and software • organisational guidelines • computers • WAN service point of presence • appropriate learning and assessment support when required.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate installing, configuring and testing a new or updated network • evaluation of prepared documentation that outlines testing procedures, test results, recommendation to network changes and completion records • verbal or written questioning of required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Network may include:	• data • internet • large and small LAN • national WAN • VPN.
Documentation may	• equipment inventory

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • naming standards • project management templates and report writing • satisfaction reports • version control.
Network elements may include:	• adaptors • communications cables and connectors • hubs • routers • servers • switches.
Requirements may refer to:	• application • business • network • people in the organisation • system.
Client may include:	• external organisations • individuals • internal departments • internal employees.
Appropriate person may include:	• authorised business representative • client • supervisor.
Basic serial WAN configuration may include:	• high-level data link control (HDLC) • link control settings • point-to-point protocol (PPP) • usernames and passwords.
WAN protocols may include:	• frame relay • HDLC • PPP.
VPN technology may include:	• benefits • components • affect • importance • role.
VPN may include:	• IPSec site to site VPN with pre-shared key authentication.
IPv6 concepts may include:	• dual stack • routing information protocol next generation (RIPng)

© Commonwealth of Australia, 2025 Future Skills Organisation

	• tunnelling.
WAN implementation issues may include:	• DHCP • NAT • ACL • VPN • ADSL.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK507A Install, operate and troubleshoot medium enterprise routers

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use appropriate tools, equipment, software and protocols to install, operate and troubleshoot medium enterprise routers.

Application of the Unit

This unit applies to the installation, operation and troubleshooting of medium enterprise routers. Job roles include network technician, network administrator and network support.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Prepare to install a medium enterprise router	1.1 Prepare for given work according to legislation, OHS, codes, regulations and standards 1.2 Arrange access to the site according to required procedure 1.3 Review existing ***network*** design ***documentation*** to ensure it is current and complete 1.4 Select ***network elements*** required to be installed to meet the technical ***requirements*** 1.5 Contact vendors and service suppliers to obtain specifications and availability of identified components 1.6 Develop plans, with prioritised tasks and contingency arrangements, for installation of components with minimum disruption to ***client*** 1.7 Liaise with ***appropriate person*** to obtain approval for the plans, including security clearance and timing
2. Configure basic router operation	2.1 Describe ***basic routing concepts*** 2.2 Describe the ***operation*** of routers 2.3 Select the appropriate media, cables, ports, and connectors to connect routers to other network devices and hosts 2.4 Access and use the router to set basic parameters 2.5 Upgrade firmware on a router 2.6 Save and back up router configuration files 2.7 Implement ***basic router security*** 2.8 Configure static and default routes
3. Configure and verify dynamic classless routing protocols	3.1 Determine the appropriate classless addressing scheme using VLSM and summarisation to satisfy addressing requirements in a LAN or WAN environment 3.2 Calculate and apply an addressing scheme, including VLSM internet protocol (IP) addressing design to a network

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.3 Configure and verify ***classless routing protocols***
4. Troubleshoot medium enterprise routers	4.1 Troubleshoot device configuration and network connectivity using ***basic utilities***
	4.2 Identify and correct common problems associated with IP addressing and host configurations
	4.3 Troubleshoot router hardware and software operation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business-related matters
- literacy skills to:
  - interpret technical documentation
  - write reports as required
- numeracy skills to:
  - take test measurements
  - interpret results
  - evaluate performance and interoperability of network
- planning and organisational skills to:
  - coordinate process in liaison with others
  - plan, prioritise and monitor own work
- problem-solving skills to:
  - adapt configuration procedures to requirements of network and reconfigure depending on differing operational contingencies, risk situations and environments
  - troubleshoot and debug router network issues
- research skills to investigate appropriate hardware to meet requirements
- technical skills to select and configure networking devices and assess and implement security requirements.

Required knowledge

- basic routing concepts for small enterprise network switches and routers
- classless routing protocols, including:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - enhanced interior gateway routing protocol (EIGRP)
  - open shortest path first (OSPF)
  - routing information protocol (RIPv2)
- debug commands
- internet protocol version 4 (IPv4)
- purpose and basic operation of the protocols in the open system interconnection (OSI) and transmission control protocol or internet protocol (TCP/IP) models
- router calling line identification (CLI) configuration.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • plan and prepare for the installation of an enterprise router • design a classless IP addressing scheme to suit requirements • install, configure and test the network elements to ensure interoperability within the network • apply network topologies, routing protocols and security issues • apply solutions and troubleshoot defined network problems.
Context of and specific resources for assessment	Assessment must ensure access to: • site where network installation may be conducted • enterprise routers and operating systems • hardware and software • organisational guidelines • computers • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate installing, configuring and testing a new or updated network • evaluation of documentation that outlines testing procedures, test results, recommendation to network changes and

© Commonwealth of Australia, 2025 Future Skills Organisation

	completion records • verbal or written questioning of required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Network may include:	• data • internet • large and small local area networks (LANs) • national wide area networks (WANs) • virtual private network (VPN).
Documentation may include:	• equipment inventory • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • naming standards • project management templates and report writing • satisfaction reports • version control.
Network elements may include:	• adaptors • communications cables and connectors • hubs

© Commonwealth of Australia, 2025 Future Skills Organisation

	• routers • servers • switches.
Requirements may refer to:	• application • business • network • people in the organisation • system.
Client may include:	• external organisations • individuals • internal departments • Internal employees.
Appropriate person may include:	• authorised business representative • client • supervisor.
Basic routing concepts may include:	• packet forwarding • router lookup process.
Operation may include:	• power on self-test (POST) • router bootup process • router components.
Basic router security may include:	• configuration security • implement password • physical security.
Classless routing protocols may include:	• EIGRP • OSPF • RIPv2.
Basic utilities may include:	• debug commands • ipconfig • ping • secure shell (SSH) • Telnet • traceroute.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK508A Install, operate and troubleshoot medium enterprise switches

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use appropriate tools, equipment, software and protocols to install, operate, and troubleshoot medium enterprise switches.

Application of the Unit

This unit applies to the installation, operation and troubleshooting of medium enterprise networks. Job roles include help-desk technician and network-support technician.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Prepare to install an medium enterprise switch	1.1 Prepare for given work according to legislation, OHS, codes, regulations and standards 1.2 Arrange access to the site according to required procedure 1.3 Review existing ***network*** design ***documentation*** to ensure it is current and complete 1.4 Select the ***network elements*** required to be installed to meet the technical ***requirements*** 1.5 Contact vendors and service suppliers to obtain specifications and availability of identified components 1.6 Develop plans, with prioritised tasks and contingency arrangements, for installation of components with minimum disruption to ***client*** 1.7 Liaise with ***appropriate person*** to obtain approval for the plans, including security clearance and timing
2. Configure basic switch operation	2.1 Describe network segmentation, basic traffic management and basic switching concepts 2.2 Perform, save and verify initial switch configuration tasks 2.3 Select the appropriate media, cables, ports, and connectors to connect switches to other network devices and hosts 2.4 Perform, save and verify initial switch configuration tasks 2.5 Upgrade firmware on a switch 2.6 Save and back up switch configuration files 2.7 Implement ***basic switch security***
3. Configure and verify advanced switching functions	3.1 Describe ***enhanced switching technologies*** 3.2 Configure and verify virtual local area networks (VLANs) 3.3 Configure and verify trunks between switches 3.4 Configure and verify inter-VLAN routing 3.5 Configure and verify spanning tree protocol (STP) and

© Commonwealth of Australia, 2025 Future Skills Organisation

	rapid spanning tree protocol (RSTP) operation
4. Troubleshoot medium enterprise switches	4.1 Troubleshoot device configuration and network connectivity using ***basic utilities*** 4.2 Identify and resolve ***common switched network issues***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business-related matters
- literacy skills to:
  - interpret technical documentation
  - write reports as required
- numeracy skills to:
  - take test measurements
  - interpret results
  - evaluate performance and interoperability of network
- planning and organisational skills to:
  - coordinate the process in liaison with others
  - plan, prioritise and monitor own work
- problem-solving skills to:
  - adapt configuration procedures to requirements of network and reconfigure depending on differing operational contingencies, risk situations and environments
  - troubleshoot and debug router switch issues
- research skills to investigate appropriate hardware to meet requirements
- technical skills to:
  - assess and implement security requirements
  - select and configure networking devices.

Required knowledge

- overview knowledge of RSTP
- detailed knowledge of:
  - debug commands

© Commonwealth of Australia, 2025 Future Skills Organisation

- routing between VLANs
- STP
- switch calling line identification (CLI) commands
- VLANs.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • prepare for the installation of an enterprise switch • install, configure and test the network elements to ensure interoperability within the network • apply network topologies, protocols and security issues • apply solutions and troubleshoot defined network problems.
Context of and specific resources for assessment	Assessment must ensure access to: • site where network installation may be conducted • enterprise switches and operating systems • equipment specifications • hardware and software • organisational guidelines • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate installing, configuring and testing a new or updated network • evaluation of documentation that outlines testing procedures, test results, recommendation to network changes and completion records • verbal or written questioning of required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Network may include:	• data • internet • large and small local area networks (LAN) • national wide area networks (WAN) • virtual private network (VPN).
Documentation may include:	• equipment inventory • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • naming standards • project management templates and report writing • satisfaction reports • version control.
Network elements may include:	• adaptors • communications cables and connectors • hubs • routers • servers • switches.
Requirements may refer to:	• application • business

© Commonwealth of Australia, 2025 Future Skills Organisation

	• network • people in the organisation • system.
Client may include:	• external organisations • individuals • internal departments • internal employees.
Appropriate person may include:	• authorised business representative • client • supervisor.
Basic switch security may include:	• port deactivation • port security • secure shell (SSH).
Enhanced switching technologies may include:	• 802.1q • per-VLAN spanning tree protocol (PVSTP) • RSTP • trunking • VLAN.
Basic utilities may include:	• debug commands • ipconfig • ping • secure shell (SSH) • Telnet • traceroute.
Common switched network issues may include:	• auto-negotiation • configuration issues • media issues • switch hardware failures • VLAN • STP and RSTP • trunking.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK509A Design and implement a security perimeter for ICT networks

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to build a high performance, high security, failure resistant security perimeter for an enterprise information and communications technology (ICT) network.

Application of the Unit

This unit applies to middle managers, such as information security managers, network engineers, network technicians or security analysts, responsible for implementing and managing the organisational network security.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Plan and design firewall solution	1.1 Determine level and nature of security needed to meet enterprise requirements 1.2 Identify security threats 1.3 Research available perimeter security options 1.4 Design security perimeter to meet identified enterprise requirements
2. Configure perimeter to secure network	2.1 Deploy perimeter devices according to design 2.2 Configure ***perimeter topology*** 2.3 Configure ***basic functionality*** of ***devices*** to allow access 2.4 Configure ***advanced functions***
3. Plan, design and configure network devices to provide secure fallover and redundancy	3.1 Back up device configuration 3.2 Design and configure perimeter to enable continuity of service during upgrade of devices 3.3 Design and configure perimeter to enable continuity of service in the event of device failure
4. Plan, design and configure a VPN solution	4.1 Configure perimeter for site to site virtual private networks (VPNs) 4.2 Configure perimeter as a remote access VPN server 4.3 Configure perimeter to allow ***VPN tunnel*** forwarding 4.4 Diagnose and resolve VPN connectivity issues
5. Test and verify design performance	5.1 Test functionality of basic features 5.2 Test functionality of advanced features 5.3 Perform penetration testing to verify perimeter meets security requirements 5.4 Monitor perimeter device performance

© Commonwealth of Australia, 2025 Future Skills Organisation

	5.5 Monitor security breaches 5.6 Document test results and report to appropriate person

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse network information and plan approaches to technical problems or management requirements
- communication skills to:
  - convey and clarify complex information
  - liaise with clients
- literacy skills to interpret and prepare technical documentation, including recording security incidents and developing security policies
- planning skills to plan deployment of the perimeter solution
- problem-solving skills to:
  - design perimeter solution to meet security requirements
  - resolve technical problems
- technical skills to:
  - configure firewalls
  - configure routers
  - deploy perimeter devices to a network
  - test performance of security perimeter to current industry standards.

Required knowledge

- overview knowledge of:
  - emerging security issues
  - emerging security policies
- detailed knowledge of:
  - auditing and penetration testing techniques
  - capabilities of software and hardware perimeter solutions
  - logging analysis techniques
  - organisational network infrastructure
  - security technologies, according to perimeter design

© Commonwealth of Australia, 2025 Future Skills Organisation

- weaknesses of installed perimeter design.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify threats to perimeter security • develop design for a secure perimeter • deploy perimeter to meet security requirements • design and configure advanced features of perimeter devices to provide additional services • design and configure an integrated VPN solution • conduct exhaustive testing of perimeter.
Context of and specific resources for assessment	Assessment must ensure access to: • site or prototype where perimeter security may be implemented and managed • perimeter devices • organisational security requirements • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of emerging security issues, security features of hardware and software, limitations in vendor solutions, operating systems and software • direct observation of candidate demonstrating deployment and configuration of a security perimeter • direct observation of candidate conducting testing of secure perimeter • evaluation of report that outlines testing procedures, test results and changes made as a result of testing • evaluation of design and implementation of system in terms of performance and suitability for business needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Perimeter topology may include:	• 3 legged • back-to-back private • back-to-back public.
Basic functionality may include:	• access control lists (ACLs) • dynamic host configuration protocol (DHCP) • routing • secure network address translation (NAT).
Devices may include:	• Cisco PIX • Cisco router ACLs • ClearOS • Linux iptables • Microsoft ISA Firewall • SmoothWall • Untangle.
Advanced functions may include:	• automated web-client configuration • content filtering • demilitarised zone (DMZ) hosting • firewall policies

© Commonwealth of Australia, 2025 Future Skills Organisation

	• forward and reverse caching • load balancing • port forward rules • quality of service (QOS) • server publishing • stateful packet inspection.
VPN tunnel may include:	• IPSec • layer 2 tunnelling protocol (L2TP) • point-to-point tunnelling protocol (PPTP) • secure socket tunnelling protocol (SSTP).

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK510A Develop, implement and evaluate system and application security

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop, implement and evaluate information security in an information technology (IT) system or application during the system development life cycle (SDLC) prior to the operations and maintenance phase.

Application of the Unit

This unit applies to network managers who are required to handle system and application security, from the development phase through implementation to evaluation.

The practice of these protocols ensures that the operation of IT systems and software does not present undue risk to the enterprise and its information assets. This objective is accomplished through risk assessment; risk mitigation; security control selection, implementation and evaluation; and software security standards compliance.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Develop system and application security	1.1 Specify enterprise and ***IT system or application*** security policies 1.2 Specify security requirements for the IT system or application 1.3 Author an IT system or application security plan according to the enterprise and IT system or application security policies 1.4 Identify standards against which to engineer the IT system or application 1.5 Specify criteria for performing risk-based audits against the IT system or application 1.6 Develop processes and procedures to mitigate the introduction of ***vulnerabilities*** during the engineering process 1.7 Integrate applicable information security requirements, controls, processes, and procedures into IT system and application design specifications according to ***established requirements***
2. Implement system and application security	2.1 Execute enterprise and IT system or application security policies 2.2 Apply and verify compliance with identified standards against which to engineer the IT system or application 2.3 Perform processes and procedures to mitigate the introduction of vulnerabilities during the engineering process 2.4 Perform secure configuration management practices 2.5 Validate that the engineered IT system and application security controls meet the specified requirements 2.6 Re-engineer security controls to mitigate vulnerabilities

© Commonwealth of Australia, 2025 Future Skills Organisation

	identified during the operations phase 2.7 Ensure integration of information security practices throughout the SDLC process 2.8 Document IT system or application security controls addressed within the system 2.9 Practise secure coding practices
3. Evaluate system and application security	3.1 Review new and existing risk management technologies to achieve an optimal enterprise risk posture 3.2 Review new and existing IT security technologies to support secure engineering across the SDLC phases 3.3 Continually assess the effectiveness of the information-system controls based on risk-management practices and procedures 3.4 Assess and evaluate system compliance with corporate policies and architectures 3.5 Assess system maturation and readiness for promotion to the production stage 3.6 Collect lessons learned from integration of information security into the SDLC and use to identify improvement actions 3.7 Collect, analyse and report performance measures

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to translate requirements from problem space to machine space
- initiative and enterprise skills to write security plans
- literacy skills to write technical documentation
- planning and organisational skills to ensure that the plan is implemented
- problem-solving skills to ensure that security areas are covered
- technical skills to:
  - debug code
  - read and interpret program specifications
  - write code.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required knowledge

- range of programming languages, including those used by the organisation
- best practice in application of language syntax rules
- data structures
- graphical user interface (GUI) interfaces
- small-size application development.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • author an IT system or application security plan • apply and verify compliance with the identified standards • practise secure coding practices • assess and evaluate system compliance.
Context of and specific resources for assessment	Assessment must ensure access to: • IT business specifications • information on the security environment, including laws and legislation, existing organisational security policies, organisational expertise and knowledge • possible security environment, which also includes the threats to security that are, or are held to be, present in the environment • risk analysis tools and methodologies • IT security assurance specifications • application and system scenarios • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's

© Commonwealth of Australia, 2025 Future Skills Organisation

	knowledge of security issues regarding the system or application and security standards • review of system or application security plan prepared by candidate • review of amended system or security plan after evaluation prepared by candidate • observation of candidate carrying out work to ensure the plan complies with security standards.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

IT system or application may include:	• applications • collection of programs • integrated suite of programs • operating system and system software • program.
Vulnerabilities may include:	• buffer overflows • errors in application or system • poor design • trapdoors • undefined or undocumented code

© Commonwealth of Australia, 2025 Future Skills Organisation

	• undefined variables • untested code.
Established requirements may include:	• laws • policies • regulations • standards.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK511A Manage network security

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to implement and manage security functions throughout a network.

Application of the Unit

This unit applies to middle managers, such as information security managers, network engineers or security analysts, responsible for implementing and managing the organisational security management system.

They provide technical advice, guidance and leadership in resolution of specified problems and the role may involve responsibility for others. The role also involves leading development of strategic reviews, determining security threats and implementing controls to mitigate risk. Related tasks include network security planning, implementation, cost-analysis and budgeting.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Define a process for designing security	1.1 Define planning phase for ***network*** security design 1.2 Define building phase for network security design 1.3 Define managing phase for network security design
2. Identify threats to network security	2.1 Determine why ***attacks*** occur 2.2 Determine who the attack may come from 2.3 Analyse common types of network ***vulnerabilities*** 2.4 Determine how attacks occur 2.5 Design a threat model to categorise treats
3. Analyse security risks	3.1 Determine elements of risk management 3.2 Determine ***assets*** that require protection 3.3 Categorise assets and calculate their value to the organisation 3.4 Create a risk management plan
4. Create a security design	4.1 Determine attacker scenarios and threats 4.2 Design ***security*** measures for ***network components*** 4.3 Obtain feedback and adjust if required 4.4 Develop security policies
5. Design and implement responses to security incidents	5.1 Design auditing and incident response procedure 5.2 Document security incidents 5.3 Implement configurations aligned with incident response procedure design 5.4 Test and sign off

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse network information
  - plan approaches to technical problems or management requirements
- communication skills to:
  - convey and clarify complex information
  - liaise with clients
- literacy skills to interpret and prepare technical documentation, including recording security incidents and developing security policies
- planning skills to plan control methods for managing system security
- problem-solving skills to:
  - apply solutions in complex networks, including systems processes
  - deploy rapid deployment of solutions to problems involving failure and security incidents
- technical skills to apply best practice to systems security methodologies and technologies.

Required knowledge

- detailed knowledge of:
  - auditing and penetration testing techniques
  - logging analysis techniques
  - organisational network infrastructure
  - related weaknesses of installed network infrastructure
  - security technologies
- broad knowledge of:
  - capabilities of software and hardware solutions
  - emerging security issues
  - general features of emerging security policies, with depth in security procedures
  - network management and security process controls
- network security implementation risk management plans and procedures.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify threats to security • develop risk management plan • design network security policies • analyse and plan solutions to compromised networks and design incident response • evaluate security information and use it to plan suitable control methods and countermeasures • add network controls, according to system security policies, procedures and risk management plan.
Context of and specific resources for assessment	Assessment must ensure access to: • site or prototype where network security may be implemented and managed • network support tools currently used in industry • organisational security policies, manufacturer recommendations and security standards • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of emerging security issues, security features of hardware and software, limitations in vendor solutions, operating systems and software • direct observation of candidate demonstrating management of network security in a range of complex security situations • review of documentation prepared by candidate to manage network security.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Network may include:	• data • internet • local area networks (LANs) • large and small LANs • virtual private networks (VPNs) • wide area networks (WANs) • wireless LANs (WLANs).
Attacks and vulnerabilities may include:	• authorisations • brute force and dictionary attacks • denial of service and by-pass • eavesdropping • hackers • internal threats • intruder detection • manipulation • penetration • social engineering, including impersonation • spoofing • viruses using logging.
Assets may include:	• data • hardware

© Commonwealth of Australia, 2025 Future Skills Organisation

	• personal information • product and branding information.
Security may include:	• AAA • authentication process, Kerberos and challenge handshake authentication protocol (CHAP) • Diameter and remote authentication dial-in user service (RADIUS) • folder and file security • IPSec • lightweight extensible authentication protocol (LEAP) • personal knowledge management (PKM) • smart cards • secure socket layer (SSL) • tokens • VPN • wired equivalent privacy (WEP) • wi-fi protected access (WPA) or WPA2.

Network components may include:	• servers
	• workstations
	• accounts
	• authentication
	• data
	• data transmission
	• network perimeters:
	  • part of router configuration or proxy server
	  • products:
	  • Cisco Centri, PIX
	  • ClearOS
	  • IPcop
	  • Linux iptables
	  • MS ISA server
	  • SmoothWall
	  • Untangle.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK513A Manage system security

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to implement and manage security on an operational system.

Application of the Unit

This unit applies to middle managers such as information security managers or security analysts, responsible for implementing and managing the organisation's security management system. They provide technical advice, guidance and leadership in resolution of specified problems and the role may involve responsibility for others.

The role also involves leading development of strategic reviews, and determining security threats and implementing controls to mitigate risk. Related tasks include planning and budgeting.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Analyse threats to system	1.1 Evaluate the organisation's ***system*** and verify that it meets enterprise guidelines and policies 1.2 Conduct risk analysis on system and document outcomes 1.3 Evaluate ***threats*** to the system and document findings 1.4 Compile and document human interactions with system
2. Determine risk category	2.1 Conduct a risk assessment on the system and categorise risks 2.2 Conduct a risk assessment on human operations and interactions with the system and categorise risks 2.3 Match risk plans to risk categories 2.4 Determine and plan resources by risk categories
3. Identify appropriate controls	3.1 Devise and put in place effective controls to manage risk 3.2 Design policies and procedures to cover user access of the system 3.3 Conduct training in the use of system-related policies and procedures 3.4 Monitor high-risk categories at specified periods 3.5 Categorise and record system breakdowns
4. Include controls in the system	4.1 Develop ***security plan*** and procedures to include in management system 4.2 Develop ***security*** recovery plan 4.3 Implement system controls to reduce risks in human interaction with the system
5. Monitor system tools	5.1 Review and monitor risks and controls using a management

© Commonwealth of Australia, 2025 Future Skills Organisation

and procedures	review process 5.2 Review risk analysis process based on security benchmarks from vendors, security specialists and organisational reviews 5.3 Plan to re-evaluate system and identify new threats and risks

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to evaluate system security
- communication skills to communicate clear concepts and solutions to complex issues
- literacy skills to write reports
- planning skills to:
  - develop a security plan
  - develop a security recovery plan
- problem-solving skills to:
  - manage unpredictable problems involving participation in group solutions and analysis
  - resolve issues for a mixed mode environment of people and systems processes
- research skills to identify, analyse and evaluate weaknesses and strengths of security systems
- technical skills to use systems security methodologies and technologies.

Required knowledge

- broad knowledge of general features of specific security technology
- risk analysis techniques, with broad knowledge of their general features, and depth in security procedures
- details of the client organisation
- systems management and process control in relation to security
- systems technologies, with broad knowledge of their general features and capabilities.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • implement and manage security functions on a system • conduct risk assessment • set up effective controls to manage risk • develop security plan and security recovery plan • monitor risks and controls • review risk-analysis process.
Context of and specific resources for assessment	Assessment must ensure access to: • site where system security may be implemented and managed • use of utility tools currently used in industry • organisational security policies • manufacturer recommendations • security standards • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess knowledge of security risks and options available in the operating environment • direct observation of candidate demonstrating management of system security in a range of complex situations • review of documentation prepared by candidate to manage system security.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

System may include:	• application service provider • applications • databases • gateways • internet service provider (ISP) • operating system • servers • wireless network access policies using mobile devices.
Threats may include:	• denial of service and by-pass • eavesdropping • hackers • impersonation • manipulation • penetration • viruses.

Security plan may include:	• alerts relating directly to the security objectives of the organisation
	• audits
	• privacy
	• standards:
	  • archival
	  • backup
	  • network
	• theft
	• viruses.

Security may include:	• AAA • Diameter • IPSec • LEAP • PKM

© Commonwealth of Australia, 2025 Future Skills Organisation

	• smart cards • SSL • tokens • WEP • WPA.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK514A Model preferred system solutions

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to fit a physical model into the design phase of the methodology.

Application of the Unit

This unit applies to systems designers who are required to model proposed solutions.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	guide.

Elements and Performance Criteria

1. Review and confirm information requirements and existing models	1.1 Review information ***requirements*** and clarify areas that are not understood 1.2 Identify organisational ***standards*** for developing models, and check the model development method for consistency with organisational goals 1.3 Identify assumptions and incorporate into modelling process 1.4 Identify goals and resolve into tasks required to be performed to obtain goals 1.5 Define internal tasks needed to perform identified goals
2. Resolve conflicts and inconsistencies	2.1 Identify missed opportunities arising from previous and current model development 2.2 Identify bottlenecks, overlooked functionalities and other issues and resolve with ***client*** input as required
3. Build and test model	3.1 Develop model based on ***existing architecture*** 3.2 ***Document*** details of model, according to agreed project or organisational standards 3.3 Develop model according to ***project*** deliverables and acceptance criteria within determined timeframe and project ***constraints*** 3.4 Test model against the test plan 3.5 Document test data to ensure that test procedures validate performance of the model
4. Ensure that the model represents a workable solution	4.1 Ensure a consensus view of key information technology (IT) ***stakeholders*** is represented in model 4.2 Ensure model is checked by key IT stakeholders to confirm common knowledge of the model and the proposed ***solution*** 4.3 Submit model to ***appropriate person*** for sign-off

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to negotiate and liaise with internal and external personnel on technical and operational matters
- literacy skills to:
  - document details of system model
  - interpret standards
- planning skills to set benchmarks and identify project scope when developing model
- problem-solving skills to resolve conflicts and inconsistencies in systems models
- research skills to specify, analyse and evaluate broad features of a particular business domain and best practice system
- technical skills to:
  - develop the model
  - test model according to test plan.

Required knowledge

- client business domain, particularly the client organisation structure and business functionality
- current industry-accepted hardware and software products and standards
- modelling techniques and methodologies
- range of development and test tools
- systems development methodologies.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • use two or more development tools • develop specific areas of a system for further information or to confirm a software or hardware direction

© Commonwealth of Australia, 2025 Future Skills Organisation

	• identify opportunities for expansion of the model • test the model to a test plan.
Context of and specific resources for assessment	Assessment must ensure access to: • acceptance criteria • client requirements • future organisational business processes • organisational and process goals • project budget • project deliverables • standards for model development • technical specifications • test plan • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate preparing to develop a system model • verbal or written questioning to assess knowledge of developing and testing a system model • review of candidate's documented test results.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Requirements may refer to:	• application • business • network • people in the organisation • system.
Standards may include:	• International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) • organisational • project • project standards, found on Standards Australia website.
Client may include:	• employee • external organisation • individual • internal department.

Existing architecture may vary from:	• systems based on mainframes to networks of mid-range machines and desktop computers
	• networks that may be:
	  • intranet
	  • local
	  • virtual private network
	  • wide or based on the internet
	  • with vendor products and network protocols.

Document may follow:	• audit trails • ISO, IEC and AS standards • naming standards • project management templates • report writing principles • version control.
Project may include:	• business improvement process • ebusiness solution involving the total organisation or part of the organisation • systems-only change

© Commonwealth of Australia, 2025 Future Skills Organisation

	• total organisational change.
Constraints may include:	• budget • hardware • legal • policy • resource • software • time.
Stakeholders may include:	• development team • project team • sponsor • user.
Solution may include:	• hardware upgrades • implementing a new system • new hardware • new software • software upgrades • user training.
Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK515A Develop configuration management protocols

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop administrative and technical procedures throughout the life cycle of a system, network, software and documentation project.

Application of the Unit

This unit applies to individuals working in a variety of information and communications technology (ICT) areas who are required to develop and manage tasks that facilitate the development of a system, such as version control and naming standards.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Establish configuration management requirements	1.1 Establish identification ***standards*** for naming and version control of ***system***, ***network***, ***software*** and ***documentation*** to align with organisational needs 1.2 Establish tools and procedures for the required level of integration into the programming, system or network environment 1.3 Determine responsibilities for configuration management within the ***project*** and for ongoing support, including approval of changes 1.4 Determine the appropriate points for configuration of particular items
2. Establish control mechanisms	2.1 Establish methods for identification and recording of change requests in line with ***organisational guidelines*** 2.2 Establish ***acceptance criteria***, ***test and acceptance processes*** and processes for approval of change requests in line with organisational guidelines 2.3 Establish security, access and management control criteria and ***quality benchmarks*** 2.4 Determine necessary audit trails and alerts for variations or non-conformance
3. Establish monitoring mechanisms	3.1 Establish mechanisms to identify software status throughout the software life cycle, or the status of the system or network during upgrading or reconfiguration 3.2 Determine management of records and status reports, including the history of baselines and their links to backups 3.3 Define target audiences and determine the level of detail required in the status reports 3.4 Integrate configuration management into general project management processes for monitoring and control purposes 3.5 Document control and monitoring mechanisms

© Commonwealth of Australia, 2025 Future Skills Organisation

4. Manage the release of the product to clients	4.1 Determine physical and functional completeness of items prior to release 4.2 Determine requirements for formal control of software products and documentation 4.3 Determine policies for retention of baseline and master copies in line with safety, security and legislative requirements and organisational guidelines

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - facilitate groups
  - present information and gain consensus on concepts
- literacy skills to:
  - develop administrative procedures for integration
  - identify legislative and organisational requirements
  - identify target groups
  - write technical and business reports
- planning and organisational skills to:
  - determine responsibilities for configuration management
  - determine scope, time, cost, quality, communications and risk management for a project
  - estimate function point analysis and other skills for use across a range of predictable project contexts, either varied or highly specific
  - integrate configuration management into general project management processes for monitoring and control purposes
- problem-solving skills to develop strategic initiatives
- research skills to specify, analyse and evaluate broad features of a particular business domain and best practice in software development methodologies
- technical skills to develop technical procedures.

Required knowledge

- benchmarking methodologies

© Commonwealth of Australia, 2025 Future Skills Organisation

- configuration management
- control mechanisms, such as acceptance criteria, test and acceptance processes, and security, access and management control criteria
- monitoring mechanisms
- organisational guidelines
- project planning methodologies and tools
- quality assurance and quality processes
- safety, security and legislative requirements
- software development methodologies.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• develop technical and administrative procedures for use during the software life cycle, system or network reconfiguration or the upgrade process, including:
	  • quality processes
	  • audit trials
	  • version control
	  • configuration management procedures.

Context of and specific resources for assessment	Assessment must ensure access to: • CASE tools • future organisational business processes • organisational standards for documentation and version control • project budget and timeframe • project-management process and hierarchy • legislation and organisational guidelines • technical specifications • test plans • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• direct observation of candidate determining the tools and procedures for integration • verbal or written questioning to assess candidate's knowledge of control and monitoring mechanisms • review of requirements for formal control of software products and documentation determined by candidate • evaluation of candidate's documented control and monitoring mechanisms.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Standards may include:	• International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) • organisational • project.
System may include:	• application service provider (ASP) • applications • databases • gateways • internet service provider (ISP) • operating systems

© Commonwealth of Australia, 2025 Future Skills Organisation

	• servers.
Network may include:	• data • large and small local area networks (LANs) • private lines • internet • use of the public switched telephone network (PSTN) for dial-up modems only • virtual private networks (VPNs) • voice • wide area networks (WANs).
Software may include:	• commercial • customised • in-house • packaged.
Documentation may follow:	• audit trails • client training and satisfaction reports • ISO, IEC and AS standards • maintaining equipment inventory • naming standards • project-management templates and report writing • version control.
Project may include:	• business improvement process • ebusiness solution involving the total organisation or part of the organisation • systems-only change • total organisational change.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access • virus risk.
Acceptance criteria may include:	• cost implications • technical and logistical considerations • timeframe.
Test and acceptance processes may vary according to:	• AS4006-1992 Software test documentation • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and

© Commonwealth of Australia, 2025 Future Skills Organisation

	Australian Standards (AS) that are updated and changed on a regular basis • size and type and scope of the project.

Quality benchmarks may include:	• benchmarks that cover:
	  • cost savings
	  • performance
	  • quality
	  • technical matters
	• documented standards for addressing quality in quality-certified organisations
	• international and Australian standards that are updated and changed on a regular basis, including:
	  • AS3925.1-1994 Software quality assurance - plans
	  • AS4042-1992 Software configuration management plans
	  • AS4043-1992 Software configuration management
	  • AS/NZS14102:1998 Information technology - guideline for evaluation and selection of computer-aided software engineering (CASE) tools
	  • AS/NZS4258:1994 Software user documentation process
	  • AS/NZS ISO/IEC 12207:1997 Information technology - Software life cycle processes.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK516A Determine best-fit topology for a local network

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to determine the most appropriate way of networking computers to meet user needs and business requirements.

Network topologies include large and small local area networks (LANs), wide area networks (WANs), virtual private networks (VPNs), virtual local area networks (VLANs) and wireless local area networks (WLANs).

Application of the Unit

This unit applies to individuals in senior roles in the networking area who are required to plan the most appropriate topology for a proposed network.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine user needs	1.1 Identify the different segments of the proposed ***network*** based on business ***requirements***
	1.2 Determine segment needs, using network functional analysis
	1.3 Estimate ***traffic*** content and volumes based on business requirements
	1.4 Develop a prioritised organisational network functional matrix
2. Develop local area network specification	2.1 Determine the resource requirements for each network segment on the basis of functional analysis
	2.2 Analyse features of the physical environment for the effect on network design
	2.3 Conduct a costing process for possible topology options
	2.4 Consider topology options with reference to available resources and network functional matrix
	2.5 Select and document appropriate network topology based on business requirements and functional analysis

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to determine features of the physical environment for the effect on network design

© Commonwealth of Australia, 2025 Future Skills Organisation

- literacy skills to produce network recommendations
- numeracy skills to conduct a costing process
- technical skills to:
  - conduct basic traffic analysis
  - connect networks and keep cables tidy
  - use LAN functional matrices
  - use network protocols
  - use traffic simulation tools.

Required knowledge

- detailed knowledge of:
  - adaptor cards
  - bridges
  - constraints, including costs and queuing
  - ethernet
  - gateways
  - growth projections and capacity planning
  - high and low-speed links
  - hubs
  - protocols
  - redundancy paths
  - response time and reliability requirements
  - routers
  - scope of operation
  - security
  - transmission control protocol or internet protocol (TCP/IP)
  - traffic flow patterns
  - traffic load
  - users applications requirements
- overview knowledge of:
  - cabling, particularly unshielded twisted pair (UTP), shielded twisted pair (STP) or optic fibre
  - characteristics and relative strengths and weaknesses of LAN network topologies
  - features and capabilities of current industry-accepted hardware and software products
  - features of line sharing protocols.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • analyse business or organisational needs • identify the most appropriate LAN, VPN or WLAN topology • document the recommendation.
Context of and specific resources for assessment	Assessment must ensure access to: • business requirements • equipment specifications • organisational and industry costing • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess knowledge of:
	  • network segments
	  • network traffic
	  • different topologies
	• review of candidate's network functional matrix
	• evaluation of candidate's documented topology recommendation.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Network may include:	• data • large and small LANs • private lines • public switched telephone network (PSTN) for dial-up modems only • VLANs • VPNs • voice • WANs • WLANs.
Requirements may be in reference to:	• application • business • network • people in the organisation • system.
Traffic may include:	• data • video • voice.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK517A Determine best-fit topology for a wide area network

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to identify the best way computers and local area networks (LANs) can be connected to make a wide area network (WAN).

Application of the Unit

This unit applies to individuals in networking areas who are required to research and recommend the most appropriate topology for a wide area network.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Identify WAN needs	1.1 Identify the different LAN, or wireless local area network (WLAN) or virtual private network (VPN) segments of the proposed WAN 1.2 Determine segment needs using functional analysis 1.3 Estimate ***traffic*** content and volumes according to expected organisational usage, by examining ***telecommunications infrastructure*** 1.4 Develop an organisational WAN functional matrix
2. Create WAN specification	2.1 Determine ***resource requirements*** for each LAN or WLAN or VPN segment on the basis of functional analysis 2.2 Consider and report how features of the physical environment affect WAN design 2.3 Choose a ***WAN service*** appropriate to the amount and type of traffic expected to access the WAN 2.4 Include redundant links in the proposed WAN connectivity for link backup purposes, in case the main link is disrupted 2.5 Document appropriate WAN service

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to identify WAN needs
- literacy skills to compile reports
- numeracy skills to estimate traffic needs and compare costs
- technical skills to use:

© Commonwealth of Australia, 2025 Future Skills Organisation

- functional matrices
- LAN functional matrices
- network protocols
- traffic simulation tools.

Required knowledge

- detailed knowledge of:
  - concepts and types of modems
  - internet protocol (IP) addressing
  - packet switching
  - routed or routable protocols, including IP, IPX and AppleTalk
  - router operations, including DDR
  - routing protocols, including RIP, EIGRP and OSPF
  - transmission control protocols or internet protocols (TCPs/IPs)
  - relationship of asynchronous and synchronous communication
  - use of microwave and satellite communication in networking
- overview knowledge of:
  - constraints and costs
  - features of telecommunications infrastructure, including the difference between digital and analog networks
  - growth projections and capacity planning
  - high or low-speed links
  - protocols
  - redundancy paths
  - response time and reliability requirements
  - scope of operation
  - security
  - traffic flow patterns
  - traffic load
  - users and the applications expected.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

© Commonwealth of Australia, 2025 Future Skills Organisation

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • consider budget constraints and business needs • identify the configuration for connecting a LAN or WLAN or VPN into a WAN • document the configuration.
Context of and specific resources for assessment	Assessment must ensure access to: • design documents relating to LANs to be incorporated into the WAN • equipment specifications • costings • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of:
	  • network segments
	  • telecommunications infrastructure
	• review of candidate's WAN functional matrix
	• evaluation of documented recommendation.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Traffic may include:	• data • video • voice.
Telecommunications infrastructure may include:	• asymmetrical digital subscriber line (ADSL) • high speed digital subscriber line (HDSL) • integrated services digital network (ISDN) • leased lines • switched circuits (permanent virtual circuits (PVCs) and switched virtual circuits (SVCs) • symmetrical digital subscriber line (SDSL) • T-carriers, synchronous optical network (SONET) technologies.
Resource requirements may include:	• average transaction and file transfer size • nature of WAN traffic (i.e. constant, steady, flows or communication in bursts) • number of users • telecommunications links • type of applications using the link.
WAN service may include:	• bandwidth • cost structure • reliability.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK518A Design an enterprise wireless local area network

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to conduct an internal and outdoor site survey and design a complex wireless local area network (LAN).

Application of the Unit

This unit applies to individuals in the networking area who are required to evaluate client requirements and design an appropriate wireless local area network.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement.*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Document current network configuration	1.1 Obtain details of current ***network*** layout and parameters 1.2 Hold consultations with key stakeholders 1.3 Document the current network configuration, ***network topology*** and links to carrier
2. Research client needs	2.1 Identify the ***client's*** current needs 2.2 Determine future needs 2.3 ***Document*** current and future needs according to ***organisational requirements***
3. Implement site survey	3.1 Select the appropriate diagnostic ***tools*** and measurement processes 3.2 Select test equipment and ensure calibration 3.3 Undertake ***site survey*** with minimum disruption to client and ensure safe working environment for ***users*** and survey personnel 3.4 Record physical infrastructure, building use, aesthetics and other issues that will impact on future network performance and client acceptance 3.5 Record radio frequency interference issues, sources and possible resolution 3.6 Document results of site survey
4. Develop specifications for upgrade of wireless network	4.1 Document the current network performance equipment and capacity for the expanded network 4.2 Assess interference issues relating to existing radio frequency, topographic barriers, climate, obstacles, transmission distances and construction materials 4.3 Assess optimum location and position of access points, repeaters, routers and other equipment 4.4 Develop ***cabling*** plans and repeater links, including power requirements 4.5 Determine frequency to be used based on client and user

© Commonwealth of Australia, 2025 Future Skills Organisation

	requirements
5. Model network	5.1 Determine appropriate test and modelling routines 5.2 Determine estimated network traffic and planned growth 5.3 Test planned network using modelling tools and techniques 5.4 Document outcome of tests and revise design where required
6. Determine components for network	6.1 Select and test vendor products and equipment where appropriate 6.2 Consult others, including emerging industry bodies, for sustainable compatibility and economic running costs and user connectivity access 6.3 Finalise components list for suitability and vendor claims 6.4 Prepare ***implementation plans***
7. Present design to client	7.1 Present the design in a clear and logical fashion 7.2 Provide advice to client on reasons for design choice 7.3 Inform the client of design limitations, performance expectations and possible unanticipated outcomes, including ***security*** threats 7.4 Obtain feedback from client 7.5 Undertake modifications to design if required 7.6 Complete final design documentation and seek client endorsement

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with stakeholders, users and industry bodies
- literacy skills to write technical documentation and record user requirements
- numeracy skills to undertake a cost-benefit comparison
- technical skills to:
  - analyse wireless network performance
  - design, develop and implement various wireless network solutions

© Commonwealth of Australia, 2025 Future Skills Organisation

- implement wireless networking strategies and configure wireless network software and hardware
- implement WLAN and WMAN
- produce wireless network designs.

Required knowledge

- detailed knowledge of:
  - audit and intrusion detection systems
  - auditing and penetration testing techniques
  - bandwidth and quality of service
  - factors affecting signal quality
  - features of antenna design
  - layer 2 and layer 3 design issues
  - radio frequency theory and practice
  - small office home office (SOHO) and enterprise LANs
  - transmission control protocols or internet protocols (TCP/IP) and applications
  - problems associated with topography and obstacles in radio transmission path
  - wireless security strategies
  - wireless topologies
  - WLAN and WMAN solutions
- overview knowledge of:
  - network protocols and operating systems
  - security protocols, standards and data encryption
  - security threats.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • assess wireless network performance • produce wireless network designs appropriate to client requirements • document design.

© Commonwealth of Australia, 2025 Future Skills Organisation

Context of and specific resources for assessment	Assessment must ensure access to: • network infrastructure, including wireless hardware and software • network technical requirements • real or simulated wireless networks • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of:
	  • wireless networks
	  • wireless security
	• review of candidate's completed design documentation
	• evaluation of candidate's implementation plan
	• direct observation of candidate briefing client and obtaining feedback.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

Networks may include:	• domestic • large enterprise WLANs • medium • small.
Network topology may include:	• cabled connected single zone • carrier links • Free Space Optics • indoor and outdoor installations • LMDS • MMDS • multiple zone • satellite connections • stand-alone multi-zone wireless networks.
Client may include:	• communities • external organisations • individuals • internal departments • internal employees.
Document may follow:	• audit trails • client training • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • maintaining equipment inventory • naming standards • project management templates and report writing • satisfaction reports • version control.
Organisational requirements may include:	• how and what the organisation wants in regard to work environment • preventative maintenance and diagnostic policy • problem solution processes • roles and technical responsibilities in network management • vendor and product service level support agreements.
Tools may include:	• cable testing • carrier connection tests • data and voice integration measurements • equipment testing • frequency and spectrum analysers • modelling tools for network performance software • power meters

© Commonwealth of Australia, 2025 Future Skills Organisation

	• radiation meter.
Site survey may include:	• building plans • GPS measurements • indoor propagation analysis • path loss measurements • physical inspection • satellite mapping.
Users may include:	• department within the organisation • person within a department • third party.
Cabling may include:	• category 5e, 6 and 7 cable • coaxial cable • fibre optic cable.
Implementation plans may include:	• cabling • construction requirements • cut-over arrangements • service suppliers.
Security may include:	• authentication, authorisation and accounting (AAA) • diameter • IP security (IPSec) • lightweight eXtensible authentication protocol (LEAP) • privacy key management (PKM) • secure sockets layer (SSL) • smart cards • tokens • wi-fi protected access (WPA) • wired equivalent privacy (WEP).

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK519A Design an IT security framework

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to evaluate IT security requirements for a new system and to plan for controls and contingencies.

Application of the Unit

This unit applies to individuals in senior roles in the networking area who are required to design security for new IT systems.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement.*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Research IT security requirements	1.1 Investigate and assemble statutory, commercial and application ***security requirements***
	1.2 Assess impact on the existing IT system
	1.3 Identify additional IT security requirements
	1.4 Document security requirements and forward to ***appropriate person*** for approval
2. Conduct risk analysis	2.1 Identify ***security threats*** and determine security specifications, taking into account the internal and external business environment
	2.2 Develop controls and contingencies to alleviate security threats
	2.3 Identify the costs associated with contingencies
	2.4 Document and forward recommendations to appropriate person for approval
3. Develop IT security policy and operational procedures	3.1 Review feedback from appropriate person to determine how to manage security threats
	3.2 Develop ***security policies*** based on the ***security strategy***
	3.3 Create and document work procedures based on the security policies
	3.4 Document operating procedures and forward to appropriate person for approval
	3.5 Take action to ensure confidentiality of ***client*** and ***user*** information
	3.6 Apply statutory requirements to policy and procedures

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- analytical skills to:
  - analyse International Organization for Standardization (ISO), International Electrotechnical Commission (IEC), Australian Standards (AS) and other standards to establish and maintain a security framework
  - evaluate and present information across a range of technical and management functions
- communication skills to liaise with clients and users and articulate complex security scenarios in a clear and concise manner
- literacy skills to produce document procedures and recommendations
- numeracy skills to develop a broad plan, budget or strategy
- planning and organisational skills to:
  - contribute to the development of security policies, procedures and frameworks
  - facilitate presentations to groups
- research skills to:
  - identify the range of security risks
  - transfer and collect information.

Required knowledge

- detailed knowledge of:
  - accurate and in-depth knowledge of the client business domain
  - awareness of legislation relating to IT security
  - current industry-accepted hardware and software products, including broad knowledge of security features and capabilities
  - operating systems, including strengths and weaknesses over lifetime of product
  - sources of risk relating to IT security
- overview knowledge of privacy issues and legislation.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and	Evidence of the ability to: • explain legal obligations with respect to privacy and the

© Commonwealth of Australia, 2025 Future Skills Organisation

evidence required to demonstrate competency in this unit	specific application of security issues • design a security framework.

Context of and specific resources for assessment	Assessment must ensure access to:
	• information on the security environment, including:
	  • laws or legislation
	  • existing organisational security policies
	  • organisational expertise
	• IT business specifications
	• IT security assurance specifications
	• possible security environment, which also includes the threats to security that are, or are held to be, present in the environment
	• risk analysis tools or methodologies
	appropriate learning and assessment support when required
	• modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of:
	  • security threats
	  • current industry security trends
	  • current legislation
	• review of candidate's documented security policies
	• evaluation of candidate's documented operating procedures.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Security requirements may include:	• customs
	• expertise
	• knowledge
	• laws
	• organisational security policies
	• security environment, which also includes:
	  • authentication
	  • encryption
	  • hardware
	  • passwords
	  • policies
	  • threats to security that are, or are held to be, present in the environment.

Appropriate person may include:	• authorised business representative • client • supervisor.
Security threats may include:	• data tampering and manipulation; impersonation, penetration and by-pass actions • eavesdropping • keyboard logging • local applications or LAN connections • weaknesses in internet networks.
Security policies may cover:	• theft • viruses • standards, including archival, backup and network • privacy • audits and alerts.
Security strategy may include:	• authentication • authorisation and integrity • privacy.
Client may include:	• employees • external organisations

© Commonwealth of Australia, 2025 Future Skills Organisation

	• individuals • internal departments.
User may include:	• department within the organisation • person within a department • third party.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK520A Design IT system security controls

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design the security controls that ensure an IT system is secure, both physically and legally. It involves developing the organisational policy and procedures for information security, process security, internet technology security, communications security, wireless security and overall physical security.

Application of the Unit

This unit applies to individuals in a range of information and communications technology (ICT) areas who are required to guarantee the security of IT systems.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Review organisational security policy and procedures	1.1 Review business environment to identify existing ***requirements***
	1.2 Determine organisational goals for legal and security requirements
	1.3 Verify security needs in a policy document
	1.4 Determine legislative impact on business domain
	1.5 Gather and document objective evidence on current ***security threats***
	1.6 Identify options for using internal and external expertise
	1.7 Establish and document a standard methodology for performing security tests
2. Develop security plan	2.1 Investigate theoretical attacks and threats on the business
	2.2 Evaluate risks and threats associated with the investigation
	2.3 Prioritise assessment results and write ***security policy***
	2.4 Document information related to attacks, threats, risks and controls in a ***security plan***
	2.5 Review the ***security strategy*** with security-approved key ***stakeholders***
	2.6 Integrate approved changes into business plan and ensure compliance with statutory requirements
3. Design controls to be incorporated into system	3.1 Implement controls in a procedurally organised manner to ensure minimum risk of security breach in line with ***organisational guidelines***
	3.2 Monitor each phase of the implementation to determine the impact on the business
	3.3 Take corrective action on system implementation breakdown

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.4 Record implementation process 3.5 Evaluate corrective actions for risk 3.6 Plan ***risk assessment*** review process 3.7 Take action to ensure confidentiality throughout all phases of design

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to undertake risk assessment of data-gathering techniques
- communication skills to manage group facilitation and presentation related to transferring and collecting information
- literacy skills to produce business reports
- planning and organisational skills to provide accurate and concise insights to possible security threats for all levels of staff, both technical and managerial
- problem-solving skills to identify and remedy evolving and complex security threat scenarios.

Required knowledge

- detailed knowledge of:
  - communications security, including human organisational interactions
  - how to conduct an information security risk assessment
  - internet technology security, including firewalls
  - physical security
  - security testing methods for performing security tests
  - wireless security
- overview knowledge of:
  - current industry-accepted security processes, including general features and capabilities of software and hardware solutions
  - ethics in IT
  - general features of specific security technology
  - privacy issues and legislation
  - process security for policy and procedures.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • confirm sufficient knowledge of security products and organisational security policy • establish realistic ground rules for security product procedures • design security controls for a system • incorporate these into a security strategy.
Context of and specific resources for assessment	Assessment must ensure access to: • IT security assurance specifications • probability, frequency and severity of direct and indirect harm, loss or misuse of the IT system • risk analysis tools and methodologies • risks to the mission or business resulting from IT-related risks • security environment, which also includes the threats to security that are, or are held to be, present in the environment • security environment relating to laws and legislation, existing organisational security policies and organisational expertise • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess knowledge of:
	  • layered security
	  • risk management
	  • security issues
	  • statutory requirements
	• review of documented security, including:
	  • policy
	  • plan
	  • strategy.

Guidance information	Holistic assessment with other units relevant to the industry

© Commonwealth of Australia, 2025 Future Skills Organisation

for assessment	sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Requirements may relate to:	• application • business • network • people in the organisation • system.
Security threats may include:	• by-pass actions • data tampering and manipulation • eavesdropping • impersonation • keyboard logging • local applications or local area network (LAN) connections • penetration • weaknesses in internet networks.

Security policy may relate to:	• audits and alerts
	• privacy
	• standards, including:
	  • archival
	  • backup
	  • network

© Commonwealth of Australia, 2025 Future Skills Organisation

	• theft • viruses.
Security plan may include:	• logical controls • physical controls • social controls.

Security strategy:	• may include:
	  • authentication
	  • authorisation and integrity
	  • privacy
	• usually forms part of the overall objectives of the organisation.

Stakeholders may include:	• development team • project team • sponsor • user.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access • templates • virus risk.
Risk assessment may include:	• developing risk plans • developing scenarios • evaluating threats • following up • gathering information • identifying counter measures • identifying threats • ranking risk • reporting.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK521A Install, configure and test a payment gateway

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to install, configure and test a payment gateway that enables translation of electronic payment information provided online into a form accessible to a merchant processor.

Application of the Unit

This unit applies to individuals in the network or web development area who are required to build e-commerce facilities into websites.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Prepare server and ebusiness software for payment site	1.1 Analyse client requirements 1.2 Evaluate payment ***software*** and select appropriate software to meet ***specifications***, including security and privacy benchmarks 1.3 Review and compare online merchant options 1.4 Choose ***payment method*** with reference to business requirements and client expectations 1.5 Test payment software and evaluate to ensure suitability and compatibility with current ***system*** and to meet ***client*** needs
2. Install payment gateway	2.1 Install selected payment software 2.2 Establish online merchant account 2.3 Configure web pages and back-end ***solutions*** to handle requests and integrate with the ***database*** for each transaction 2.4 Obtain merchant account information from the financial institution 2.5 Implement appropriate security systems to protect the payment infrastructure 2.6 Configure payment gateway to accept the appropriate payment methods and transaction types according to business requirements
3. Test payment gateway	3.1 Check transaction ***server*** for functionality against expected performance benchmarks 3.2 Test gateway using transaction types 3.3 Verify transactions by using the administrative functions of chosen payment software 3.4 Document payment gateway

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse client needs
- literacy skills to document completed work
- numeracy skills to check payment transactions
- planning and organisational skills to complete tasks within costs and timeframe
- technical skills to:
  - configure software on a server
  - script in a variety of languages
  - select and configure a merchant account
  - set up a merchant ID (MID) and a terminal ID (TID).

Required knowledge

- detailed knowledge of
  - batching verification
  - payment software products
  - processes and techniques associated with implementing client-side shopping carts through active server pages (ASP) and interfacing with databases with ActiveX Data Objects (ADO)
  - public key infrastructure (PKI)
  - relative advantages and disadvantages of credit card, digital cash and online cheque systems
- overview knowledge of:
  - Copyleft and Free Software Foundation
  - copyright and intellectual property
  - electronic commerce modelling language (ECML)
  - encryption options for national and international business
  - globally unique ID (GUID)
  - privacy legislation.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • review client requirements • install, configure and test a payment gateway • document completed payment gateway.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate servers and software • payment software • simulated merchant account • website • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of candidate's payment gateway
	• review of candidate's payment gateway documentation
	• verbal or written questioning to assess candidate's knowledge of:
	  • payment gateways
	  • scripting
	  • security required for ecommerce.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Software may include:	• commercial applications • customised • in-house • organisation-specific • packaged.
Specifications may include:	• current system functionality • metrics • project plan • software requirements • technical requirements • user problem statement.
Payment method may include:	• local and international transactions • use of credit cards • off-line • online cheques or digital cash • online or a combination of both.
System may include:	• application service provider (ASP) • applications • databases • gateways • internet service provider (ISP) • operating systems • servers.
Client may include:	• external organisations • individuals • internal departments • internal employees.
Solutions may include:	• audit requirements • ebusiness or e-commerce solution • changes to network infrastructure • changes to security or privacy provisions • new hardware and hardware upgrades • new software and software upgrades

© Commonwealth of Australia, 2025 Future Skills Organisation

	• inventory management • OHS requirements • quality requirements • user training or implementing a new system.
Database may include:	• commercial off-the-shelf (COTS) packages • object-relational • proprietary • relational.
Server may include:	• application or web servers • BEA Weblogic servers • email servers • file and print servers • firewall servers • FTP servers • IBM VisualAge and WebSphere • Novell Directory Services (NDS) servers • proxy or cache servers.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK522A Build decks using wireless markup language

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to create wireless markup language (WML) decks.

Application of the Unit

This unit applies to individuals in the networking area who are required to use WML to create decks.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement.*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Design WML deck	1.1 Analyse existing hypertext markup language (HTML) page design and identify information to be accessible via hand-held device 1.2 Design deck logical structure, ensuring that deck size is kept within acceptable boundaries 1.3 Determine structure of content based on business needs and user requirements 1.4 Identify links between sets of cards 1.5 Design cards for user input or for the selection of more than one item
2. Create deck	2.1 ***Code*** each card in the deck, ensuring each card has an ID and a title 2.2 Create cards using language and practices compliant with the international ***WML standard*** 2.3 Use best practice coding standards in creating the deck 2.4 Avoid device-specific features in creating the deck
3. Test deck	3.1 Test deck on multiple devices to ensure compatibility with as many hand-held devices as possible 3.2 Validate WML files by typing and submitting the uniform resource locator of the WML file or the WML validator 3.3 Ensure the <go> and <prev> tasks select the correct card in the deck 3.4 Ensure the tested WML files meet the needs of the business ***client***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- analytical skills to analyse existing HTML page design
- problem-solving skills to apply solutions to problems related to WML
- technical skills to use:
  - JavaScript
  - WWW, HTML and building web pages
  - XML.

Required knowledge

- detailed knowledge of:
  - internet standards and transmission control protocols or internet protocols (TCPs/IPs)
  - five layer protocol stack of TCP/IP
  - WAP and application communication protocols
  - WML
  - WMLScript
  - WMLScript specification
  - XML 1.0 standard
  - XML applications
- features of wireless:
  - application environment
  - datagram protocol
  - session protocol
  - transaction protocol
  - transport layer security
- overview knowledge of the Australian Computer Society Code of Ethics.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate	Evidence of the ability to: • create WML files that meet the business client's need.

© Commonwealth of Australia, 2025 Future Skills Organisation

competency in this unit	
Context of and specific resources for assessment	Assessment must ensure access to: • XML parser • WML valuator • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of candidate's completed deck
	• direct observation of candidate testing a deck on a hand-held device
	• verbal or written questioning to assess candidate's knowledge of:
	  • HTML
	  • WML
	  • XML
	  • wireless networks.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

Code card elements may contain:	• images • input fields • links • markup language • tasks • text.
WML standard may include:	• WAP architecture specification - WAP-100, Wireless application protocol architecture specification • WAP specification 1.1 or later • WAP specification suite • WAP-120 WAP caching model specification • WAP-174 User agent profiling specification • WAP-175 WAP cache operation specification • WAP-190 Wireless application environment specification • WAP-191 Wireless markup language specification • WAP-192 Binary XML content format specification • WAP-193 WMLScript language specification • WAP-194 WMLScript standard libraries specification.
Client may include:	• external organisations • individuals • internal departments • internal employees.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK524A Install and configure network access storage devices

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to select, install and test a network access storage (NAS) device in a local area network (LAN).

Application of the Unit

This unit addresses the knowledge, processes and techniques necessary to install, configure and test a NAS device.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine specifications for NAS	1.1 Determine and document the ***topology*** of the LAN 1.2 Investigate and determine current and future ***storage requirements*** according to current and future business requirements 1.3 Determine the number and type of ***NAS*** devices required, and refer to current and future network requirements 1.4 Determine the requirements for network management, backup, security and redundancy, according to organisational policy
2. Select appropriate hardware and software	2.1 Select the hardware and ***operating system*** software version with the appropriate features according to required specifications 2.2 Choose storage ***applications*** to determine access and response times
3. Install hardware and software	3.1 Install required level of RAID hardware or software 3.2 Install ***hard disks*** as specified by manufacturer instructions 3.3 Install operating system software according to manufacturer instructions 3.4 Connect to network media using ***media*** that meets required ***standard*** 3.5 Connect power, power it up and check operation
4. Configure NAS	4.1 Configure a ***network address*** and ***hostname*** 4.2 Establish and test a valid network connection with other LAN devices 4.3 Configure hard disks according to RAID requirements and format with appropriate file system 4.4 Configure access and security according to application and organisational requirements
5. Test and troubleshoot	5.1 Test NAS according to manufacturer requirements and

© Commonwealth of Australia, 2025 Future Skills Organisation

NAS	organisational guidelines 5.2 Ensure access and response times are acceptable to required applications, users and organisational policy 5.3 Make adjustments to the configuration, depending on test and troubleshooting results

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- literacy skills to:
  - conduct and document a wireless survey
  - develop a cut sheet or cabling map
  - document installed networks with appropriate labelling of cable terminations
- technical skills to:
  - attach a network device to the LAN
  - configure a workstation or server within a network environment
  - implement and configure networks
  - install and configure operating system
  - install hard disk drives
  - open, edit and save word-processing documents
- research skills to gather information to determine NAS requirements.

Required knowledge

- overview knowledge of:
  - advantages and disadvantages of NAS versus direct attached storage (DAS) devices
  - Australian Computer Society Code of Ethics
  - common hard drive types and connectors
  - common network cable types and connectors
  - common network topologies
  - implementation and configuration of networks
  - RAID configurations.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • install NAS device without interruption to other LAN services • configure LAN services accessing the NAS to allow user-less intervention for normal operation.
Context of and specific resources for assessment	Assessment must ensure access to: • NAS device or basic components to build a NAS, such as personal computer, operating system, hard disk, and network connection • network devices, such as switches and routers • workstations and servers • cabling access points and wireless access point • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of setup of NAS device • evaluation of NAS systems and vendor products • completion of a design of NAS setup for a network storage problem • analysis of NAS performance in different usage situations.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required

© Commonwealth of Australia, 2025 Future Skills Organisation

	knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Topology may include:	• bus • hierarchical • hybrid • ring • star.

Storage requirements may include:	• amount of data to be stored
	• minimum free space required
	• temporary storage space
	• type of data to be stored:
	  • bit torrents
	  • databases
	  • streaming media
	  • user data files
	  • websites.

NAS may be:	• built from basic components
	• produced by vendors:
	  • Buffalo
	  • Connex
	  • D-Link
	  • Hewlitt-Packard
	  • LinkSys
	  • NetGear
	  • Network Appliance
	  • Reldata
	  • Seagate
	  • Synology
	  • Western Digital.

© Commonwealth of Australia, 2025 Future Skills Organisation

Operating system may include:	• Citrix
	• HP-UX
	• IBM AIX
	• Linux variants:
	  • ClarkConnect
	  • Fedora
	  • FreeNas
	  • Naslite
	  • OpenFiler
	  • Red Hat
	  • SME Server
	  • Ubuntu
	• Mac
	• Microsoft Windows (client and server versions)
	• Novell SUSE Linux
	• Sun Solaris.

Applications may include:	• deployment servers • domain controllers • file servers • gaming server • media server • print servers • structured query language (SQL) server • user workstations • web server.

Hard disks may include:	• Firewire
	• parallel advanced technology attachment (PATA):
	  • EIDE
	  • IDE
	• serial advanced technology attachment (SATA)
	• eSATA
	• SAS
	• SCSI (multiple variations).

Media may include:	• fibre optic
	• STP
	• UTP
	• wireless:
	  • infra-red
	  • radio
	  • satellite.

© Commonwealth of Australia, 2025 Future Skills Organisation

Standard may include:	• Cat5, 5e, 6 and 7 • EIA/TIA 568A • EIA/TIA 568B • FDDI • IEEE 802.11 (a, b, g or n) • RJ45.
Network address may include:	• IPX or SPX address • transmission control protocol or internet protocol (TCP/IP) address.
Hostname may include:	• computer name • DNS name • NetBeui name.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK525B Configure an enterprise virtual computing environment

Modification History

Release	Comments
Release 2	This version first released with ICA11 Information and Communications Technology Version 2. Revised elements 1 and 2. Added to range statement. A range of minor editorial changes. Outcomes deemed equivalent.
Release 1	This version first released with ICA11 Information and Communications Technology Version 1.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop and implement virtualisation technologies with the goal of providing a more efficient and reliable information and communications technology (ICT) environment.

Application of the Unit

This unit applies to senior networking staff responsible for increasing the sustainability of an enterprise by using virtualisation technologies.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Prepare to configure virtual environment	1.1. Obtain technical specifications and ***system requirements*** from ***virtualisation software vendors*** 1.2. Review ***environmental requirements*** for installing ***virtualisation software***
2. Install and configure support services	2.1. Install and configure ***required services*** and ports according to virtualisation software vendors 2.2. Install and configure virtualisation client and server ***management software*** according to ***enterprise requirements*** 2.3. Install, configure and manage environmental requirements to ensure virtual machines function 2.4. Configure virtual machines using ***remote client management software***
3. Design and configure virtual network	3.1. Plan and design virtual network according to client needs 3.2. Install and configure ***virtual networks*** 3.3. Verify ***functionality*** of virtualisation network according to enterprise requirements

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills
communication skills to: • convey and clarify information

© Commonwealth of Australia, 2025 Future Skills Organisation

• liaise with clients
• initiative and enterprise skills to proactively minimise, control or eliminate hazards that may exist during work activities
• literacy skills to:
  • develop and document virtualisation configurations and processes
  • record researched information
• planning skills to plan methods for integrating and maintaining a virtualised machine environment
• problem-solving skills to:
  • apply solutions in networks, including virtualised machine environments
  • deploy rapid solutions to problems involving virtualised machine environment
• technical skills to apply current best practice to implementing sustainability options through virtualisation methodologies and technologies

Required knowledge

• overview knowledge of:
  • current government and industry policies and guidelines relating to developing efficient and reliable ICT environments
  • current technologies and processes designed to produce an efficient and reliable ICT environment
• available tools and software applications required to manage virtual machines
• configuration of software applications required to manage virtual machines
• configuration required to integrate virtual machines into existing network design
• structure, function and business organisation of client

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • install, configure and test virtual machines • manage environmental requirements • install and use software tools.
Context of and specific resources for	Assessment must ensure access to: • site or prototype where virtual machine environments may be

© Commonwealth of Australia, 2025 Future Skills Organisation

assessment	implemented • network technical requirements • industry-relevant virtualisation software • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of emerging policies relating to:
	  • current recommendations on sustainability options in ICT design
	  • benefits of virtualisation
	  • installation and configuration of virtualisation software
	  • installation and configuration of virtual machines
	  • configuration of virtual machines into network design
	• direct observation of candidate demonstrating:
	  • installation and configuration of virtualisation software
	  • installation and configuration of virtual machines
	  • configuration of virtual machines into network design
	• review of documentation prepared by candidate to:
	  • record the configuration of virtual machines
	  • record the process of configuration of virtual machines.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating *conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.*

System requirements may include:	• hard disk capacity and speed • internet small computer systems interface (iSCSI) • minimum random access memory (RAM) • motherboard architecture • number of cores in central processing unit (CPU) • number of network interface cards • number of physical CPUs • redundant array of inexpensive or independent disks (RAID) • serial advanced technology attachment (SATA) • small computer system interface (SCSI) • speed of CPU • statistical analysis system (SAS) • storage and hard disk interface requirements: • virtualisation technology at the central processing unit level (VT(x)) support.
Virtualisation software vendors may include:	• Citrix • KVM • Microsoft • Oracle • Parallels • VMware.
Environmental requirements may include:	• available memory (RAM) • available storage (hard disks) • CPU loads • physical environmental factors, such as ventilation and cooling • power requirements.
Virtualisation software may include:	• Citrix XenServer • KVM • Microsoft Hyper-V Server • Microsoft Virtual PC • Microsoft Virtual Server • Oracle VM VirtualBox • Parallels Desktop for Mac

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Parallels Server for Mac • VMware ESX Server • VMware ESXi Server • VMware Player • VMware Server • VMware VSphere • VMware Workstation • Windows Virtual PC.
Required services may include:	• database server • DNS • Microsoft.net • Windows installers.
Management software may include:	• Citrix Essentials for Hyper-V • Citrix XenServer Management Console • Microsoft Hyper-V • Microsoft Systems Center Virtual Machine Manager • Parallels H-Sphere • VMware Infrastructure Client • VMware vCenter Lab Manager • VMware vSphere Client • vSphere client and host update utility.
Enterprise requirements may include:	• preventative maintenance and diagnostic policy • problem solution processes • roles and technical responsibilities in network management • vendor and product service level support agreements • work environment.
Remote client management software may include:	• Microsoft Hyper-V • Microsoft Systems Center Virtual Machine Manager • VMware Infrastructure Client • VMware vCenter Lab Manager • VMware vSphere Client.
Virtual networks may include:	• bridged networks • host only networks • private virtual local area network (VLANs) • those using network address translation (NAT).
Functionality may include:	• connectivity to a physical network • connectivity to a specific VLAN on a physical network • connectivity within a local host-only network • local area network (LAN) and wide area network (WAN) connectivity.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK527B Manage an enterprise virtual computing environment

Modification History

Release	Comments
Release 2	This version first released with ICA11 Information and Communications Technology Version 2. Added performance criteria under elements 3 and 4. A range of minor editorial changes. Outcomes deemed equivalent.
Release 1	This version first released with ICA11 Information and Communications Technology Version 1.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manage virtualisation technologies with the goal of providing a more efficient and reliable information and communications technology (ICT) environment.

Application of the Unit

This unit applies to senior networking staff responsible for managing virtualisation technologies.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Manage resources	1.1. Monitor and adjust ***resources*** to ensure virtual environment performance functions according to ***enterprise requirements***
	1.2. Verify ***functionality*** of virtual environment
2. Manage virtual machines	2.1. Use ***migration tools*** to convert a ***physical machine*** to a virtual machine
	2.2. Select appropriate deployment methods for a virtual machine
	2.3. Create and deploy a virtual machine using ***installation media***
	2.4. Create and deploy a virtual machine using automated templates
	2.5. Use virtual machine ***snapshots*** to reverse or implement changes to a virtual machine
3. Ensure high availability	3.1. Plan and design strategy to ensure virtual environment ***high availability***
	3.2. Identify and select suitable resources for high availability implementation, according to enterprise requirements
	3.3. Configure virtual machine environment to ensure high availability
	3.4. Configure virtual machine environment to provide live migration
	3.5. Plan and design backup strategy
	3.6. Back up and recover a virtual machine using and integrating third-party tools

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills
communication skills to: • convey and clarify information • liaise with clients • literacy skills to: • document virtualisation configurations and processes • record researched information • planning skills to plan methods for maintaining a virtualised machine environment • problem-solving skills to: • apply solutions in networks, including virtualised machine environments • deploy rapid solutions to problems involving virtualised machine environment • proactively minimise, control or eliminate hazards that may exist during work activities • technical skills to apply current best practice to managing virtualisation methodologies and technologies
Required knowledge
• in-depth knowledge of: • current government and industry policies and guidelines in relation to developing efficient and reliable ICT environments • current technologies and processes designed to produce an efficient and reliable ICT environment • structure, function and business organisation of client • application and deployment of virtual machine management tools • virtual machine configuration and integration options

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to	Evidence of the ability to: • monitor and provide resources to virtual environment

© Commonwealth of Australia, 2025 Future Skills Organisation

demonstrate competency in this unit	• create and deploy virtual machines • implement changes to virtual machines • back up and recover a virtual machine.
Context of and specific resources for assessment	Assessment must ensure access to: • site or prototype where virtual machine environments may be implemented • network technical requirements • appropriate software • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of emerging policies relating to:
	  • current recommendations on sustainability options in ICT design
	  • benefits of virtualisation
	  • installation and configuration of virtualisation software
	  • installation and configuration of virtual machines
	  • configuration of virtual machines into network design
	• direct observation of candidate demonstrating:
	  • installation and configuration of virtualisation software
	  • installation and configuration of virtual machines
	  • configuration of virtual machines into network design
	• review of documentation prepared by candidate to:
	  • record the process of installing and configuring virtual machines
	  • document the system.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be

© Commonwealth of Australia, 2025 Future Skills Organisation

	combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating *conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.*

Resources may include availability of:	• central processing unit (CPU) cores • CPU load to be shared • CPU speed • hard disk space (storage) • memory (RAM) • network bandwidth • physical CPUs.
Enterprise requirements may include:	• how and what the enterprise wants regarding work environment • preventative maintenance and diagnostic policy • problem-solving processes • roles and technical responsibilities in network management • vendor and product service level support agreements.
Functionality may include:	• availability of services on a virtual machine • virtualised services performing the same as a service running on physical machine.
Migration tools may include:	• AutoVirt AutoMove • Leostream • Microsoft System Center Virtual Machine Manager (SCVMM) • Microsoft Virtual Server 2005 Migration Toolkit • PlateSpin Migrate • Virtuozzo • Vizioncore vConverter • VMware Converter • VMware P2V Converter • VMware vCenter Converter.
Physical machine may include:	• laptop or notebook • server

© Commonwealth of Australia, 2025 Future Skills Organisation

	• workstation.
Installation media may include:	• blu-ray disk • CD • DVD • floppy disk • ISO image • network share • universal serial bus (USB) flash drive.

Snapshots may include:	• stored virtual machine configuration to allow:
	  • rollback of changes to a virtual machine
	  • implementation of instant changes to a virtual machine.

High availability may relate to use of:	• clustered virtual machines performing an identical task • load balancing between virtual machines to ensure service requirements are met • pre-configured virtual machines that can be rapidly stored and deployed in the event of a system failure • standby power solutions in the event of a power disruption.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK529A Install and manage complex ICT networks

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to install and manage enterprise-wide information and communications technology (ICT) networks.

Application of the Unit

This unit applies to information technology (IT) professionals who work in the complex computing environment of medium-sized to large companies to provide network services and resources.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Plan and design a complex network to meet business requirements	1.1 Review network design, business requirements and latest vendor technical specifications for ***network components***
	1.2 Research options available for providing the network functionality required
	1.3 Plan network implementation to provide ***network services*** and ***resources*** to meet business requirements
2. Design and implement a security strategy	2.1 Analyse requirements for internal and external security
	2.2 Design ***security strategy*** to meet requirements
	2.3 Implement security strategy
	2.4 Undertake ongoing monitoring of the viability and reliability of network security, through testing and use of technical ***tools***
	2.5 Continually monitor internal and external network access for security breaches
3. Install and configure a complex network to meet business requirements	3.1 Check and install cabling and associated components according to industry standards
	3.2 Install and configure servers, routers, switches or other devices to provide internet protocol (IP) addressing and routing
	3.3 Install and configure servers, routers, switches or other devices to provide name resolution
	3.4 Install and configure servers, routers, switches or other devices to provide network services
	3.5 Install and configure remote access services
	3.6 Install and configure devices to provide ***data management services***
4. Provide integrated network services across a complex network	4.1 ***Integrate multiple network services*** across network
	4.2 Analyse and resolve interoperability issues
	4.3 Optimise performance
	4.4 Rectify security conflicts arising from integrating services
5. Plan, design and	5.1 Install software and configure and test voice over internet

© Commonwealth of Australia, 2025 Future Skills Organisation

implement voice and video business communications system	protocol (VoIP) and videoconferencing services 5.2 Incorporate the use of a communications server to provide real-time multimedia communications 5.3 Select common voice and videoconferencing codecs according to standards and practices
6. Manage and support a complex network	6.1 Identify and evaluate appropriate network management tools to assist in the administration of the complex network 6.2 Select and install network management tools according to industry and organisational standards 6.3 Set and monitor alerts and logs 6.4 Capture and analyse network performance data 6.5 Implement automated server updates 6.6 Implement desktop management policies 6.7 Implement automated virus checking 6.8 Use remote management tools
7. Test network functionality and obtain sign-off	7.1 Test network functionality and record results 7.2 Record results of network functionality test 7.3 Complete network documentation according to organisational standards

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to use complex technical data to develop network designs
- communication skills to consult with customers
- literacy skills to:
  - interpret technical documentation
  - write reports
- numeracy skills to:
  - take test measurements
  - interpret results
  - evaluate performance and interoperability of network services

© Commonwealth of Australia, 2025 Future Skills Organisation

- problem-solving skills to solve a range of predictable network problems
- research skills to identify, analyse and evaluate broad features of a particular business domain and best practice in networking technologies, including hardware and software to be installed
- technical skills to:
  - implement dynamic name system (DNS), IP addressing and secure virtual private network (VPN) tunnels
  - install and configure application software to provide specific services
  - install, configure and secure server operating systems
  - install, configure and secure switches and routers
  - integrate multiple network services without conflict
  - set up and use network monitoring and management tools
  - test network functionality.

Required knowledge

- firewall configuration
- IP addressing and network configuration
- network:
  - infrastructure
  - load-balancing for applications
  - security
  - server operating systems
  - service configuration, including:
    - DNS
    - dynamic host configuration protocol (DHCP)
    - file transfer protocol (FTP)
    - mail
    - network time protocol (NTP)
    - proxy
    - server messages block (SMB)
    - web
  - service management
- troubleshooting tools and techniques, including network diagnostic utilities
- user authentication and directory services
- VoIP
- VPN.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design and implement a complex network that involves integrating multiple network services to meet business requirements • design and implement an appropriate security strategy for a complex network • monitor and test the performance of aspects of the solution • provide ongoing management and support of the network.
Context of and specific resources for assessment	Assessment must ensure access to: • network design and business requirements documents • a complex network or hardware and software required to build a network involving multiple servers, multiple physical locations (or simulation of) and a combination of network services • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of report that outlines design process undertaken, including challenges faced and how these were addressed • direct observation of the candidate installing and configuring components of a complex network • technical documentation detailing configuration of the complete network • verbal or written questioning of candidate to assess required skills and knowledge • evaluation of report that outlines testing procedures, test results and changes made as a result of testing • evaluation of system designed and implemented in terms of performance and suitability for business needs.
Guidance information	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where

© Commonwealth of Australia, 2025 Future Skills Organisation

for assessment	appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Network components may include:	• cables • digital subscriber line (DSL) modems • local area network (LAN) • modems • routers • servers • switches • WAN • wireless access point.
Network services may include:	• database service • DHCP • DNS • FTP • firewall • hypertext transfer protocol (HTTP, HTTPS) • internet message access protocol (IMAP) • network file system (NFS) • NTP • post office protocol (POP) • print services

© Commonwealth of Australia, 2025 Future Skills Organisation

	• proxy • SMB • simple mail transfer protocol (SMTP) • simple network management protocol (SNMP) • transmission control protocol or internet protocol (TCP/IP).
Network resources may include:	• backup and data security • business applications • collaboration tools • conferencing • data storage • databases • email • internet services • printers, faxes and scanners • streaming video • VoIP.

Security strategy may include:	• automated updates:
	  • Red Hat Network (RHN)
	  • Windows Server Update Services (WSUS)
	• encryption
	• Firewall - demilitarised zone (DMZ)
	• proxy
	• public key infrastructure (PKI) and secure socket layer (SSL) certificates
	• secure remote access
	• server hardening
	• smart cards
	• tokens
	• user authentication
	• virus checking
	• VPN.

Tools may include:	• cable testing • carrier connection tests • data and voice integration measurements • equipment testing • frequency analysers • network performance software • packet tracers • policing and shaping tools.
Data management services may include:	• backup and recovery • disk quotas

© Commonwealth of Australia, 2025 Future Skills Organisation

	• distributed file systems • indexing • online and offline storage • storage area networks (SANs).
Integrate multiple network services may include:	• Kerberos • lightweight directory access protocol (LDAP) • Samba • seamless access to Linux and Windows hosted data and services • single login to gain access to multiple services (federated authentication) • VoIP over VPN.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK531A Configure an internet gateway

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to connect network hardware devices, mainly personal computers (PCs), to an internet gateway.

Application of the Unit

This unit applies to middle managers, such as network engineers, technical specialists or security analysts, who are responsible for implementing and managing the connection of network hardware devices to an internet gateway.

They provide technical advice, guidance and leadership in the resolution of specified problems.

The role involves managing the installation, configuration and testing of gateway products and related hardware and software, as well as determining security threats. Related tasks include network planning, implementation and budgeting.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Confirm client requirements and network equipment	1.1 Confirm and validate ***client*** requirements 1.2 Determine scope of internet services with reference to client requirements 1.3 Identify and install both ***hardware*** and ***software*** components 1.4 Verify equipment specifications and availability of components
2. Review security issues	2.1 Assess security features of internet gateways with reference to ***architecture*** and ***security plan*** 2.2 Review security measures with the ***internet service provider*** (ISP) with reference to ***firewalls*** and other measures as required 2.3 Brief ***users*** on the security plan with reference to internet use and hazard possibilities
3. Install and configure gateway products and equipment	3.1 Identify and select installation and configuration options 3.2 Install and configure gateway products and equipment as required by technical guidelines 3.3 Plan and execute tests with reference to client requirements and ***network*** impact 3.4 Analyse error reports and make changes as required
4. Configure and test node	4.1 Assign node to specific gateway as required by network architecture and client requirements 4.2 Determine ***connection type*** and configure with reference to network architecture and client requirements 4.3 Ensure node software and hardware are configured as required according to vendor specifications and client requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to confirm business and network requirements
- communication skills to:
  - communicate with clients
  - convey and clarify complex information
- literacy skills to interpret technical documentation, equipment manuals and specifications
- problem-solving skills to solve operational problems as they arise
- safety awareness skills to work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- technical skills to:
  - analyse error reports and correct as required
  - install and configure computer hardware and software
  - use proprietary software.

Required knowledge

- current browser software, such as MS Explorer, Netscape Navigator, Mozilla, Konqueror and Opera
- domain name server (DNS) resolution
- features and functions of:
  - network architecture:
    - bridges as required
    - desktop operating systems
    - hubs
  - network gateways
  - network operating systems:
    - routers
    - switches
- gateway software:
  - Cisco IpeXchange
  - Lotus Notes
  - Postoffices.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • connect network hardware devices to an internet gateway • configure and test gateway products • configure and test node according to vendor specifications and client requirements.
Context of and specific resources for assessment	Assessment must ensure access to: • network and internet where gateway products may be installed and configured • use of hardware and software currently used in industry • client requirements documentation • vendor specifications • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of hardware and software to be installed
	• direct observation of candidate:
	  • installing and configuring gateway products as required by technical guidelines
	  • configuring and testing node as required by vendor specifications and client requirements.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be

© Commonwealth of Australia, 2025 Future Skills Organisation

	combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• employees • external organisations • individuals • internal departments.
Hardware may include:	• digital subscriber line (DSL) modems • modems or other connectivity devices • networks • PCs • remote sites • servers • workstations.

Software may include:	• application software:
	  • database
	  • internet browser
	  • spreadsheet
	  • word-processing
	• commercial
	• customised software
	• in-house
	• programming software:
	  • assembler
	  • compiler
	  • development tools
	• system software:
	  • computer security software
	  • device drivers
	  • operating system.

© Commonwealth of Australia, 2025 Future Skills Organisation

Architecture may include:	• configuration:
	  • large memory model
	  • requests per second
	  • small memory model
	• database software:
	  • DB2
	  • Informix
	  • Ingres
	  • Microsoft SQL (MS SQL) server
	  • Mini SQL (mSQL)
	  • MySQL
	  • Oracle
	  • Sybase
	• operating system:
	  • Linux
	  • Mac
	  • multi-user ability
	  • Novell NetWare
	  • Windows.

Security plan may include:	• alerts relating to the security objectives of the organisation
	• audits
	• privacy
	• standards:
	  • archival
	  • backup
	  • network
	• theft
	• viruses.

Internet service provider may include:	• broadband access:
	  • asymmetric digital subscriber line (ADSL)
	  • cable
	  • fibre
	  • satellite
	  • wireless
	• dial-up access
	• ISP hierarchical structure:
	  • Tier 1 ISP
	  • Tier 2 ISP
	  • Tier 3 ISP.

© Commonwealth of Australia, 2025 Future Skills Organisation

Firewalls may include:	• hardware appliances
	• individual PC solutions, with varying functionality:
	  • network address translation (NAT) or internet protocol (IP) masquerading
	  • routing to specific machines
	• proxy servers.

Users may include:	• contractors • departments within the organisation • persons within a department • support staff • third parties.
Network may include:	• data • internet • large and small local area networks (LANs) • private lines • use of the public switched telephone network (PSTN) for dial-up modems only • voice • virtual private network (VPN) • wide area network (WAN).
Connection type may include:	• ADSL • cable • dedicated or proxy connections • dial-up • integrated services digital network (ISDN) terminal adapter • optical network termination (ONT).

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK532A Identify and resolve network problems

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to troubleshoot local area network (LAN), wide area network (WAN) and wireless network problems.

Application of the Unit

This unit applies to network managers, network engineers and technical specialists, who generally work independently with limited supervision. Staff at this level perform a broad range of problem-solving activities, including troubleshooting, evaluating and analysing networks, and planning and developing new systems and procedures. They generally have excellent problem-solving skills and address more complex or non-routine situations where discretion and judgement are required.

They provide technical advice, guidance and leadership in resolution of network problems and the role may involve responsibility for others.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Implement regular network monitoring	1.1 Set up appropriate logs to monitor ***network*** activity and to produce a management information base (MIB) 1.2 Use ***network tools*** to benchmark the network and to establish a reference point for network performance 1.3 Identify critical activity levels and network capacity 1.4 Regularly review documents and logs to facilitate network tuning 1.5 Make recommendations to management for additional network resources to improve performance or to proactively avoid problems
2. Troubleshoot network problems	2.1 Communicate with help desk and other support services to quickly identify network problems 2.2 Use various tools and knowledge of ***network topology*** and ***protocols*** to identify network problems 2.3 Consult with vendor or service suppliers for assistance where appropriate
3. Diagnose network faults	3.1 Establish likely fault hierarchy using data from previous resolution attempts 3.2 Progressively isolate fault with concurrent testing of fault presence 3.3 Document steps taken to resolve fault 3.4 Refer fault to a higher level if not resolved within organisational limits
4. Rectify faults	4.1 Isolate and repair, replace and reconfigure equipment or software 4.2 Test network to ensure fault rectification

© Commonwealth of Australia, 2025 Future Skills Organisation

	4.3 Advise ***users*** and clients of progress and solutions in a timely manner 4.4 Complete support ***documentation***
5. Finalise fault rectification process	5.1 Review resolution of fault for possible reoccurrence, planned maintenance or upgrade requirements 5.2 Report to client with fault resolution and recommendations 5.3 Obtain sign-off from the ***appropriate person*** for work and billing outside of warranty or service level agreements 5.4 Forward necessary documentation to the appropriate person

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to identify, analyse and evaluate support issues and network problems
- communication skills to:
  - communicate with help desk
  - consult with vendors
- literacy skills to:
  - interpret technical documentation, equipment manuals and specifications
  - record findings and write reports
- planning skills to manage projects to scope, time, cost, quality, communications and risk management
- problem-solving skills to solve operational problems arising
- technical skills to use:
  - benchmarking techniques
  - current industry-accepted hardware and software
  - network management tools.

Required knowledge

- current industry-accepted hardware, cabling and software products, including general features and capabilities
- detailed knowledge of organisational maintenance response level escalation procedures
- client business domain, including client organisation structure and business functionality

© Commonwealth of Australia, 2025 Future Skills Organisation

- network management tools, with broad knowledge of general features and capabilities, with substantial depth in troubleshooting areas
- network topologies
- networking technologies and broad knowledge of their features and capabilities, including those relating to:
  - protocol stacks of transmission control protocol or internet protocol (TCP/IP) and open system interconnection (OSI)
  - Institute of Electrical and Electronics Engineers (IEEE)
  - International Telecommunications Union (ITU)
  - Internet Engineering Task Force (IETF)
  - protocols, such as ethernet, AppleTalk, Novell, Linux or Unix.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • produce a management information base • benchmark the network performance • troubleshoot and rectify network problems • provide constant monitoring and tuning of the network • review fault resolution and make recommendations.
Context of and specific resources for assessment	Assessment must ensure access to: • live system and sites with a representative range of network environments and operating systems • technical records and documentation • management information base of accumulated fault resolution information • network support tools • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate undertaking network benchmarking activities • direct observation of candidate performing network testing to

© Commonwealth of Australia, 2025 Future Skills Organisation

	ensure fault rectification • review fault resolution documentation and recommendations • verbal or written questioning to assess candidate's knowledge of the troubleshooting and monitoring facilities available in the operating environment.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Network may include:	• data • digital subscriber line (DSL) connections • internet • large and small LANs • private lines • use of the public switched telephone network (PSTN) for dial-up modems only • voice • virtual private networks (VPNs) • WANs • wireless networks.
Network tools may include:	• cable testing • carrier connection tests

© Commonwealth of Australia, 2025 Future Skills Organisation

	• data and voice integration measurements • equipment testing • frequency analysers • network performance software • policing and shaping tools.
Network topology may include:	• bus • hierarchical • hybrid • ring • star.

Protocols may include:	• AgentX
	• CMIP over TCP/IP
	• common management information protocol (CMIP)
	• ethernet
	• internet protocol (IP)
	• simple network management protocol (SNMP):
	  • SNMPv1
	  • SNMPv2
	  • SNMPv2c
	  • SNMPv2u
	  • SNMPv3
	• transport control protocol (TCP)
	• user datagram protocol (UDP).

Users may include:	• employees • external organisations • individuals • internal departments.
Documentation may follow:	• audit trails • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • naming standards • project management templates • report writing principles • version control.
Appropriate person may include:	• chief information officer (CIO) • project manager • subject matter expert • supervisor • system administrator.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK533A Configure and manage advanced virtual computing environments

Modification History

Release	Comments
Release 1	This version first released with ICA11 Information and Communications Technology Version 2.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to configure and manage advanced virtual computing environments with the goal of providing a more efficient and reliable information and communications technology (ICT) environment.

Application of the Unit

This unit applies to senior networking staff responsible for increasing the sustainability of an enterprise by using virtualisation technologies.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENTS	PERFORMANCE CRITERIA
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Configure and manage core virtual networks	1.1. Plan and design virtual network according to enterprise ***requirements*** 1.2. Configure virtual local area networks (VLANs) and security, ***virtual switch*** (vSwitch) ports 1.3. Implement security policies, traffic-shaping and NIC teaming 1.4. Manage distributed vSwitch connections, vSwitch physical and vSwitch storage adapter connections 1.5. Configure and manage ***multiple networks***
2. Configure and manage core infrastructure storage and services	2.1. Obtain technical storage specifications and system requirements from ***virtualisation software vendors*** 2.2. Plan and design core infrastructure storage environment 2.3. Create, configure and secure ***virtual storage connection*** 2.4. Manage and secure virtual storage connection 2.5. Install and manage local and ***shared data store, including*** data store clusters and resource pools 2.6. Configure and manage provisioning services and templates
3. Secure virtual environment	3.1 Plan and design ***administrative strategies*** 3.2. Configure user roles to administer virtual environment 3.3. Set up user privileges and permissions according to enterprise environment

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

communication skills to: • convey and clarify information • liaise with clients • initiative and enterprise skills to proactively minimise, control or eliminate hazards that may exist during work activities • literacy skills to: • develop and document virtualisation configurations and processes • record researched information • planning skills to plan methods for integrating and maintaining a virtualised machine environment • problem-solving skills to: • apply solutions in networks, including virtualised machine environments • deploy rapid solutions to problems involving virtualised machine environment • technical skills to apply current best practice to implementing sustainability options through virtualisation methodologies and technologies
Required knowledge
• overview knowledge of: • current government and industry policies and guidelines relating to developing efficient and reliable ICT environments • current technologies and processes designed to produce an efficient and reliable ICT environment • structure, function and business organisation of client • benefits and costs of virtualisation • procedures and processes for planning, designing and securing virtual environments • design and configuration of available tools and software applications required to manage virtual machines • configuration required to integrate virtual machines into existing network design • configuration and management of storage infrastructure

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for	Evidence of the ability to:

© Commonwealth of Australia, 2025 Future Skills Organisation

assessment and evidence required to demonstrate competency in this unit	• plan and design a virtual network using available advanced technologies • configure the virtual network's security and storage requirements • manage and administer the virtual network at an advanced level.
Context of and specific resources for assessment	Assessment must ensure access to: • site or prototype where virtual machine environments may be implemented • network technical requirements • range of suitable software • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning • direct observation of candidate.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating *conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.*

© Commonwealth of Australia, 2025 Future Skills Organisation

Enterprise requirements may include:	• preventative maintenance and diagnostic policy • problem solution processes • roles and technical responsibilities in network management • vendor and product service level support agreements • work environment.
Virtual switch may include:	• distributed vSwitch • hyper-V virtual switch • open vSwitch • standard vSwitch.
Multiple networks may include:	• external network • internal network • management network • private network • production network • storage network • VLAN • vMotion network.
Virtualisation software vendors may include:	• Citrix • KVM • Microsoft • Oracle • Parallels • VMware.
Virtual storage connection may include:	• fibre channel • Fibre Channel over Ethernet (FCoE) • Internet Small Computer System Interface (iSCSI) • network file system (NFS).
Shared data store may include:	• iSCS • NFS • storage area network (SAN).
Administrative strategies may include:	• automating frequently repeated processes • centralising automated scripts • managing multiple automated processes • setting up user roles, permissions and security access.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK534A Monitor and troubleshoot virtual computing environments

Modification History

Release	Comments
Release 1	This version first released with ICA11 Information and Communications Technology Version 2.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to monitor and troubleshoot virtualisation technologies with the goal of providing more efficient and reliable information and communications technology (ICT) environment.

Application of the Unit

This unit applies to senior networking staff responsible for increasing the sustainability of an enterprise by using virtualisation technologies.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENTS	PERFORMANCE CRITERIA
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Plan strategies to monitor and troubleshoot the performance of enterprise virtual computing environment	1.1. Develop a plan to monitor ***virtual environment*** to ensure availability and optimal performance according to ***enterprise requirements*** 1.2. Identify virtual environment critical activity level and assign resources as needed 1.3. Review system logs and alerts to facilitate virtual environment tuning
2. Manage virtual environment performance to ensure full resource optimisation	2.1. Monitor and diagnose memory, central processing unit (CPU) and distributed power management performance 2.2. Review storage and cluster performance to maximise operational efficiency 2.3. Monitor tasks, events and alarms, and network activity and make relevant adjustments to ensure optimal operation
3. Analyse and troubleshoot virtual environments	3.1. Review virtual machine capacity, application and storage input and output (I/O) performance to identify and resolve performance issues 3.2. Test, analyse and troubleshoot identified ***virtual network*** problems 3.3. Analyse and troubleshoot ***high availability*** to ensure that virtual machines are running at optimal performance levels 3.4. Consult with ***virtualisation software vendors*** in order to provide solutions
4. Diagnose virtual environment faults and provide solutions	4.1. Use virtualisation client and server ***management software*** tools to help diagnose virtual environment problems 4.2. Install and configure ***external virtualisation management tools*** to help diagnose virtual environment problems 4.3. Use system logs and alerts to collect and analyse errors 4.4. Evaluate problems using log files and alerts

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills
communication skills to: • liaise with clients • convey and clarify information • initiative and enterprise skills to proactively minimise, control or eliminate hazards in work activities • literacy skills to: • record researched information • develop and document virtualisation configurations and processes • planning skills to plan methods for integrating and maintaining a virtualised machine environment • problem-solving skills to: • apply solutions in networks, including virtualised machine environments • deploy rapid solutions to problems involving virtualised machine environments • technical skills to apply current best practice to implementing sustainability options through virtualisation methodologies and technologies
Required knowledge
• overview knowledge of: • current government and industry policies and guidelines relating to developing efficient and reliable ICT environments • current technologies and processes designed to produce an efficient and reliable ICT environment • structure, function and business organisation of client • available tools and software applications required to manage virtual machines • configuration of software applications required to manage virtual machines • configuration required to integrate virtual machines into existing network design

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

© Commonwealth of Australia, 2025 Future Skills Organisation

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • monitor enterprise virtual computing environment using the correct management tools • configure enterprise virtual computing environment to operate at an optimal performance level • troubleshoot problems in virtual computing environment using relevant management tools.
Context of and specific resources for assessment	Assessment must ensure access to: • site or prototype where virtual machine environments may be implemented • network technical requirements • range of suitable software • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of:
	  • current recommendations on sustainability options in ICT design
	  • benefits of virtualisation
	  • installation and configuration of virtualisation software
	  • installation and configuration of virtual machines
	  • configuration of virtual machines into network design
	• direct observation of candidate demonstrating:
	  • installation and configuration of virtualisation software
	  • installation and configuration of virtual machines
	  • configuration of virtual machines into network design
	• review of documentation prepared by candidate to record research of current recommendations on sustainability options in ICT design and the benefits of virtualisation.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating *conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.*

Virtual environment may include:	• clusters • guest VM • host VM • licensing • resources • storage • virtual machine.
Enterprise requirements may include:	• how and what the enterprise wants regarding the work environment • preventative maintenance and diagnostic policy • problem-solving processes • roles and technical responsibilities in network management • vendor and product service level support agreements.
Virtual networks may include:	• bridged networks • host-only networks • private virtual local area networks (VLANs) • networks using network address translation (NAT).
High availability may relate to use of:	• clustered virtual machines performing an identical task • load balancing between virtual machines to ensure service requirements are met • pre-configured virtual machines that can be rapidly stored and deployed in the event of a system failure • standby power solutions in the event of a power disruption.
Virtualisation software vendors may include:	• Citrix • KVM • Microsoft

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Oracle • Parallels • VMware.
Management software may include:	• Citrix Essentials for Hyper-V • Citrix XenServer Management Console • Microsoft Hyper-V • Microsoft Systems Center Virtual Machine Manager • Parallels H-Sphere • VMware Infrastructure Client • VMware vCenter Lab Manager • VMware vSphere Client • vSphere Client and host update utility.
External virtualisation management tools may include:	• Citrix Essentials • PowerShell from Microsoft • RVTools from Robware.net • vControl from Vizioncore.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK535A Install an enterprise virtual computing environment

Modification History

Release	Comments
Release 1	This version first released with ICA11 Information and Communications Technology Version 1.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop and implement virtualisation technologies with the goal of providing a more efficient and reliable information and communications technology (ICT) environment.

Application of the Unit

This unit applies to senior networking staff responsible for increasing the sustainability of an enterprise by using virtualisation technologies.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENTS	PERFORMANCE CRITERIA
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Analyse client needs	1.1. Assess ***client*** requirements 1.2. Assess existing client or server ***systems*** that may be suitable to be virtualised
2. Analyse virtualisation host software	2.1. Assess and compare suitable virtualisation ***host software*** according to ***enterprise requirements*** 2.2. Document recommendations and provide to ***appropriate person***
3. Evaluate system requirements	3.1. Obtain and document technical specifications, licensing and system requirements from ***virtualisation software vendors*** 3.2. Evaluate and compare ***system requirements*** needed to implement virtualisation 3.3. Document recommendations and provide them to appropriate person
4. Plan and install virtualisation host software	4.1. Plan and prepare for host software installation 4.2. Obtain and install virtualisation host platform 4.3. Test and validate ***functionality*** of the virtualisation host platform according to enterprise requirements

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills
communication skills to: • liaise with clients • convey and clarify information • initiative and enterprise skills to proactively minimise, control or eliminate hazards that may exist during work activities

© Commonwealth of Australia, 2025 Future Skills Organisation

• literacy skills to:
  • record researched information
  • develop and document virtualisation configurations and processes
• planning skills to plan methods for integrating and maintaining a virtualised machine environment
• problem-solving skills to:
  • apply solutions in networks, including virtualised machine environments
  • deploy rapid solutions to problems involving virtualised machine environment
• technical skills to apply current best practice to implementing sustainability options through virtualisation methodologies and technologies

Required knowledge

• overview knowledge of:
  • current government and industry policies and guidelines relating to developing efficient and reliable ICT environments
  • current technologies and processes designed to produce an efficient and reliable ICT environment
  • current recommendations on sustainability options in ICT design
  • benefits of virtualisation
  • processes and procedures for installing and configuring virtualisation software and virtual machines
  • processes and procedures for configuring virtual machines into network design
• structure, function and business organisation of client
• available tools and software applications required to manage virtual machines
• configuration of software applications required to manage virtual machines
• configuration required to integrate virtual machines into existing network design

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify suitable tools and software applications required to manage virtual machines • configure software applications to manage virtual machines • integrate virtual machines into existing network design.

© Commonwealth of Australia, 2025 Future Skills Organisation

Context of and specific resources for assessment	Assessment must ensure access to: • site or prototype where virtual machine environments may be implemented • network technical requirements • industry-relevant virtualisation software • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge
	• direct observation of candidate:
	  • installing and configuring virtualisation software and virtual machines
	  • configuring virtual machines into network design
	• review of documentation prepared by candidate.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating *conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.*

© Commonwealth of Australia, 2025 Future Skills Organisation

Client may include:	• external organisation • individual • internal department • internal employee.
Systems may include:	• servers • thin client terminals • workstations.
Host software may include:	• Citrix XenServer • KVM • Microsoft Hyper-V Server • Microsoft Virtual PC • Microsoft Virtual Server • Oracle VM VirtualBox • Parallels Desktop for Mac • Parallels Server for Mac • VMware ESX Server • VMware ESXi Server • VMware Player • VMware Server • VMware VSphere • VMware Workstation • Windows Virtual PC.
Enterprise requirements may include:	• how and what the enterprise wants regarding the work environment • preventative maintenance and diagnostic policy • problem-solving processes • roles and technical responsibilities in network management • vendor and product service level support agreements.
Appropriate person may include:	• authorised business representative • client • supervisor.
Virtualisation software vendors may include:	• Citrix • KVM • Microsoft • Oracle • Parallels • VMware.
System requirements may include:	• hard disk capacity and speed • minimum random access memory (RAM) • motherboard architecture • number of cores in central processing unit (CPU)

© Commonwealth of Australia, 2025 Future Skills Organisation

	• number of network interface cards
	• number of physical CPUs
	• speed of CPU
	• storage and hard disk interface requirements:
	  • internet small computer systems interface (iSCSI)
	  • redundant array of inexpensive or independent disks (RAID)
	  • statistical analysis system (SAS)
	  • small computer system interface (SCSI)
	  • serial advanced technology attachment (SATA)
	• virtualisation technology at the central processing unit level (VT(x)) support.

Functionality may include:	• availability of services • virtualised services performing the same as a service running on physical hardware.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK601A Design and implement a security system

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use software tools, equipment and protocols to implement a security system.

Application of the Unit

This unit applies to the use of foundational elements of network security, and the description of security threats, securing network devices and their associated networks.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Assess the security threats facing network Infrastructure	1.1 Evaluate mitigation methods for ***network*** attacks and different types of malware 1.2 Propose a methodical concept of defending network architecture
2. Secure edge devices (routers)	2.1 Secure network routers using software ***tools*** 2.2 Secure ***administration access*** to routers using the router operating system (OS) 2.3 Secure router OS and its configuration file(s)
3. Implement authentication, authorisation and accounting (AAA) and secure access control system (ACS)	3.1 Evaluate and implement the functions and importance of authentication, authorisation and accounting 3.2 Configure the router using AAA 3.3 Analyse and compare the ***features of TACACS+ and RADIUS AAA protocols*** for securing the network
4. Mitigate threats to routers and networks using access control lists (ACLs)	4.1 Assess the functionality of ***access control lists*** and document the caveats to be considered when building them 4.2 Configure and verify IP ACLs to mitigate threats and to prevent IP address spoofing using tools
5. Implement secure network management and reporting	5.1 Configure secure shell (SSH) on routers to enable secure management 5.2 Configure routers to send log messages to a log server with tools
6. Mitigate common layer 2 attacks	6.1 Document how to prevent layer 2 attacks by configuring basic switch security and features 6.2 Configure switch to prevent layer 2 attacks
7. Implement the router OS firewall-feature set	7.1 Evaluate and compare the operational strategies and weaknesses of the different firewall technologies 7.2 Implement zone-based firewall to strategically secure group of interfaces
8. Implement the	8.1 Evaluate and compare network based versus host based IDPS

© Commonwealth of Australia, 2025 Future Skills Organisation

intrusion detection and prevention system (IDPS) feature set in the router OS using secure device manager (SDM)	to identify malicious activity, log information, attempt to block/stop activity, and report activity 8.2 Explain IDPS technologies, attack responses and monitoring options 8.3 Configure the router OS IDPS operations using secure device manager to monitor network and system activities for malicious activity
9. Implement site-to-site virtual private networks (VPNs) using SDM	9.1 Assess the different methods used in cryptography 9.2 Evaluate internet key exchange (IKE) protocol functionality and phases to support authentication and define the binding blocks of IPSec and the security functions it provides 9.3 Configure and verify an IPSec site-to-site VPN with pre-shared key (PSK) authentication to provide a secure channel between the two parties

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business-related matters
- literacy skills to:
  - interpret technical documentation
  - write reports as required
- numeracy skills to:
  - take test measurements
  - interpret results
  - evaluate performance and interoperability of network
- planning and organisational skills to:
  - coordinate the process in liaison with others
  - plan, prioritise and monitor own work
- problem-solving and contingency-management skills to:
  - adapt configuration procedures to network requirements
  - reconfigure depending on differing operational contingencies, risk situations and environments
- problem-solving skills to troubleshoot

© Commonwealth of Australia, 2025 Future Skills Organisation

- research skills to investigate appropriate hardware to meet requirements
- technical skills to:
  - select and configure networking devices
  - assess and implement security requirements.

Required knowledge

- access control lists, configuration and troubleshooting
- authentication protocols
- encryption techniques
- IDS and IPS
- IOS and IP networking models and protocols
- current wireless regulations, standards and certifications
- local area network (LAN) or wide area network (WAN) implementations
- malicious attacks and prevention techniques
- network management tools
- network security prevention methods
- procedures to configure, verify and troubleshoot:
  - switch with VLANs and inter-switching communications
  - router
- procedures to set up VPNs
- routing protocols
- threat and attack mitigation techniques
- use of command line interface to configure and test network elements.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • evaluate network security system threats and requirements • mitigate attacks and configure firewalls • design and implement network security systems • implement VPN using SDM.
Context of and specific resources for	Assessment must ensure access to: • site where network security may be evaluated and tightened

© Commonwealth of Australia, 2025 Future Skills Organisation

assessment	• hardware and software • organisational guidelines, procedures and policies • computers • LAN or WLAN internet work technologies (hardware and software) • security technologies (hardware and software) • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate installing, configuring and testing a new or updated network • evaluation of documentation outlining testing procedures, test results, recommendation to network changes and completion records • verbal or written questioning of required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Network may include:	• data

© Commonwealth of Australia, 2025 Future Skills Organisation

	• internet • protocol • large and small LANs • virtual LAN (VLAN) • WANs.
Tools may include:	• Cisco security device manager (SDM) • command line interface (CLI) • web interface.
Administration access may include:	• multiple privilege levels • role-based CLI • strong-encrypted passwords.

Features of TACACS+ and RADIUS AAA protocols may include:	• remote authentication dial-in user service (RADIUS):
	  • combines authentication and authorisation
	  • does not allow users to control which commands can be executed on a router
	  • does not support ARA access, NetBIOS Frame Protocol Control Protocol, NASI, and X.25 PAD connections
	  • encrypts only the password in the access-request packet
	  • uses industry standard
	  • uses UDP
	• TACACS+:
	  • encrypts the entire body of the packet
	  • is Cisco proprietary
	  • offers multiprotocol support
	  • provides two ways to control the authorisation of router commands on a per-user or per-group basis
	  • uses transmission control protocol (TCP)
	  • uses the AAA architecture, which separates authentication, authorisation and accounting.

Access control lists may include:	• extended • named • standard.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK602A Plan, configure and test advanced server based security

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to implement advanced server security using secure authentication and network services on a network server.

Application of the Unit

This unit applies to planning, designing, implementing, maintaining, monitoring and troubleshooting advanced security on network servers.

Relevant job roles include information and communications technology (ICT) network specialist, ICT network engineer, network security specialist, network security planner and network security designer.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Plan advanced network-server security according to business needs	1.1 Consult with ***client*** and key ***stakeholders*** to identify security requirements in an advanced ***network server*** environment 1.2 Analyse and review existing ***client security documentation*** and predict network service vulnerabilities 1.3 Research ***network authentication*** and ***network service*** configuration options and implications to produce network security solutions 1.4 Ensure features and capabilities of network service security options meet the business needs 1.5 Produce or update server security design documentation to include new solutions 1.6 Obtain sign-off for the security design from the ***appropriate person***
2. Prepare for network-server security implementation	2.1 Prepare for work in line with site-specific safety requirements and enterprise OHS processes and procedures 2.2 Identify safety hazards and implement risk control measures in consultation with appropriate personnel 2.3 Consult appropriate person to ensure the task is coordinated effectively with others involved at the worksite 2.4 Back up server before implementing configuration changes
3. Configure the advanced network-server security according to design	3.1 Configure ***update services*** to provide automatic updates to ensure maximum security and reliability 3.2 Configure network authentication, authorisation and accounting services to log and prevent unauthorised access to the server 3.3 Configure ***basic service security*** and access control lists to limit access to authorised users, groups or networks

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.4 Implement ***encryption*** as required by the design 3.5 Configure advanced network service ***security options for services*** and ***remote access*** 3.6 Configure the ***operating system*** or ***third-party firewall*** to filter traffic in line with security requirements 3.7 Ensure security of server logs and log servers are appropriately implemented for system integrity 3.8 Implement ***backup and recovery*** methods to enable restoration capability in the event of a disaster
4. Monitor and test network-server security	4.1 Test server to assess the effectiveness of network service security according to agreed design plan 4.2 Monitor server logs, network traffic and open ports to detect possible intrusions 4.3 Monitor important files to detect unauthorised modifications 4.4 Investigate and verify alleged violations of server or data security and privacy breaches 4.5 Recover from, report and document security breaches according to security policies and procedures 4.6 Evaluate monitored results and reports to implement and test improvement actions required to maintain the required level of network service security

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on security-related matters
- literacy skills to:
  - interpret technical documentation
  - write reports in required formats
  - read and interpret enterprise security procedures, policies and specifications
  - review vendor sites, bulletins and notifications for security information
- planning and organisational skills to:
  - plan control methods for network service security and authentication

© Commonwealth of Australia, 2025 Future Skills Organisation

    - plan, prioritise and monitor own work
- problem-solving and contingency-management skills to:
    - adapt configuration procedures to requirements of network service security and reconfigure depending on differing operational contingencies, risk situations and environments
    - detect, investigate and recover from security breaches
- safety-awareness skills to:
    - apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
    - follow enterprise OHS procedures
    - work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- research skills to interrogate vendor databases and websites to implement different configuration requirements to meet security levels
- technical skills to:
    - design network service and authentication security
    - identify the technical requirements, constraints and manageability issues for given customer server-security requirements
    - implement security strategies
    - install network service and authentication security design
    - monitor log files for security information
    - select and use server and network diagnostics
    - test server security.

Required knowledge

- auditing and penetration testing techniques
- best practice procedures for implementing backup and restore
- cryptographic techniques
- procedures for error and event logging and reporting
- intrusion detection and recovery procedures
- network service configuration, including DNS, DHCP, web, mail, FTP, SMB, NTP and proxy
- network service security features, options and limitations
- network service vulnerabilities
- operating system help and support utilities
- planning, configuration, monitoring and troubleshooting techniques
- security protection mechanisms
- security threats and risks
- server firewall configuration

© Commonwealth of Australia, 2025 Future Skills Organisation

- server monitoring and troubleshooting tools and techniques, including network monitoring and diagnostic utilities
- user authentication and directory services.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify network service security vulnerabilities and appropriate controls • plan, design and configure a secure network authentication service • secure a wide range of network services to ensure server and data security including: DNS, web and proxy, mail, FTP and firewall • implement cryptographic techniques • monitor the server for security breaches.

Context of and specific resources for assessment	Assessment must ensure access to:
	• site where server installation may be conducted
	• relevant server specifications:
	  • cabling
	  • networked (LAN) computers
	  • server diagnostic software
	  • switch
	  • client requirements
	  • WAN service point of presence
	  • workstations
	• relevant regulatory documentation that impacts on installation activities
	• appropriate learning and assessment support when required
	• modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of security design report for a server with complex network service security requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

	• direct observation of the candidate configuring complex security requirements • verbal or written questioning of required skills and knowledge • evaluation of prepared report outlining intrusion detection, recovery, reporting and documentation procedures • evaluation of system design and implementation in terms of network service security and suitability for business needs.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• external organisations • ICT company • individuals • internal departments • internal employees • service industry.
Stakeholders may include:	• development team • IT manager or representative • project team • sponsor

© Commonwealth of Australia, 2025 Future Skills Organisation

	• user.
Network server may include:	• applications server • communications server • content and media server • multiple servers • physical server • virtual server.
Client security documentation may include:	• risk assessment reports • security incident reports and server logs • security plans • security policies • security procedures.
Network authentication may include:	• biometrics • enterprise single sign-on • Hesiod • Kerberos • lightweight directory access protocol (LDAP) • Novell Directory Services (NDS) • network information service (NIS) • pluggable authentication modules (PAM) • public key authentication (PKA) • public key infrastructure (PKI) and digital certificates • Red Hat Directory Services (RHDS) • security tokens and smart cards • SMB or Samba software • two-factor and multifactor authentication • Windows Active Directory Services (WADS).

Network service may include:	• dynamic host configuration protocol (DHCP)
	• dynamic name system (DNS)
	• firewall
	• file transfer protocol (FTP)
	• hypertext transfer protocol (HTTP) or secure (HTTPS)
	• internet message access protocol (IMAP)
	• network authentication:
	  • remote procedure call (RPC)
	  • NIS
	  • Kerberos
	• network file system (NFS)
	• network time protocol (NTP)
	• open source secure shell software suite (open SSH)
	• post-office protocol (POP)

© Commonwealth of Australia, 2025 Future Skills Organisation

	• print services • proxy • server messages block (SMB) • simple mail transfer protocol (SMTP) • simple network management protocol (SNMP) • structured query language server (SQL) • transmission control protocol or internet protocol (TCP/IP).
Appropriate person may include:	• authorised business representative • client • representative from the IT department • supervisor • security manager.
Update services may include:	• Potentially Unwanted Program Remover (PUP) • Red Hat Network • Windows Server Update Services • Yellow Dog Update Manager (YUM).
Basic service security may include:	• host-based access control • network service access control lists (ACL) • network service authentication • network share permissions • security-enhanced Linux (SE Linux) • TCP wrappers • Windows group policy • eXtended interNET Daemon (xinetd) and service limits.
Encryption may include:	• asymmetric encryption • certificate authority configuration • digital signatures and signature verification • email encryption • encrypted file systems • encrypted network traffic • GNU Privacy Guard (GnuPG or GPG) • public key infrastructure (PKI) • secure sockets layer (SSL) certificates • symmetric encryption.

Security options for services may include:	• network file services security options, such as:
	  • disk quotas
	  • distributed file system security
	  • encrypted file systems
	  • NFS security
	  • shares and their permissions
	  • SMB or Samba security options

© Commonwealth of Australia, 2025 Future Skills Organisation

	• name resolution services, such as:
	  • bogus servers and blackholes
	  • DNS topologies
	  • dynamic DNS security
	  • restrictive zone transfers and recursive queries
	  • transaction signatures
	  • transaction signature (TSIG)
	  • views
	• web and proxy services, such as:
	  • authentication
	  • common gateway interface (CGI) security
	  • server-side includes
	  • SSL certificates
	  • suEXEC
	• mail services, such as:
	  • email encryption
	  • mail filtering including spam filtering
	  • mail topology design
	  • secure sockets layer and transport layer security protocols (SSL/TLS)
	  • start transport layer security (STARTTLS)
	  • virus scanning
	• FTP services, such as:
	  • anonymous FTP
	  • FTP authentication
	  • secure access to home directories.

Remote access security options may include:	• dial-up • internet connection sharing (ICS) • inbound and outbound filters • network address translation (NAT) • open SSH • port forwarding • remote authentication dial-in user service (RADIUS) • RADIUS proxy • remote access policy • routing and remote access services (RRAS) • secure remote access protocols • secure wireless • terminal services • virtual private network (VPN).

© Commonwealth of Australia, 2025 Future Skills Organisation

Operating system may include:	• Linux • Unix • Windows server.
Third-party firewall may include:	• incoming and outgoing traffic filtering • iptables • internet security and acceleration (ISA) server • kernel level firewalls • Microsoft Windows Firewall • netfilter • SmoothWall • traffic filtering by ports and protocols.
Backup and recovery may include:	• automated backups using operating system backup and job scheduling tools • backup and recovery of mail systems • backup and recovery of network directory service objects • backups using third party software • database backup and recovery • volume shadow copies.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK603A Plan, configure and test advanced internetwork routing solutions

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge necessary to plan, configure and support advanced internet protocol (IP) addressing and routing when implementing scalable and secure routers connected to local area networks (LANs) and wide area networks (WANs). The unit also covers configuration of secure routing solutions to support branch offices and mobile workers.

Application of the Unit

This unit applies to an information and communications technology (ICT) network specialist, network engineer, network infrastructure engineer, senior network administrator, network and systems manager, ICT security specialist, security engineer, communications engineer and communications manager.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Plan, configure and test a complex network-routing protocol solution	1.1 Determine ***network*** resources required for implementing a ***complex distance-vector routing protocol*** solution, a ***multi-area link-state routing protocol*** solution and an ***exterior routing protocol*** solution on a network 1.2 Produce separate protocol implementation plans and verification plans for each routing solution 1.3 Configure and test the routing protocol solution 1.4 Document results of the routing protocol solution implementation and verification plans for each solution
2. Plan, configure and test an internet protocol version 6 (IPv6) based network solution	2.1 Determine network resources needed for implementing IPv6 on a network 2.2 Produce an implementation plan and a verification plan for an IPv6-based network solution 2.3 Configure IPv6 routing and IPv6 interoperation with IPv4 2.4 Verify and test the IPv6 solution and make amendments if necessary 2.5 Document results of IPv6 implementation and verification plans
3. Plan, configure and test an IPv4 or IPv6-based network redistribution solution	3.1 Produce an IPv4 or IPv6 redistribution implementation plan and verification plan based on the outcomes of a network redistribution analysis 3.2 Configure and verify the redistribution solution for the network 3.3 Document results of redistribution, implementation and verification plans 3.4 Analyse the differences between implementing an IPv4 and an IPv6 redistribution solution

© Commonwealth of Australia, 2025 Future Skills Organisation

4. Plan, configure and test a layer 3 path control solution	4.1 Produce a layer 3 path control implementation plan and a verification plan based on the outcomes of a network redistribution analysis 4.2 Configure and verify layer 3 path control for the network 4.3 Implement basic teleworker and branch services 4.4 Evaluate and compare ***broadband technologies*** and ***VPN technologies*** in terms of access and data transfer rate as solutions for secure broadband network

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to identify functional, performance and management features associated with the operation of complex networks
- communication skills to:
  - communicate complex concepts and issues technically and in plain language
  - liaise with diverse clients
- literacy skills to:
  - develop and prepare operational documentation, such as policies and procedures, and technical and management reports
  - interpret and prepare technical documentation
  - prepare project-management documentation
- planning and organisational skills to risk manage complex and dynamic environments
- problem-solving skills suitable for complex and dynamic environments with demanding service levels
- technical skills to:
  - design, implement and maintain complex networks to industry standards and best practice
  - identify viable complementary and emerging technologies.

Required knowledge

- broadband technologies relevant to advanced internetworking routing solutions
- business justifications for having integrated and unified enterprise networks
- emerging viable business and social technologies

© Commonwealth of Australia, 2025 Future Skills Organisation

- external developments or factors that affect network design
- IPv4 and IPv6 technologies and solutions
- maintenance and management tools and practices suitable for complex networks to achieve availability and resilience
- network topologies
- regulations, standards and certifications relevant to advanced internetworking routing solutions
- risk-management strategies and practices suitable for a complex network environment
- routing tables, protocols and operational processes
- routing technologies for an enterprise environment
- security for enterprise networks
- security standards and technologies for network environments
- benefits of formal or structured approaches to network management
- virtual private network (VPN) technologies.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • plan, configure and support advanced routed network infrastructure • use network tools • plan and analyse redistribution solutions • produce and configure layer 3 path control implementation plan • provide solutions to static and dynamic routing issues together with optimisation strategies.
Context of and specific resources for assessment	Assessment must ensure access to: • site where network installation may be conducted • router hardware and software • organisational guidelines • computers • LAN and WAN systems • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical

© Commonwealth of Australia, 2025 Future Skills Organisation

	skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate installing, configuring and testing a new or updated network • evaluation of documentation outlining testing procedures, test results, recommendation to network changes and completion records • verbal or written questioning of required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Network may include:	• integrated network • internet • intranet • LAN • router-based network • switch-based network • VPN • WAN • wireless LAN (WLAN).
Complex distance-vector	• ad hoc on-demand distance vector routing protocol (AODV)

© Commonwealth of Australia, 2025 Future Skills Organisation

routing protocol may include:	• destination-sequenced distance-vector routing (DSDV) protocol • enhanced interior gateway routing protocol (EIGRP) • interior gateway routing protocol (IGRP).
Multi-area link-state routing protocol may include:	• intermediate system to intermediate system (IS-IS) • multicast open shortest path first (MOSPF) • open shortest path first (OSPF) and (OSPFv3).
Exterior routing protocol may include:	• border gateway protocol (BGP) • external border gateway protocol (EBGP) • exterior gateway protocol (EGP) • multiprotocol BGP (MBGP).

Broadband technologies may include:	• digital subscriber lines (DSL, ADSL)
	• ethernet
	• fibre technologies
	• cellular:
	  • high-speed packet access (HSPA)
	  • evolution-data optimised (EVDO)
	• satellite
	• worldwide interoperability for microwave access (WiMAX).

VPN technologies may include:	• hybrid • mobile • secure • trusted • tunnels.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK604A Plan and configure advanced internetwork switching solutions

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to plan, configure and support advanced enterprise switching. The unit also covers secure integration of virtual local area networks (VLANs), wireless local area networks (WLANs), voice and video into campus networks.

Application of the Unit

This unit applies to an information and communications technology (ICT) network specialist, network engineer, network infrastructure engineer, senior network administrator, network and systems manager, ICT security specialist, security engineer, communications engineer, and communications manager.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Plan, configure and test a VLAN-based solution	1.1 Determine ***network*** resources required for implementing a VLAN-based solution for a given network design and requirements 1.2 Produce an implementation plan and a verification plan for the VLAN-based network solution 1.3 Configure and verify switch-to-switch connectivity, loop prevention and access ports for the VLAN-based solution using ***network tools*** 1.4 Document results of the VLAN implementation and verification plans
2. Plan, configure and test a secure layer 2 network solution and a switch-based layer 3 services solution	2.1 Determine network resources required for implementing a secure layer 2 network solution and a switch-based layer 3 solution against ***vulnerabilities*** with ***organisational security policies*** 2.2 Produce an implementation plan and a verification plan for each of the layer 2 and layer 3 network solution 2.3 Configure and verify a private VLAN, and features for port security and general switch security for the layer 2 network solution using network tools 2.4 Configure and verify routing interfaces and layer 3 security for the switch-based layer 3 network solution using network tools 2.5 Document results of security implementation and verification plans for each of the layer 2 and the layer 3 network solution
3. Prepare infrastructure to support advanced services	3.1 Implement a wireless extension of a layer 2 solution 3.2 Implement a support solution for a voice over internet protocol (VoIP) and a video application
4. Plan, configure and	4.1 Determine network resources needed for implementing

© Commonwealth of Australia, 2025 Future Skills Organisation

test high-availability networks using multilayer switches solution	high-availability solution for a given network design and requirements 4.2 Produce an implementation plan and a verification plan for the high-availability network using multilayer switches 4.3 Configure, verify and manage ***first hop redundancy protocols*** (FHRP) 4.4 Implement switch supervisor redundancy and use network tools to verify the high-availability solution 4.5 Document results of high-availability implementation and verification plans

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to identify functional, performance and management features associated with the operation of complex switched networks
- communication skills to:
  - communicate complex concepts and issues technically and in plain language
  - liaise with diverse clients
- literacy skills to:
  - develop and prepare operational documentation, such as policies and procedures, and technical and management reports
  - interpret and prepare technical documentation
  - prepare project-management documentation
- problem-solving skills suitable for complex and dynamic environments with demanding service level
- technical skills to:
  - design, implement and maintain availability of complex switched networks to industry standards and best practice
  - identify viable complementary and emerging technologies
  - use network tools.

Required knowledge

- benefits of formal or structured approach to network management

© Commonwealth of Australia, 2025 Future Skills Organisation

- business justifications for having integrated and unified enterprise networks
- current wireless regulations, standards and certifications
- emerging viable business and social technologies
- external developments or factors that affect switched network design
- maintenance and management tools and practices suitable for complex networks to achieve availability and resilience
- network topologies
- organisational policies for internetworking
- risk management strategies and practices suitable for a complex switched network environment
- security for an enterprise-switched environment
- security standards and technologies for switched network environments
- switching and routing technologies for an enterprise-switched environment.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design, configure and support advanced switched network infrastructure • implement wireless extension solution with multi-layered (layer 3) switches • prepare infrastructure to support advanced services • use network tools.
Context of and specific resources for assessment	Assessment must ensure access to: • site where network installation may be conducted • hardware and software • organisational guidelines • computers • LAN and WAN systems, including voice and video (hardware or software) • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• direct observation of the candidate installing, configuring and testing a new or updated network • evaluation of documentation prepared by the candidate outlining testing procedures, test results, recommendation to network changes and completion records • verbal or written questioning of required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Network may include:	• integrated network • internet • intranet • local area network (LAN) • router-based network • switch-based network • virtual private network (VPN) • wide area network (WAN) • WLAN.
Network tools may include:	• baseline network • bridge protocol data unit (BPDU) guard • debug commands

© Commonwealth of Australia, 2025 Future Skills Organisation

	• port analysers:
	  • remote switched port analyser (RSPAN)
	  • switched port analyser (SPAN)
	  • virtual local area network switched port analyser (VSPAN)
	• embedded event manager (EEM)
	• show commands
	• simple network management protocol (SNMP)
	• SNMP version 3
	• syslog.

Vulnerabilities may include:	• media access control (MAC) attacks • multi or unicast attacks • spoofing attacks • unauthorised access • VLAN attacks.

Organisational security policies may include:	• access control list types:
	  • access control list (ACL)
	  • port-based access control list (PACL)
	  • virtual local area network access control list (VACL)
	• dynamic address resolution protocol inspection (DAI)
	• device hardening
	• dynamic host configuration protocol (DHCP) snooping
	• IEEE 802.1x Port security measures
	• internet protocol (IP) source guard.

First hop redundancy protocols may include:	• gateway load balancing protocol (GLBP) • hot standby router protocol (HSRP) • virtual router redundancy protocol (VRRP).

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK605A Design and configure secure integrated wireless systems

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use appropriate tools, equipment, software and protocols to produce a verified radio frequency (RF) design plan for a wireless local area network (WLAN) and to design, configure and troubleshoot secure integrated wireless systems.

Application of the Unit

This unit applies to those who plan and conduct a wireless network site survey to verify RF coverage design for installation and to the installation, operation and troubleshooting of small to medium enterprise wireless networks.

Relevant job roles include wireless network installer, wireless network support specialist and wireless network engineer.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Plan and conduct a site survey for setting up a wireless network	1.1 Assess ***client requirements*** to plan for selecting appropriate ***WLAN technology*** and ***network elements*** 1.2 Evaluate existing ***network infrastructure*** and produce a ***wireless network topology*** to determine upgrade or new installation requirements 1.3 Prepare basic ***RF deployment considerations*** related to site survey design of data or voice over WLAN applications 1.4 Produce a ***survey model*** including ***deployment characteristics*** to meet client requirements 1.5 Produce a spectral analysis predictive layer 1 site survey verified by a ***physical site survey*** 1.6 Analyse the survey results produced with an ***RF network design*** for a secure wireless network 1.7 Conduct an RF field trial for final evaluation of network topology and network element placements
2. Prepare design specifications and plan for secure enterprise WLANs	2.1 Prepare for work according to relevant legislation, OHS, codes, regulations and standards 2.2 Produce design specifications and layout for wireless network using ***spread spectrum technology*** for enhanced network security 2.3 Review design plans to ensure sound ***WLAN RF principles*** and compliance with ***wireless regulatory bodies, standards and certifications***
3. Configure and test a controller-based WLAN	3.1 Produce a controller based wireless architecture from a possible range of industry-based ***wireless network architectures*** 3.2 Configure and test a ***WLAN controller and access points*** using ***controller-based AP discovery and association*** to enable ***roaming*** facilities

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.3 Configure the basics of a stand-alone access point 3.4 Configure and test ***client operating system WLAN configuration*** and install vendor specific software and utilities where applicable
4. Configure and test WLAN security	4.1 Review the general framework of wireless security and ***security components*** for securing the WLAN 4.2 Configure and test ***identification assignments*** to network elements 4.3 Configure and test ***authentication methods*** using different ***sources of authentication*** 4.4 Configure and test ***encryption methods*** to comply with network security policies
5. Conduct WLAN maintenance and troubleshooting	5.1 Evaluate WLAN troubleshooting methods for controllers, access points, and client methodologies 5.2 Use ***networking tools*** to maintain and troubleshoot network 5.3 Transfer device configurations and operating system (OS) using maintenance tools and commands

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business-related matters
- literacy skills to:
  - interpret technical documentation
  - write reports as required
- numeracy skills to:
  - take test measurements and interpret results
  - evaluate performance and interoperability of network
- planning and organisational skills to:
  - coordinate the process in liaison with others
  - plan, prioritise and monitor own work
- problem-solving and contingency-management skills to:
  - troubleshoot and debug WAN issues

© Commonwealth of Australia, 2025 Future Skills Organisation

  - adapt configuration procedures to requirements of network
  - reconfigure depending on differing operational contingencies, risk situations and environments
- research skills to investigate appropriate hardware to meet requirements
- technical skills to:
  - select and configure networking devices
  - assess and implement security requirements
  - use networking tools and site survey tools.

Required knowledge

- authentication and encryption methods
- configuration, verification and troubleshooting procedures to undertake:
  - router-operation and routing
  - VLAN switching and inter-switching communications
- configuration of WLAN securities
- current wireless regulations, standards and certifications
- internetwork operating system (IOS) and IP networking models
- RF and WLAN technology and network design
- RF propagation and implementation issues
- spread spectrum technologies
- wireless network topologies and elements
- wireless networking protocols
- WLAN devices and their specification and use
- WLAN radio frequencies characteristics and their measuring techniques.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • plan and conduct a WLAN site survey • produce design specifications and layout of wireless network • configure and test a controller-based WLAN • test wireless security configurations.
Context of and specific	Assessment must ensure access to:

© Commonwealth of Australia, 2025 Future Skills Organisation

resources for assessment	• site where network installation may be conducted • hardware and software • organisational guidelines • computers • stand-alone and lightweight WLAN controllers and AP • hardware and software WLAN site survey tools • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate installing, configuring and testing a new or updated network • evaluation of documentation prepared by the candidate outlining testing procedures, test results, recommendation to network changes and completion records • verbal or written questioning of required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client requirements may	• accessibility

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• dropout rates • future scalability • grade of service (GoS) • infrastructure costs • interoperability to existing network • network growth • network RF coverage • network security • network traffic • operating budget • quality of service (QoS) • serviceability • service level agreement (SLA).

WLAN technology may include:	• channels reuse and overlap
	• carrier sense multiple access/collision avoidance (CSMA/CA)
	• dynamic satellite survey (DSS)
	• multiple-input multiple-output (MIMO)
	• orthogonal frequency division multiplexing (OFDM)
	• rate-shifting
	• worldwide interoperability for microwave access (WiMAX)
	• wireless network topologies
	• wireless personal devices:
	  • Bluetooth
	  • cordless phones
	  • personal digital assistant (PDA)
	  • smartphone
	• wireless technology developed as an open global standard (ZigBee).

Network elements may include:	• adaptors • access point (AP) • client • communications cables and connectors • controller • host • hubs • routers • servers • switches.
Network infrastructure may include:	• additional antenna • lightning protection

© Commonwealth of Australia, 2025 Future Skills Organisation

	• mounting considerations • outdoor grounding • physical security • power over ethernet (PoE) • power including renewable sources • rack capacity • switch port capacity.
Wireless network topology may include:	• basic mesh • bridging • basic service set (BSS) • extended service set (ESS) • independent basic service set (IBSS) • point-to-multipoint using BSS • point-to-point using IBSS.
RF deployment considerations may include:	• AP location • basic RF site survey design related to channel re-use • building material • cell overlap • common RF interference sources such as devices • signal strength.
Survey model may include:	• data • point-to-multipoint bridging • video point-to-point bridging • voice.
Deployment characteristics may include:	• dense deployment • high mobility versus nomadic • internal meshing.
Physical site survey may include:	• actual AP • RF power • simulated data rate to conduct the site survey • test radio equipment.
RF network design may include:	• AP count • controller and licence requirements • location and type of network elements • location of additional APs for monitoring and sniffing • propagation patterns and attenuation • WLAN radio frequencies and characteristics.
Spread spectrum technology may include:	• channels reuse and overlap • carrier sense multiple access or collision avoidance (CSMA/CA) • direct sequence spectrum (DSS)

© Commonwealth of Australia, 2025 Future Skills Organisation

	• multiple-input multiple-output (MIMO)
	• modulation
	• orthogonal frequency division multiplexing (OFDM)
	• rate-shifting
	• techniques:
	  • direct sequence (DS)
	  • frequency hopping (FH)
	  • hybrids, combination of FH and DS
	  • time hopping (TH).

WLAN RF principles may include:	• antenna types • effective isotropic radiated power (EIRP) • reflection • refraction • RF gain/loss.
Wireless regulatory bodies, standards and certifications may include:	• 802.11a/b/g/n • European Telecommunications Standards Institute (ETSI) • Federal Communications Commission (FCC) • Wi-Fi Alliance.
Wireless network architectures may include:	• lightweight access point (LWAP) • split media access control (MAC) • stand-alone AP versus controller-based AP.
WLAN controller and access points may include:	• channel • command line interface (CLI) • graphical user interface (GUI) • interfaces • network time protocol (NTP) • power • wireless LANs (WLANs).
Controller-based AP discovery and association may include:	• dynamic host configuration protocol (DHCP) • domain name system (DNS) • master-controller • n+1 redundancy • over the air provisioning (OTAP) • primary-secondary-tertiary.
Roaming may include:	• Cisco centralised key management or proactive key caching (CCKM/PKC) • inter-controller • intra-controller • layer 2 • layer 3.

© Commonwealth of Australia, 2025 Future Skills Organisation

Client operating system WLAN configuration may include:	• Linux • Mac • Windows.
Security components may include:	• authentication • encryption • intrusion prevention system (IPS) • management frame protection (MFP).
Identification assignments may include:	• 802.1q trunking • interface • service set identifier (SSID) • virtual local area network (VLAN) • wireless LAN identifier (WLANID).

Authentication methods may include:	• 802.1X
	• extensible authentication protocol-flexible authentication via secure tunnelling (EAP-FAST)
	• frame types:
	  • associated or unassociated
	  • control
	  • data
	  • management
	• guest
	• lightweight extensible authentication protocol
	• open (LEAP)
	• protected extensible authentication protocol (PEAP)
	• pre-shared key (PSK)
	• shared
	• wi-fi protected access (WPA) with extensible authentication protocol-transport layer security (WPA or WPA2 with EAP-TLS).

Sources of authentication may include:	• local or external (EAP) • pre-shared key (PSK) • remote authentication dial-in user service (RADIUS).
Encryption methods may include:	• advanced encryption standard (AES) • WPA or WPA2 with temporal key integrity protocol (TKIP).
Networking tools may include:	• client troubleshooting • vendor debug • vendor logging.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK606A Implement voice applications over secure wireless networks

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use network tools, equipment, software and protocols to design and use voice applications over a wireless local area network (WLAN).

Application of the Unit

This unit applies to integrating voice over wireless local area network (VoWLAN) services into the WLAN and implementing quality of service (QoS), multi-protocol label switching (MPLS), and high bandwidth applications into the wireless network. Relevant job roles include advanced wireless help-desk technician, wireless network support specialist and wireless network engineer.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Specify requirements for voice over wireless architecture	1.1 Analyse ***voice requirements*** for use over a wireless network 1.2 Specify ***wireless requirements for voice*** applications for design considerations 1.3 Verify network for voice readiness and suitability
2. Design the implementation of secure VoWLAN	2.1 Configure wireless client devices 2.2 Design and configure the WLAN for VoWLAN with ***security*** configurations 2.3 Design and configure infrastructure devices 2.4 Devise structured troubleshooting methodology for VoWLAN implementation
3. Design, implement and QoS for wireless applications	3.1 Plan general design considerations for wired QoS 3.2 Design wireless QoS deployment schemes 3.3 Configure WLAN equipment for QoS
4. Design, implement and test multicast over wireless environment	4.1 Evaluate general multicast concepts 4.2 Analyse the implications for multicast in 802.11 4.3 Configure multicast requirements for a wireless network 4.4 Devise structured troubleshooting methodology for multicast in a WLAN environment
5. Plan and scope the wireless network for video and high-bandwidth applications	5.1 Design and implement QoS for latency-sensitive applications 5.2 Analyse the requirement for video applications over 802.11n WLAN 5.3 Calculate and predict bandwidth requirements for video applications over the wireless network 5.4 Analyse the impact of the WLAN interconnectivity for

© Commonwealth of Australia, 2025 Future Skills Organisation

	devices on QoS for devices or the wired side

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal or external personnel on technical, operational and business-related matters
- literacy skills to:
  - interpret technical documentation
  - write reports as required
- numeracy skills to take test measurements, interpret results and evaluate performance and interoperability of network
- planning and organisational skills to:
  - coordinate the process in liaison with others
  - plan, prioritise and monitor own work
- problem-solving and contingency-management skills to:
  - troubleshoot and debug WLAN issues
  - adapt configuration procedures to requirements of network
  - reconfigure depending on differing operational contingencies, risk situations and environments
- research skills to investigate appropriate hardware to meet requirements
- technical skills to:
  - select and configure networking devices and assess and implement security requirements
  - use networking tools.

Required knowledge

- configuration, verification and troubleshoot procedures to undertake:
  - router operation and routing
  - VLAN switching and inter-switching communications
- IOS and IP networking models
- video and high bandwidth applications and requirements
- voice applications and protocols
- VoWLAN technologies

© Commonwealth of Australia, 2025 Future Skills Organisation

- wireless:
  - current regulations, standards and certifications
  - deployment schemes
  - network security technology
  - network topologies and elements
  - networking protocols
- WLAN devices and their specification and use.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • produce voice over wireless architecture requirements • evaluate, design and implement voice applications over WLAN • use network tools to configure and test wireless infrastructure and applications.
Context of and specific resources for assessment	Assessment must ensure access to: • site where network installation may be conducted • hardware and software • organisational guidelines • computers • stand-alone and lightweight WLAN controllers and AP • hardware and software LAN/WLAN voice technologies • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate installing, configuring and testing a new or updated network • evaluation of documentation prepared by the candidate outlining testing procedures, test results, recommendation to network changes and completion records • verbal or written questioning of required knowledge.
Guidance information	Holistic assessment with other units relevant to the industry

© Commonwealth of Australia, 2025 Future Skills Organisation

for assessment	sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Voice requirements may include:	• codecs • data flow • hardware • skinny call control protocol (SCCP) • session initiation protocol (SIP) • software • standards.
Wireless requirements for voice may include:	• cell overlap • cell separations • delay • jitter • latency • QoS • traffic separation.
Security may include:	• 802.11r • Cisco centralised key management or proactive key caching (CCKM/PKC) • extensible authentication protocol-flexible authentication via secure tunnelling (EAP-FAST)

© Commonwealth of Australia, 2025 Future Skills Organisation

	• lightweight extensible authentication protocol (LEAP) • protected extensible authentication protocol (PEAP) • wi-fi protected access with extensible authentication protocol-transport layer security (WPA or WPA2 with EAP-TLS).

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK607A Design and implement wireless network security

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to mitigate security threats to a wireless local area network (WLAN) by implementing security standards and policies.

Application of the Unit

This unit applies to protecting the wireless network from security threats by applying security policies and best practices to implement security standards and to configure wireless security components. Relevant job roles include advanced wireless help-desk support technician, wireless network support specialist and wireless network engineer.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Plan to implement wireless network security	1.1 Research and evaluate organisational and regulatory security policies that have been used to benchmark acceptable network security standards 1.2 Assess customer requirements and needs against regulatory security compliance and OHS considerations 1.3 Produce a plan with ***security-solution documentation*** for future growth and security needs
2. Design, implement and test guest access services	2.1 Analyse and select the appropriate architecture for ***guest access services*** 2.2 Produce a map and set up guest access accounts 2.3 Configure WLAN controller ***authorisation*** 2.4 Configure the anchor and internal controllers 2.5 Troubleshoot guest access issues
3. Design, implement and test the security of wireless client devices	3.1 Design and configure authentication of clients and management frame protection on clients and controllers 3.2 Configure access control servers for integration with ***wireless network*** 3.3 Configure client and server-side digital certificate services 3.4 Troubleshoot secure wireless connectivity services
4. Design, implement and test the integration of wireless network with organisational network admission control systems	4.1 Analyse network admission control ***architectures*** to assess the feasibility of network integration 4.2 Analyse the high-level authentication process flow to ensure compatible integration 4.3 Configure and test the wireless controller for admission control 4.4 Troubleshoot integration issues of network with access control
5. Evaluate and plan	5.1 Configure the intrusion detection system (IDS) to monitor the

© Commonwealth of Australia, 2025 Future Skills Organisation

secure wireless connectivity services	network activities for malicious activities or policy violations 5.2 Analyse the report produced by the IDS to review ***threat-mitigation strategies*** 5.3 Update security solution plan to mitigate ***wireless vulnerabilities*** to ensure network integrity
6. Manage the requirements to integrate the WLAN with advanced security platforms	6.1 Evaluate end-to-end security solutions and assess how they integrate with the planned wireless solutions 6.2 Analyse the ***firewall configuration requirements*** of WLANs to ensure compliance with organisational policies 6.3 Configure and test the WLAN controllers for wired and wireless intrusion prevention and detection system (IPDS) security protection

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business-related matters
- literacy skills to:
  - interpret technical documentation
  - write reports as required
- numeracy skills to:
  - evaluate performance and interoperability of network
  - interpret results
  - take test measurements
- planning and organisational skills to:
  - coordinate the process in liaison with others
  - plan, prioritise and monitor own work
- problem-solving and contingency-management skills to:
  - adapt configuration procedures to requirements of network
  - reconfigure depending on differing operational contingencies, risk situations and environments
  - troubleshoot and debug WLAN issues
- research skills to investigate appropriate hardware to meet requirements
- technical skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

- select and configure networking devices and assess and implement security requirements
- use networking tools.

Required knowledge

- configuration, verification and troubleshooting procedures to undertake:
  - router operation and routing
  - VLAN switching and inter-switching communications
- IOS and IP networking models
- intrusion prevention system (IPS) and IDS security protection
- threat mitigation strategies
- wireless:
  - current regulations, standards and certifications
  - deployment schemes
  - network security technology
  - network topologies, architectures and elements
  - networking protocols
- WLAN:
  - advanced security platforms
  - devices and their specification and use
  - radio frequencies characteristics and their measuring techniques.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • conduct research and produce security solutions plan • evaluate, design and implement a WLAN site security plan • evaluate end-to-end security solutions and assess their integrate with the planned wireless solutions • use network tools to test wireless controllers and IPDS solutions.
Context of and specific resources for	Assessment must ensure access to: • site or prototype where network installation may be

© Commonwealth of Australia, 2025 Future Skills Organisation

assessment	conducted • hardware and software • organisational guidelines • live network • stand-alone and lightweight WLAN controllers and AP • hardware and software WLAN site survey tools • hardware and software IDS and IPS • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate installing, configuring and testing a new or updated network • evaluation of documentation prepared by the candidate outlining testing procedures, test results, recommendation to network changes and completion records • verbal or written questioning of required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

Security-solution documentation may include:	• equipment inventory
	• naming standards
	• project management templates and report writing
	• satisfaction reports
	• standards:
	  • International Organization for Standardization (ISO)
	  • International Electrotechnical Commission (IEC)
	  • Australian Standards (AS)
	• version control.

Guest access services may include:	• anchor • bandwidth limiting • demilitarised zone or perimeter network (DMZ) • redundancy • scaling • VLAN-based • wired guest access.
Authorisation may include:	• authentication • email • external • internal • pass through.
Wireless network may include:	• cellular network • mobile services • paging network • wireless LAN (WLAN).
Architectures may include:	• agent versus agent • in-band • out-of-band.
Threat-mitigation strategies may include:	• client exclusions • custom signature • rogue reporting and location • signature • switch-port tracing.
Wireless vulnerabilities may include:	• anomalous behaviour attacks • client misconfiguration • denial of service (DoS) • eavesdropping • hijacking • radio frequency (RF) jamming • signature attacks • social engineering.

© Commonwealth of Australia, 2025 Future Skills Organisation

Firewall configuration requirements may include:	• access control list (ACL) • demilitarised zone (DMZ) • IP port pass-through.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK608A Configure network devices for a secure network infrastructure

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use software tools, equipment and protocols to configure network devices in the design of the infrastructure of a secure network.

Application of the Unit

This unit applies to the use of routers and switches as network elements for a securing networks, and the use of router and switch operating system capabilities to mitigate attacks.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Implement layer 2 security	1.1 Configure using router operating system (OS) commands to mitigate layer 2 attacks 1.2 Implement identity-based networking services (IBNS) on switches to provide layer 2 security 1.3 Implement identity management using access control system (ACS) as the authentication server
2. Configure router OS intrusion prevention system (OS-IPS) to mitigate threats to network resources	2.1 Evaluate the advanced capabilities of router OS-IPS firewall feature set to include event action processing (EAP) for ***threats*** to ***network resources*** 2.2 Configure and verify IPS features to identify threats and dynamically block them from entering the network 2.3 Maintain, update and tune the IPS signatures 2.4 Configure and verify context-based access control (CBAC) and network address translation (NAT) to dynamically mitigate identified threats to the network 2.5 Configure and verify zone-based firewall (ZFW) to include advanced application inspections and uniform resource locator (URL) filtering for improved network security
3. Configure virtual private networks (VPNs) to provide secure connectivity for site-to-site and remote access communications	3.1 Analyse and evaluate internet protocol security (IPSec) and generic routing encapsulation (IPSec/GRE) features and functionality 3.2 Configure secure connectivity for site-to-site VPN using certificate authorities 3.3 Analyse dynamic multipoint VPN (DMVPN) features and capabilities 3.4 Configure and verify secure connectivity for site-to-site VPN operations 3.5 Provide highly secure network access with secure socket layer (SSL) VPN to deliver ***remote access connectivity features and benefits*** 3.6 Evaluate ***EasyVPN benefits*** and configure EasyVPN server

© Commonwealth of Australia, 2025 Future Skills Organisation

	with dynamic virtual tunnel interface (DVTI) to create a virtual access interface on the virtual tunnel interface 3.7 Configure and verify EasyVPN remote to establish a site-to-site connection using both router and VPN software clients 3.8 Implement group-encrypted transport (GET) VPN features to simplify the provisioning and management of VPN
4. Implement network foundation protection (NFP)	4.1 Evaluate NFP features and functionality to provide infrastructure protection 4.2 Secure the management plane, the data plane and the control plane using OS features of the router

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business-related matters
- literacy skills to:
  - interpret technical documentation
  - write reports as required
- numeracy skills to:
  - evaluate performance and interoperability of network
  - interpret results
  - take test measurements
- planning and organisational skills to:
  - coordinate the process in liaison with others
  - plan, prioritise and monitor own work
- problem-solving and contingency-management skills to:
  - adapt configuration procedures to requirements of network
  - reconfigure depending on differing operational contingencies, risk situations and environments
  - troubleshoot and network security issues
- research skills to investigate appropriate hardware to meet requirements
- technical skills to:
  - assess and implement security requirements
  - select and configure networking devices

© Commonwealth of Australia, 2025 Future Skills Organisation

- use networking tools.

Required knowledge

- configuration, verification and troubleshooting procedures to undertake:
  - VLAN switching
  - inter-switching communications
- key features of deployment schemes
- setting up and securing firewalls
- IOS and IP networking models
- local area network (LAN) and wide area network (WAN) implementations
- NAT concepts and configuration
- network topologies, architectures and elements
- networking standards and protocols
- procedures for configuring, verifying and troubleshooting router operations and routing
- secure connectivity and remote access communications
- security protocols, such as SSL
- threat mitigation strategies
- tunnelling protocols
- VPN technologies.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • evaluate network security system requirements • design, implement and verify network security systems using layer 2 and layer 3 devices • mitigate treats to network security • configure VPNs for secure connectivity • evaluate and implement NFP.
Context of and specific resources for assessment	Assessment must ensure access to: • site or prototype where network security may be evaluated and tightened • hardware and software

© Commonwealth of Australia, 2025 Future Skills Organisation

	• organisational guidelines, procedures and policies • computers • hardware and software LAN and WLAN internetwork technologies • hardware and software security technologies • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate installing, configuring and testing a new or updated network • evaluation of documentation prepared by the candidate outlining testing procedures, test results, recommendation to network changes and completion records • verbal or written questioning of required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Threats may include:	• denial of service (DoS) • IP spoofing

© Commonwealth of Australia, 2025 Future Skills Organisation

	• media access control (MAC) spoofing • port scanning • sniffing.
Network resources may include:	• company information • corporate secrets • data • financial data • personal information.
Remote access connectivity features and benefits may include:	• flexible and cost-effective licensing • lower desktop support costs • reduced cost and management complexity • threat protection.
EasyVPN benefits may include:	• deployment flexibility • easy to use and maintain • enhanced interoperability • increased productivity.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK609A Configure and manage intrusion prevention system on network sensors

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use appropriate tools, equipment and software to implement an intrusion prevention system (IPS) on IPS sensors to mitigate network attacks.

Application of the Unit

This unit applies to the use of IPS and signatures of IPS sensors, installation and configuration of advanced features, analysis of IPS sensor events as well as the upgrade and maintenance of IPS systems. Relevant job roles include certified IPS specialist, network security specialist and network security manager.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Evaluate the ways IPS sensors are used to mitigate network attacks	1.1 Evaluate ***system requirements*** of the ***network*** according to ***industry standards*** for inline operations 1.2 Compare inline to promiscuous mode sensor operations and evaluate how IPS protects network devices from attacks 1.3 Evaluate the evasive techniques used by hackers and determine ways IPS can defeat those techniques in the network 1.4 Evaluate the considerations necessary for selection, placement, and deployment of a network IPS including using features of IPS signature
2. Select and install IPS sensors and configure essential system parameters	2.1 Install and initialise the sensor for ***configuration of sensor interfaces***, interface pairs, virtual local area network (VLAN) pairs, and VLAN groups 2.2 Configure management access to the sensor appliance and create user accounts to comply with different ***user*** roles 2.3 Set up sensor communications with external management and monitoring systems 2.4 Manage and monitor sensor operation using built-in tools 2.5 Upgrade and maintain IPS ***sensor parameters and licensing requirements*** to maintain network integrity 2.6 Plan the mitigation of specific network vulnerabilities and exploits
3. Tune IPS sensor advanced system parameters to optimise attack mitigation performance	3.1 Tune sensor signatures to provide optimal protection of the network 3.2 Create custom signatures and a meta signature to meet ***mitigation performance configurations*** for given ***test scenarios*** while disabling alert production for the component signatures 3.3 Configure gateway for passive operating system (OS) fingerprinting

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.4 Configure the external product interface to receive and process information from external security and management products to automatically enhance the sensor configuration information 3.5 Configure a virtual sensor and anomaly detection 3.6 Monitor the IPS advanced features for optimal performance
4. Manage security and response of the IPS to network attacks	4.1 Monitor IPS events using ***network tools*** to determine appropriate response to network attacks 4.2 Use ***network management tools*** to assess and manage IPS effectiveness against security intrusion

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business-related matters
- literacy skills to:
  - interpret technical documentation
  - write reports as required
- numeracy skills to:
  - interpret results and evaluate performance and interoperability of network
  - take test measurements
- planning and organisational skills to:
  - coordinate the process in liaison with others
  - plan, prioritise and monitor own work
- problem-solving and contingency-management skills to:
  - adapt configuration procedures to requirements of network
  - reconfigure depending on differing operational contingencies, risk situations and environments
  - debug networking entities configuration issues
  - troubleshoot
- research skills to investigate appropriate hardware to meet requirements
- technical skills to:
  - assess and implement security requirements
  - select and configure networking devices

© Commonwealth of Australia, 2025 Future Skills Organisation

- use calling line identification (CLI) and the web interface in configuration of network entities
- use networking and network management tools.

Required knowledge

- configuration, verification and troubleshooting procedures to undertake a switch and router operation and routing protocol
- deployment schemes
- setting up and securing firewalls
- internetwork operating system (IOS) and internet protocol (IP) networking models
- IP addressing and detailed understanding of the transmission control protocol (TCP) or IP stack
- IPS and intrusion detection system (IDS) strategies
- IPS sensor technologies and licensing requirements
- local area network or wide area network (LAN/WAN) implementations and design
- network topologies, architectures and elements
- networking standards and protocols
- signatures and meta signatures
- threat mitigation strategies
- VLAN concepts and functionality
- VPN technologies.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • evaluate IPS requirements and configure IPS sensors • tune up IPS sensors to optimise attack mitigation • use network tools and network management tools to monitor and manage security sensor events • upgrade and maintain IPS sensors.
Context of and specific resources for assessment	Assessment must ensure access to: • site or prototype where network installation may be conducted • relevant hardware and software

© Commonwealth of Australia, 2025 Future Skills Organisation

	• organisational guidelines • live network • IPS system and its sensors • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate installing, configuring and testing a new or updated network • evaluation of documentation prepared by the candidate outlining testing procedures, test results, recommendation to network changes and completion records • verbal or written questioning of required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

System requirements may refer to:	• application • business • network • people in the organisation

© Commonwealth of Australia, 2025 Future Skills Organisation

	• system.
Network may include:	• data • firewall • IDS • internet • IPS • large and small LAN • protocol • WAN • wireless LAN (WLAN).
Industry standards may include:	• Australian Standards (AS) • International Electrotechnical Commission (IEC) • International Organization for Standardization (IOS) • security policy and procedures.
Configuration of sensor interfaces may include:	• allowed hosts • assignment of virtual sensors • creation of pairs • enabling • software bypass.
User may include:	• external • internal • remote access • temporary.

Sensor parameters and licensing requirements may include:	• application of software images and upgrades
	• configuration of files:
	  • file transfer protocol (FTP)
	  • hypertext transfer protocol (HTTP)
	  • hypertext transfer protocol secure (HTTPS)
	  • service control point (SCP)
	• installation of sensor licence
	• installation of signature update of file names
	• performing sensor password recovery.

Mitigation-performance configurations may include:	• event action filters • event variables • general settings for event action rules • response actions based on risk taking • target value ratings.

Test scenarios may include:	• exploiting the network:
	  • denial of service (DOS) and OS exploitation and countermeasures
	  • eavesdropping and interception attacks and

© Commonwealth of Australia, 2025 Future Skills Organisation

	countermeasures • infrastructure flooding attacks and countermeasures • simple network reconnaissance: • dynamic host configuration protocol (DHCP) response sniffing and spoofing and countermeasures • hacking devices and hacking countermeasures • port scanning and port scanning countermeasures • sniffing and sniffing countermeasures.
Network tools may include:	• command line interface (CLI) • IPS device manager • IPS event viewer.
Network management tools may include:	• intrusion attacks • network security management • sniffer trace.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK610A Design and build integrated VoIP networks

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use appropriate tools, equipment, software and protocols to design and build an internet protocol (IP)-based integrated voice network for small to medium enterprises.

Application of the Unit

This unit applies to the use of foundational elements of voice over internet protocol (VoIP) calls, and the description of dial plans for the design and implementation of gateways, gatekeepers and IP-IP gateways. Relevant job roles include advanced VoIP network support specialist, VoIP network engineer and VoIP systems installer.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Plan design concepts of a voice network for specified voice quality	1.1 Determine the ***design requirements*** of an IP-based voice network including the choice of ***network elements***
	1.2 Evaluate the various applications of ***real time protocols*** and of ***signalling protocols*** for an appropriate gateway
	1.3 Design a site numbering plan including digit manipulation and path selection process
	1.4 Plan and assign calling privileges as required
	1.5 Predict VoIP call flow and potential impact on voice quality considerations and network performance
2. Design, configure implement and test voice protocols and interoperation of VoIP communications network	2.1 Produce the design layout of the voice network according to the design requirements
	2.2 Design and configure a gateway and a gatekeeper to using ***H.323 protocol suite*** for dial plan resolution and call admission control for the network
	2.3 Configure and test the use of real-time protocols, call management protocols and gateway signalling protocol in the network design
	2.4 Analyse the function and interoperation of gatekeepers within an IP communications network
3. Design, configure and test a VoIP IP-to-IP call system	3.1 Analyse the IP-to-IP gateway features and functionality requirements for a given network design requirement
	3.2 Configure the gatekeeper to support an IP-to-IP gateway
	3.3 Configure and test the IP-to-IP gateway to provide address hiding, protocol and media interworking and call admission control implementations
	3.4 Produce test results and evaluate against design requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business-related matters
- literacy skills to:
  - interpret technical documentation
  - write reports as required
- numeracy skills to:
  - take test measurements and interpret results
  - evaluate performance and interoperability of network
- planning and organisational skills to:
  - coordinate the process in liaison with others
  - plan, prioritise and monitor own work
- problem-solving and contingency-management skills to:
  - adapt configuration procedures to requirements of network
  - reconfigure depending on differing operational contingencies, risk situations and environments
  - troubleshoot and debug WLAN issues
- research skills to investigate appropriate hardware to meet requirements
- technical skills to:
  - select and configure networking devices and assess and implement security requirements
  - use networking and network management tools.

Required knowledge

- codecs and their protocols for use
- configuration, verification and troubleshooting procedures to undertake:
  - basic router operation and routing
  - switch with VLANs and inter-switching communications
- design considerations and deployment schemes
- gateway technologies
- IOS and IP networking models
- procedures and techniques for implementing LAN/WAN topologies
- network topologies, architectures and elements
- networking standards and protocols

© Commonwealth of Australia, 2025 Future Skills Organisation

- voice applications and protocols
- VoIP technologies.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • produce design plan and requirements of VoIP network • configure and test for voice gateways • design site numbering plan, dial plans and priorities • use networking and network management tools • configure and test real time protocols, call management protocols and gateway signalling protocol in the network elements • implement voice systems and applications.
Context of and specific resources for assessment	Assessment must ensure access to: • site where network installation may be conducted • hardware and software • organisational guidelines • computers • stand-alone and lightweight WLAN controllers and AP • hardware and software LAN/WLAN voice technologies • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate installing, configuring and testing a new or updated network • evaluation of documentation prepared by the candidate outlining testing procedures, test results, recommendation to network changes and completion records • verbal or written questioning of required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Design requirements may include:	• applications for dial peer types
	• applications of different types of voice ports
	• calling privileges
	• functionality of digital signal processor (DSP)
	• grade of service
	• latency
	• numbering plan
	• quality of service
	• requirements, complexity and types of codecs (coder-decoders):
	  • G.711
	  • G.722_64K
	  • G.723.1
	  • G.726
	  • G.728
	  • G.729
	  • IIBC MODE 30
	  • ILBC MODE 20 - internet low bitrate codec
	• role and type of gateways
	• voice quality requirements.

Network elements may	• call managers

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• gatekeepers • gateways • IP phones • routers • servers • soft phones • switches • toll managers.
Real time protocols may include:	• compressed RTP (CRTP) • control protocol (RTCP) • real-time transport protocol (RTP) • Secure RTP (SRTP).
Signalling protocols may include:	• H.323 • media gateway control protocol (MGCP) • skinny client control protocol (SCCP) • session initiation protocol (SIP).
H.323 protocol suite may include:	• call control • media control • registration, admission and status (RAS).

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK611A Configure call processing network elements for secure VoIP networks

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use tools, equipment, software and protocols to install or upgrade call processing network elements for secure and reliable internet protocol (IP)-based communications networks.

Application of the Unit

This unit applies to the use of voice management servers to support single site and centralised call processing models. Relevant job roles include advanced voice over internet protocol (VoIP) network support specialist, VoIP network engineer and VoIP systems installer.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Plan to implement enterprise IP communications	1.1 Produce ***design considerations*** for planning and implementing IP-based voice communications networks 1.2 Produce a ***solutions plan*** to meet business expectations 1.3 Select the required ***resources*** to effectively install or upgrade voice-management servers 1.4 Perform, test and evaluate the installation or upgrade of ***voice call-management software*** against the solutions plan
2. Plan, configure and test call-processing network elements for a single-site deployment	2.1 Produce a topology of the voice network and plan the location of the ***call-processing network elements*** to best support the business requirements 2.2 Install and test voice servers to support ***user requirements***, third-party session initiation protocol (SIP) phones and lightweight directory access protocol (LDAP) integration 2.3 Install and configure local area network (LAN) switches to support IP phones 2.4 Configure and test voice gateways according to ***gateway requirements*** to allow for internal calls and external calls and provide ***voice features*** 2.5 Configure and test the integration of voice servers with other ***media systems*** 2.6 Test and evaluate final configuration against the design requirements
3. Manage security and privacy of IP voice network	3.1 Produce design and installation templates for bulk deployment across the enterprise 3.2 Research and implement the use of a ***network support model*** to manage the performance and security of the IP voice network 3.3 Design and conduct simple ***security deployment scenarios*** to test the integrity and security of the voice network

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business-related matters
- literacy skills to:
  - interpret technical documentation
  - write reports as required
- numeracy skills to:
  - take test measurements and interpret results
  - evaluate performance and interoperability of network
- planning and organisational skills to:
  - plan, prioritise and monitor own work
  - liaise with others to coordinate the process
- problem-solving and contingency-management skills to:
  - adapt configuration procedures to requirements of network
  - reconfigure depending on differing operational contingencies, risk situations and environments
  - troubleshoot and debug wireless local area network (WLAN) issues
- research skills to investigate appropriate hardware to meet requirements
- technical skills to:
  - assess and implement security requirements
  - select and configure networking devices
  - use networking and network management tools.

Required knowledge

- call-processing network element technology
- codecs and their protocols for use
- configuration, verification and troubleshoot procedures to undertake:
  - basic router operation and routing
  - switch with virtual local area network (VLANs) and inter-switching communications
- design considerations and deployment schemes
- interoperability of legacy private branch exchange (PBX) to IP voice communications
- internetwork operating system (IOS) and internet protocol (IP) networking and network support models
- LAN and wide area network (WAN) implementations

© Commonwealth of Australia, 2025 Future Skills Organisation

- network topologies, architectures and elements
- network, signalling and call management protocols
- networking standards and protocols
- security deployment scenarios
- voice applications and protocols
- VoIP technologies.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • produce design plan and requirements of call processing network elements • configure and test voice gateways and LAN switches • evaluate voice call manager server requirements and design voice call systems and applications • implement voice systems and applications on voice call manager • manage security of voice network.
Context of and specific resources for assessment	Assessment must ensure access to: • site where network installation may be conducted • hardware and software • organisational guidelines • computers • stand-alone and lightweight WLAN controllers and AP • hardware and software LAN/WLAN voice technologies • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate installing, configuring and testing a new or updated network • evaluation of documentation prepared by the candidate outlining testing procedures, test results, recommendation to network changes and completion records

© Commonwealth of Australia, 2025 Future Skills Organisation

	• oral or written questioning of required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Design considerations may include:	• access
	• additional resources for new plan
	• call processing network element location
	• deployment plan:
	  • centralised call processing model
	  • distributed or decentralised call processing model
	  • single or multiple LAN sites
	• dial plan
	• encryption
	• existing IP network capability
	• existing legacy PBX
	• failure to WAN and internet access
	• feasibility
	• grade of service (GoS)
	• growth
	• interoperability between systems and protocols
	• power back up

© Commonwealth of Australia, 2025 Future Skills Organisation

	• quality of service (QoS) • security.
Solution plans may include:	• design • execution • implementation testing • management • review and optimisation.

Resources may include:	• call-processing network equipment
	• protocols:
	  • call control
	  • H.323
	  • LDAP
	  • media control
	  • media gateway controller protocol (MGCP)
	  • registration, admission and status (RAS)
	  • signalling connection control part (SCCP)
	  • SIP
	• software tools
	• support tools
	• technical support and backup.

Voice call-management software may include:	• Asterisk • Cisco voice call manager.
Call-processing network elements may include:	• call manager • call processing agent • IP phones • routers • SIP phones • switches • voice gateways • voice server.

User requirements may include:	• calling patterns
	• groups:
	  • hunt
	  • paging
	• profiles
	• roles
	• security access.

Gateway requirements may include:	• analog and digital trunking • call coverage • calling patterns

© Commonwealth of Australia, 2025 Future Skills Organisation

	• calling privileges • dial plans • digital signal processing (DSP) hardware • external calls to public switched telephone network (PSTN) • route patterns and filters.
Voice features may include:	• answer call • barge • call park • call pickup • call transfer • conference • intercom • music on hold • originate call • privacy.
Media systems may include:	• chat • email • instant messaging (IM) • presence.

Network support model may include:	• backup support and recovery
	• call manager monitoring
	• monitoring tools:
	  • Call Manager
	  • Microsoft Event Viewer
	  • Microsoft Performance Monitor
	  • Sniffer Trace
	• network management:
	  • accounting
	  • configuration
	  • fault
	  • performance
	  • security
	• physical and network security
	• power backup
	• reporting mechanism
	• serviceability
	• troubleshooting.

Security deployment scenarios may include:	• exploiting the network:
	  • denial of service (DoS) and OS exploitation and countermeasures
	  • eavesdropping and interception attacks and

© Commonwealth of Australia, 2025 Future Skills Organisation

	countermeasures • infrastructure flooding attacks and countermeasures • simple network reconnaissance: • dynamic host configuration protocol (DHCP) response sniffing and spoofing and countermeasures • hacking devices and hacking countermeasures • port scanning and port scanning countermeasures • sniffing and sniffing countermeasures • virtual network computing (VNC) enumeration and VNC countermeasures.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK612A Plan and manage troubleshooting advanced integrated IP networks

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to plan, manage and implement troubleshooting and monitoring strategies to ensure reliability and performance on advanced integrated internet protocol (IP) networks.

Application of the Unit

This unit applies to maintaining and troubleshooting infrastructure supporting voice, video and data networks. Relevant job roles include advanced support engineer, network support specialist and information and communications technology (ICT) network engineer.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Plan the strategies for troubleshooting and monitoring the performance of advanced integrated IP networks	1.1 Develop a plan to monitor and manage the ***IP network*** to optimise its performance and reliability 1.2 Plan the isolation of network segments for troubleshooting procedures 1.3 Plan the testing sequences and scenarios of network infrastructure 1.4 Select appropriate ***network testing and monitoring tools*** and software application to suit the specific network troubleshooting and monitoring sequence
2. Manage and monitor troubleshooting strategies for complex enterprise networks	2.1 Manage and monitor ***strategies*** for network monitoring structure 2.2 Produce a routine internetwork operating system (IOS) device maintenance plan to include monitoring of ***routing protocols*** and ***router configurations*** 2.3 Isolate sub-optimal internetwork operations at the appropriate open systems interconnection (OSI) model layer 2.4 Produce a plan troubleshooting and monitoring security issues related to ***IOS services*** for mission critical applications 2.5 Produce a plan troubleshooting and monitoring internet protocol version 6 (IPv6) and version 4 (IPv4) interoperability
3. Implement test plans for advanced network solutions	3.1 Test switch-to-switch connectivity, access ports and loop prevention for the virtual local area network (VLAN) based solution 3.2 Test private VLANs 3.3 Test switch virtual interfaces (SVI) 3.4 Test switch support of ***advanced services*** 3.5 Troubleshoot ***switch configuration***

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and/or external personnel on technical, operational and business-related matters
- literacy skills to:
  - interpret technical documentation
  - write reports as required
- numeracy skills to:
  - take test measurements and interpret results
  - evaluate performance and interoperability of network
- planning and organisational skills to:
  - coordinate the process in liaison with others
  - plan, prioritise and monitor own work
- problem-solving and contingency-management skills to:
  - adapt configuration procedures to requirements of network
  - reconfigure depending on differing operational contingencies, risk situations and environments
  - troubleshoot and debug WLAN issues
- research skills to investigate appropriate hardware to meet requirements
- technical skills to:
  - select and configure networking devices and assess and implement security requirements
  - use networking and network testing and management tools.

Required knowledge

- advanced network solutions
- configuration, verification and troubleshoot procedures to undertake:
  - router operation and routing
  - VLANs switching and inter-switching communications
- deployment schemes
- IOS and IP networking models
- IOS services
- IP network topologies, architectures and elements
- networking standards and protocols
- threat mitigation strategies

© Commonwealth of Australia, 2025 Future Skills Organisation

- VLAN technologies.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • plan and monitor IP networks for performance and reliability • evaluate, design and implement a troubleshooting structured plan • use network testing and monitoring tools • produce a maintenance plan for monitoring routing protocols and configurations • implement tests of advanced network solutions.
Context of and specific resources for assessment	Assessment must ensure access to: • site where complex network installation may be conducted • hardware and software • organisational guidelines • computers • LAN and WAN systems, including voice and video hardware and software • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate installing, configuring and testing a new or updated network • evaluation of documentation prepared by the candidate outlining testing procedures, test results, recommendation to network changes and completion records • verbal or written questioning of required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

IP network may include:	• integrated network • internet • intranet • local area network (LAN) • router-based network • switch-based network • VPN • WAN • WLAN.

Network testing and monitoring tools may include:	• applications, services or systems monitor
	• bandwidth tester
	• connection speed
	• fingerprinting monitor
	• flow monitor
	• latency calculator
	• mapping tools
	• network:
	  • connectivity
	  • monitor
	  • security monitor
	  • simulator

© Commonwealth of Australia, 2025 Future Skills Organisation

	• packet capture and analyser • packet tracer • path characterisation • protocol analyser • sniffer or analyser • simple network management protocol (SNMP) tools • voice over internet protocol (VoIP) monitors.

Strategies may include:	• use of internetwork operating system (IOS) tools
	• use of vendor-recommended software and hardware:
	  • Apple
	  • Billion
	  • Cisco
	  • Juniper Networks.

Routing protocols may include:	• external border gateway protocol (EBGP) • enhanced interior gateway routing protocol (EIGRP) • open shortest path first (OSPF) • routing information protocol (RIP).
Router configurations may include:	• dynamic host configuration protocol (DHCP) • link control settings • network address translation (NAT) • usernames and passwords.
IOS services may include:	• auto-upgrade manager (AUM) • embedded event management (EEM) • flexible netflow • file transfer protocol (FTP) • hypertext transfer protocol (HTTP) • identity-based network services (IBNS) • IOS firewall • IP service level agreement (IPSLA) • network-based application recognition 2 (NBAR2) • network time protocol (NTP) • performance routing (PfR) • remote copy or rate control protocol (RCP) • service advertisement framework (SAF) • web services management agent (WSMA).
Advanced services may include:	• internet protocol TV (IPTV) • video • voice over internet protocol (VoIP) • wireless.
Switch configuration	• spanning tree • switch virtual interface (SVI)

© Commonwealth of Australia, 2025 Future Skills Organisation

may include:	• virtual LAN (VLAN).

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK613A Develop plans to manage structured troubleshooting process of enterprise networks

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manage the maintenance of a complex integrated enterprise network to ensure availability and performance standard.

Application of the Unit

This unit applies to an information and communications technology (ICT) network specialist, network engineer, network infrastructure engineer, senior network administrator, network and systems manager, ICT security specialist, security engineer, communications engineer, communications manager.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Plan the strategies for structured troubleshooting and monitoring of enterprise networks	1.1 Develop strategies to monitor and manage an ***enterprise network*** to ensure availability and performance standard 1.2 Conduct equipment and skills audits as required 1.3 Evaluate the business value of service level agreements (SLAs), formal maintenance plans and monitoring procedures against best practices for maintenance and fault procedures 1.4 Assign functional responsibilities to ***stakeholders*** according to the maintenance plan 1.5 Select and use appropriate ***network fault management*** tools and monitor and improve network performance
2. Manage and monitor structured troubleshooting strategies for complex enterprise networks	2.1 Implement structured network ***maintenance management processes and procedures*** in line with ***enterprise design plans and policies*** for ensuring high network reliability 2.2 Undertake risk assessment evaluation and rank threats for minimal impact 2.3 Develop and implement ***disaster recovery strategies*** for reliable contingencies and business continuity in a complex routing environment 2.4 Measure and analyse performance against an agreed baseline
3. Conduct structured network troubleshooting strategies	3.1 Analyse and troubleshoot ***layer 2 and 3 switch configuration*** to ensure the availability and resilience of a switched environment 3.2 Implement effective control of broadcast and multicast traffic in a switched environment 3.3 Analyse and troubleshoot scalable network layer connectivity with routing data structures and routing functions 3.4 Analyse and troubleshoot enterprise intra and internetwork ***routing protocols***, architectures and processes

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.5 Analyse and troubleshoot route redistribution operations in inter-autonomous system routing architectures and processes 3.6 Test and manage internet protocol version 6 (IPv6) and version 4 (IPv4) addressing schema and verify internal and external IP address translation standards 3.7 Analyse and troubleshoot communication filtering techniques, ***automated address allocation*** systems and IPv6 operational issues in the context of enterprise routing protocols 3.8 Analyse and troubleshoot wireless network configuration issues 3.9 Analyse and resolve network performance issues in an integrated voice or video network

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to identify functional, performance and management features associated with the operation of complex network infrastructure
- communication skills to:
  - communicate complex concepts and issues technically and in plain language
  - liaise with diverse clients
- literacy skills to:
  - develop and prepare operational documentation, such as policies and procedures, technical and management reports
  - interpret and prepare technical documentation
  - prepare project-management documentation
- problem-solving skills suitable for complex and dynamic environments with demanding service levels
- risk-management skills for complex and dynamic environments
- technical skills to investigate, analyse and resolve faults and performance problems in complex network infrastructure.

Required knowledge

- benefits of a formal or structured approach to network management

© Commonwealth of Australia, 2025 Future Skills Organisation

- disaster recovery strategies
- emerging viable business and social technologies
- enterprise network technologies, design plans and policies
- enterprise network topologies, architectures and elements
- external developments or factors that affect network design
- IPv4 and IPv6 addressing configurations
- maintenance and fault procedures
- maintenance and management tools and practices suitable for complex networks
- networking standards and protocols
- risk management strategies and practices suitable for a complex network environment
- routing and routed protocols
- routing and switching technologies for an enterprise environment
- security for enterprise networks
- security standards and technologies for network environments
- SLAs
- skills audit
- troubleshooting and threat-mitigation strategies.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • analyse, document and troubleshoot a given complex network using industry methodologies and resources • develop monitoring and management plans • use networking and network fault management tools • evaluate risk assessments and minimise threats on enterprise networks.
Context of and specific resources for assessment	Assessment must ensure access to: • location where the network configuration can be implemented • routers and switches with appropriate operating systems • computers • suitable testing and analyses tools • appropriate learning and assessment support when required • modified equipment for people with special needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate preparing, installing, configuring, testing, analysing and correcting network problems • documentation of the tools and methodologies adopted by the candidate to test, analyse, network functionality and performance (system audits) • documentation of the options and justification for the selected solutions developed to address network problems • evidence of the success of the corrective measures • delivery of the revised configuration documentation of the entire network • verbal and written questioning of required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Enterprise network may include:	• integrated network • internet • intranet

© Commonwealth of Australia, 2025 Future Skills Organisation

	• local area network(LAN) • router-based network • switch-based network • virtual LAN (VLAN) • virtual private network (VPN) • wide area network (WAN) • wireless LAN (WLAN).
Stakeholders may include:	• contractor • staff • vendor.

Network fault management tools may include:	• accounting and resource audits
	• configuration and version control
	• fault finding
	• generic and proprietary system management resources
	• monitoring and testing functions within device operating systems
	• open systems interconnection (OSI) and transmission control protocol or internet protocol (TCP/IP) models
	• performance
	• security
	• troubleshooting tools:
	  • debug
	  • netflow
	  • network security monitor
	  • operating system verification (show) commands
	  • packet capture and analyser
	  • packet sniffers
	  • packet tracer
	  • ping
	  • protocol analysers
	  • simplified network management protocol (SNMP)
	  • Telnet.

Maintenance management processes and procedures may include:	• change control
	• communication
	• identification
	• methodologies:
	  • analyse
	  • execute preferred solution
	  • gather information
	  • identify solution options
	• planning

© Commonwealth of Australia, 2025 Future Skills Organisation

	• scheduling.
Enterprise design plans and policies may include:	• change logs • change-management request • configuration details • equipment inventory • equipment specifications • industry and regulatory standards • logical diagram • physical diagram • policy and procedures • reports • SLAs • templates.
Disaster recovery strategies may include:	• backup • rollback.
Layer 2 and 3 switch configuration may include:	• 802.1q (trunking) • 802.1w • access ports for the VLAN-based solution • dynamic trunking protocol (DTP) • dynamic and virtual trunking protocol operations • EtherChannel • first-hop redundancy protocol (FHRP) • general switch security • inter-switch link (ISL) for trunking • loop prevention for the VLAN based solution • multiple spanning tree protocol (MSTP) • multilayer switching • port-based access control list (PACL) • port security • private VLANS • rapid spanning tree protocol (RSTP) • spanning tree protocol (STP) • switch virtual interface (SVI) • switch supervisor redundancy • switch-to-switch connectivity for the VLAN-based solution • VLAN access control list (VACL) • VLAN trunking protocol (VTP).
Routing protocols may include:	• border gateway protocol (BGP) • external border gateway protocol (EBGP) • enhanced interior gateway routing protocol (EIGRP) • first-hop redundancy protocols (FHRP):

© Commonwealth of Australia, 2025 Future Skills Organisation

	• gateway load balancing protocol (GLBP) • hot standby router protocol (HSRP) • virtual router redundancy protocol (VRRP) • open shortest path first (OSPF).
Automated address allocation may include:	• automatic private IP addressing (APIPA) • dynamic host configuration protocol (DHCP) • IPv6 stateless address auto-configuration.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK614A Manage IT security

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manage data security, enterprise continuity, incidents, networks and telecommunications security, system and application security.

Application of the Unit

Experienced security technical specialists, security analysts and security consultants apply the skills and knowledge in this unit.

Those with managerial responsibility undertake this role.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Manage enterprise security parameters	1.1 Determine and evaluate ***parameters*** that affect enterprise security to establish benchmark 1.2 Review security classification and data management policies and guidance for relevance and update if required 1.3 Plan and coordinate an effective enterprise ***continuity of operations*** (COOP) program and organisational structure for critical business continuity 1.4 Develop a plan to address ***factors*** to manage the risks of the enterprise 1.5 Integrate and evaluate risk management concepts into operational activities with related contingency planning activities using an enterprise COOP performance measurement program 1.6 Evaluate and assess ***security incidents*** to establish an effective ***incident-management program*** for the enterprise 1.7 Manage the coordination between ***related security teams*** for effective incident management processes and procedures
2. Manage networks and telecommunications security	2.1 Develop a network security and telecommunications program in line with enterprise policy and security goals 2.2 Manage the necessary ***resources*** to integrate network security and telecommunications program activities with technical support, security administration and incident response activities in a secure network 2.3 Establish effective communications protocols between the network security and telecommunications team and related security teams to manage the risks 2.4 Establish a performance measurement program to evaluate the security effectiveness of the integrated network security and telecommunications network 2.5 Ensure enterprise compliance with ***applicable network-based documents*** and that network-based audits and management

© Commonwealth of Australia, 2025 Future Skills Organisation

	reviews are conducted to implement process improvement
3. Implement and document enhancements	3.1 Implement appropriate changes and improvement actions as required and evaluate effectiveness of enhancements 3.2 Produce and table ***documentation*** for audit tracking

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - negotiate with stakeholders and team members using a range of communication styles to suit different audiences and purposes
  - respond to diversity, including gender and disability
- literacy skills to:
  - access and prepare information electronically or in hard copy
  - write recommendations and prepare reports requiring precision of expression
- numeracy skills to manage finances
- planning and organisational skills to:
  - lead and mentor people to achieve project outcomes
  - maintain commitment of stakeholders and project teams
- problem-solving skills to apply ethical decision making when problem solving
- safety awareness skills to apply workplace safety procedures in line with requirements
- technical skills to:
  - apply risk management techniques, including risk sharing and transfer
  - use management tools applicable to complex activities.

Required knowledge

- business and commercial issues related to the management of IT security
- COOP
- cost schedule control systems to handle potential budget blow-outs
- critical analysis in a management context
- legislation, organisational or jurisdictional policy and procedures that may impact on management:
  - budgetary framework

© Commonwealth of Australia, 2025 Future Skills Organisation

  - codes of ethics and conduct
  - equal employment opportunity, equity and diversity principles
  - financial management requirements
  - governance requirements
  - human resources
  - OHS and environment requirements
  - procurement guidelines
  - public relations
  - quality standards
  - risk management
- management specifications and objectives
- management systems
- management tools and techniques suited to a range of complex projects activities
- organisational and political context
- systems development life cycle (SDLC).

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • direct contingency planning, operations and programs to manage risk • establish the IT system and application security engineering program • manage the necessary resources to establish and maintain an effective network security and telecommunications program • specify policy and coordinate review.

Context of and specific resources for assessment	Assessment must ensure access to:
	• IT business specifications
	• IT security assurance specifications
	• management-related scenarios
	• a security environment, including the threats to security that are, or are held to be, present in the environment
	• information on the security environment, including:
	  • laws or legislation
	  • existing organisational security policies

© Commonwealth of Australia, 2025 Future Skills Organisation

	• organisational expertise • use of risk analysis tools and methodologies currently used in industry • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate managing networks and telecommunications security • direct observation of candidate managing IT security incidents • verbal or written questioning to assess candidate's knowledge of organisational policy and procedures that impact on IT security • review of documentation prepared by candidate, including contingency planning and programs to manage risk.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Parameters may include:	• applications security

© Commonwealth of Australia, 2025 Future Skills Organisation

	• data security • enterprise continuity • incidents • system security.

Continuity of operations may include:	• COOP plan execution
	• COOP plan revision and updating
	• COOP program implementation
	• identification of functional requirements:
	  • mission impact analysis
	  • mitigation strategies and plan
	  • risk assessment
	• plan design and development
	• project initiation
	• training, testing and drills.

Factors may include:	• business continuity and recovery • contingency planning • contingency planning and programs • disaster recovery • emergency delegations of authority • orders of succession for key positions • scope of the enterprise COOP program • security incidence • staffing model.

Security incidents may include:	• event causing interruption to reduction in quality of service
	• failure or error in IT infrastructure
	• illegal data harvesting
	• illegal downloads
	• malware:
	  • adware
	  • computer viruses
	  • phishing
	  • spyware
	  • trojans
	  • worms
	• security breach
	• service not available
	• system down
	• tampering.

Incident-management program may include:	• ensuring that the best possible levels of service quality and availability are maintained • establishing effective and responsive response team

© Commonwealth of Australia, 2025 Future Skills Organisation

	• evaluation of security incidents • improvement of incident management processes and procedures • minimisation of the impact on business operations • restoration of normal service operation as quickly as possible • sourcing effective security tools.

Related security teams may include:	• incident response team
	• security administration:
	  • external stakeholders:
	  • law enforcement agencies
	  • public relations professionals
	  • vendors
	  • internal stakeholders:
	  • finance
	  • HR
	  • legal department
	  • procurement
	• technical support.

Resources may include:	• equipment • financial • network security and telecommunications personnel • training.
Applicable network-based documents may include:	• directives • laws • policies • procedures • regulations • standards.
Documentation may include:	• applicable network-based documents • audits and management reviews • communications protocols • contingency plans and activities • evaluation reports • incident management program, processes and procedures • management reports • network security and telecommunications program • performance measurement program • reviews and improvements records • security classification and data management policies • security incidence records.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK615A Design and configure desktop virtualisation

Modification History

Release	Comments
Release 1	This version first released with ICA11 Information and Communications Technology Version 2.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design and configure desktop virtualisation technologies to support an enterprise implementing a virtualisation business solution.

Application of the Unit

This unit applies to senior networking staff responsible for increasing the sustainability of an enterprise by using desktop virtualisation technologies.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENTS	PERFORMANCE CRITERIA
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Prepare design specifications and plan to implement enterprise desktop environments	1.1. Research available desktop ***virtualisation software vendors*** 1.2. Evaluate desktop ***virtualisation environment*** 1.3. Analyse and compare features and components of desktop virtualisation environment 1.4. Identify desktop-specific design objectives, requirements and limitations 1.5. Document ***design infrastructure*** according to ***enterprise requirements*** 1.6. Plan the implementation and deployment using the recommended design
2. Implement and configure desktop virtualisation infrastructure and services	2.1. Assess desktop virtualisation software and analyse its relevance to enterprise requirements 2.2. Install and configure desktop virtualisation environment 2.3. Implement ***specific features and functions*** to provide suitable solution to identified problems 2.4. Implement and manage the testing process 2.5. Demonstrate depth of knowledge in enabling desktop virtualisation to an accepted industry standard
3. Implement application virtualisation	3.1. Plan the implementation and deployment of ***application virtualisation software*** 3.2. Configure and test application virtualisation ***system components*** 3.3. Maintain, update and tune system components

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

communication skills to liaise with internal and external personnel on technical, operational and business-related matters

- literacy skills to:
  - interpret technical documentation
  - write reports as required
- numeracy skills to:
  - evaluate performance and interoperability of network
  - take test measurements and interpret results
- planning and organisational skills to:
  - coordinate the configuration process in liaison with others
  - plan, prioritise and monitor own work
- problem-solving and contingency-management skills to:
  - adapt configuration procedures to requirements of network
  - reconfigure depending on differing operational contingencies, risk situations and environments
  - troubleshoot virtual software components
  - apply solutions in networks, including virtualised desktop environments
  - deploy rapid solutions to problems involving virtualised desktop environment
- technical skills to:
  - apply current best practice to implementing sustainability options through virtualisation methodologies and technologies
  - assess and implement virtualisation requirements
  - select and assess suitable virtualisation software
  - install, configure and manage server virtualisation

Required knowledge

- overview knowledge of:
  - current government and industry policies and guidelines relating to developing efficient and reliable information and communications technology (ICT) environments
  - current technologies and processes designed to produce an efficient and reliable ICT environment
- structure, function and business organisation of client
- available tools and software applications required to manage virtual desktop environment
- configuration of software applications required to manage virtual desktop environment
- configuration required to integrate virtual machines into existing network design

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design, configure and manage the implementation of virtualised enterprise desktop environment • analyse and critically evaluate features and functions of virtualised enterprise desktop environment • plan, configure and maintain application virtualisation software.
Context of and specific resources for assessment	Assessment must ensure access to: • site where industry-specific technologies may be used • industry-specific technologies currently used in industry • documents detailing workplace health and safety (WHS) standards, environmental guidelines and enterprise requirements. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of features and functions of industry-specific technologies • direct observation of candidate managing the implementation of industry-specific technologies • simulation of industry-specific uses of the industry-specific technologies.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support.

© Commonwealth of Australia, 2025 Future Skills Organisation

	In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating *conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.*

Virtualisation software vendors may include:	• Citrix • KVM • Microsoft • Oracle • Parallels • VMware.
Virtualisation environment may include:	• Citrix Online Plug-In • Citrix XenServer • Desktop Delivery Controller • Linux Desktop • Microsoft MED-V server, MED-V client, and MED-V management • Red Hat enterprise • Virtual Desktop Agent • Virtual Desktop Provisioning powered by Citrix Provisioning Services • VMware View Enterprise: VMware vSphere Desktop, VMware vCenter Desktop, and VMware View Manager • VMware View Premier: VMware vSphere Desktop, VMware vCenter Desktop, View Persona Management, VMware vShield Endpoint, VMware View Manager, View Client with Local Mode, VMware View Composer and VMware ThinApp • VMware View suite: VMware View Manager, VMware View Composer, and VMware ThinApp.
Design infrastructure may include:	• application pools (desktop) • application pool design • authentication solution • client device access

© Commonwealth of Australia, 2025 Future Skills Organisation

	• central processing unit (CPU) allocations • desktop operating system choice • end-user session management • management infrastructure • memory allocations • networking design • pod configurations • pod and block design • security design and implementations • storage allocations • storage design.
Enterprise requirements may include:	• how and what the enterprise wants regarding the work environment • preventative maintenance and diagnostic policy • problem-solving processes • roles and technical responsibilities in network management • vendor and product service level support agreements.
Specific features and functions may include:	• creating images • updating software • implementing workspace policies • reporting and troubleshooting • administrating users • managing fault tolerance • managing pods • managing security features • managing profiles • managing storage • managing resource pools.
Application virtualisation software may include:	• App Zero • Ceedo • Evalaze • Citrix XenApp • Novell ZENworks Application Virtualization • Microsoft Application Virtualization • Software Virtualization Solution • Spoon (former Xenocode) • VMware ThinApp.
System components may include:	• Application deployment - Microsoft • Application Virtualization Management Server - Microsoft • Application Virtualization Sequencer - Microsoft • Citrix licensing server - Citrix

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Citrix profiler - Citrix • Citrix web interface - Citrix • Content Share - Microsoft • File Share - VMware • Login script - VMware • Setup Capture - VMware • SQL database instant • Virtualization Client - Microsoft • Virtualization Data Store - Microsoft • Virtualization Management Console - Microsoft • Virtualization Management Web Server - Microsoft • Virtualization Streaming Server - Microsoft • XenApp Client for hosted APPS - Citrix • XenAPP Client for Streaming - Citrix • XenApp-Server - Citrix.

Unit Sector(s)

General ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

ICANWK616A Manage security, privacy and compliance of cloud service deployment

Modification History

Release	Comments
Release 1	This version first released with ICA11 Information and Communications Technology Version 2.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manage cloud security controls, and privacy and legal compliance when implementing cloud services for an enterprise.

Application of the Unit

This unit applies to those with managerial responsibility, such as experienced security technical specialists, security analysts and security consultants.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENTS	PERFORMANCE CRITERIA
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Manage enterprise cloud security controls	1.1. Identify cloud ***security issues*** faced by different ***delivery and deployment models*** relevant to enterprise 1.2. Determine specific enterprise areas of ***security responsibility*** 1.3. Implement most relevant ***security controls and measures*** to protect identified areas of responsibility
2. Manage enterprise cloud privacy and compliance	2.1. Identify relevant ***compliance regulations*** relating to data storage 2.2. Determine most relevant ***business continuity*** and ***data recovery*** plans 2.3. Identify, secure and maintain relevant logs and audit trails 2.4. Investigate and review ***legal, privacy and contractual issues*** to ensure they meet enterprise policy
3. Review, implement and document cloud security, privacy and compliance enhancements	3.1. Implement appropriate changes and integrate into current enterprise's ***continuity of operation program*** (COOP) 3.2. Establish a performance measurement program to evaluate security effectiveness of implemented security controls 3.3. Provide relevant ***documentation*** as part of COOP for audit tracking purposes

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills
analytical skills to analyse security breaches • communication skills to: • communicate with peers and supervisors in relevant cloud computing technological

© Commonwealth of Australia, 2025 Future Skills Organisation

areas • seek assistance and expert advice from relevant people in cloud computing industry area • literacy skills to interpret technical documentation, equipment manuals and specifications • research skills to locate appropriate sources of information regarding cloud computing solutions • technical skills to: • identify features of cloud computing solutions • test and evaluate cloud computing solutions
Required knowledge
• business and commercial issues relating to the management of cloud security issues • legislation, organisational and jurisdictional policy and procedures that may impact on management areas: • cloud-related privacy issues • codes of ethics and conduct • equal employment opportunity, equity and diversity principles • financial management requirements • governance requirements • work health and safety (WHS) and environmental requirements • quality standards • management specifications and objectives • management tools and techniques suited to a range of complex projects activities • organisational and political context • systems development life cycle (SDLC) • techniques for critical analysis in a management context

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate	Evidence of the ability to: • identify, manage and implement cloud security controls according to legal and privacy requirements • integrate cloud security plans into the enterprise's existing

© Commonwealth of Australia, 2025 Future Skills Organisation

competency in this unit	security plans • develop an ongoing performance measurement and evaluation review process.

Context of and specific resources for assessment	Assessment must ensure access to:
	• cloud information and communications technology (ICT) business specifications
	• cloud ICT security assurance specifications
	• management-related scenarios
	• a cloud focused security environment, including the threats to security that are, or are held to be, present in the environment
	• information on the security environment, including:
	  • laws or legislation
	  • existing enterprise security policies
	  • enterprise expertise
	• risk analysis tools and methodologies currently used in industry
	• appropriate learning and assessment support when required
	• modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate managing cloud-related networks and telecommunications security • direct observation of candidate managing cloud ICT security incidents • verbal or written questioning to assess candidate's knowledge of enterprise policies and procedures that impact on cloud ICT security • review of documentation prepared by candidate, including programs to manage compliance, privacy and risk.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required

© Commonwealth of Australia, 2025 Future Skills Organisation

	knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating *conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.*

Security issues may include:	• applications security • data security • enterprise continuity • infrastructure security • platform security • virtualisation security.
Delivery models may include:	• infrastructure as a service (IaaS) • platform as a service (PaaS) • software as a service (SaaS).
Deployment models may include:	• community cloud • hybrid cloud • private cloud • public cloud.

Security responsibility may include:	• clients:
	  • applications (if not part of licence)
	  • client employee access
	  • data (if not part of licence)
	  • physical client site security
	• enterprise (depending on licensing agreement):
	  • application
	  • data
	  • identity management systems
	  • infrastructure
	  • physical enterprise site security
	  • platform.

Security controls and measures may include:	• security management, including:
	  • corrective controls
	  • detective controls
	  • deterrent controls

© Commonwealth of Australia, 2025 Future Skills Organisation

	• preventative controls.
Compliance regulations may include:	• international regulations • internet or web regulations • local regulations • regional regulations.

Business continuity may include:	• undertaking analysis of:
	  • business impact analysis
	  • threat and risk analysis
	  • impact scenarios
	• solution design
	• developing solution implementation strategies
	• testing and enterprise acceptance
	• implementing suitable maintenance options.

Data recovery may include:	• logical damage recovery:
	  • corrupt partitions
	  • overwritten data
	• physical damage recovery
	• virus infections.

Legal, privacy and contractual issues may include:	• critical data masked • digital identities protected • end-of-service: return of data and applications • intellectual property: ownership of data • liability of data loss • unauthorised on-selling of information.

Continuity of operations program may include:	• COOP plan execution
	• COOP plan revision and updating
	• COOP program implementation
	• identification of functional requirements:
	  • mission impact analysis
	  • mitigation strategies and plan
	  • plan design and development
	  • project initiation
	  • risk assessment
	  • training, testing and drills.

Documentation may include:	• applicable network-based documents • audits and management reviews • communications protocols • contingency plans and activities • evaluation reports • incident management program, processes and procedures

© Commonwealth of Australia, 2025 Future Skills Organisation

	• management reports • network security and telecommunications program • performance measurement program • reviews and improvements records • security classification and data management policies • security incident records.

Unit Sector(s)

Networking

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPMG401A Support small scale IT projects

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to support the management of low risk, straightforward information technology (IT) projects within an organisation.

Application of the Unit

This unit applies to information and communications technology (ICT) practitioners who need to support the initiation, implementation and completion of small-scale IT projects. The projects can range across a wide range of ICT related financial, management and business areas. The provision of support within these projects is a key component of ICT environments.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Support project commencement	1.1 Confirm business opportunity to ensure the project objectives are understood 1.2 Identify ***stakeholders*** and gather requirements 1.3 Prepare a project charter or project proposal and obtain agreement from project sponsor
2. Support project plan development	2.1 Break down the requirements to identify tasks and resources needed to complete the ***project plan*** 2.2 Compile a schedule of project tasks, including realistic timeframes and costs if required 2.3 Allocate task responsibilities to project team members 2.4 Agree on a process with the sponsor to manage risks or unexpected events that may arise and affect project objectives or expectations
3. Support project completion	3.1 Work with project team to ensure project activities meet timeframe, scope, cost and quality expectations 3.2 Monitor and control ***project risks and issues*** according to the agreed process 3.3 Verify that project deliverables meet project expectations and sign off as complete 3.4 Train users if applicable
4. Support project closure	4.1 Prepare IT support or maintenance documents if applicable 4.2 Obtain final project sign-off from sponsor and key stakeholders 4.3 Document lessons learned and close the project

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills required to gather stakeholder requirements
- literacy skills to create basic systems and user documentation
- negotiation skills to ensure expected project outcomes are achievable
- planning and organisational skills to monitor project.

Required knowledge

- basic knowledge of project-management methods and tools
- characteristics of technical teams
- methods of communication and communication styles, including interviewing techniques
- organisational values, policies and processes.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • support the initiation, control and completion of a simple small-scale IT project • identify and apply requirements and expectations of a project.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • real or simulated organisation that needs to address an identified IT problem or opportunity.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• direct observation of candidate carrying out small-scale IT project work • verbal or written questioning of candidate to assess required knowledge and skills • review of reports and implementation plans prepared by candidate for the project • review of a portfolio of the project work undertaken.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Stakeholders may include:	• clients or customers (internal and external) • end user • functional areas • industry • organisation's senior management • project sponsor or funding bodies • project team • relevant interest groups • steering committee members • supplier or service provider.
Project plan may	• acquisition strategies

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• budget and financial management strategy • contract management • cost estimates • evaluation criteria • expected outcomes and measurable benefits • facilities • inclusions and exclusions • information or communication strategy • intellectual property strategies • milestones • objectives • outputs or project deliverables and their acceptance criteria • people plan, including human-resource management and human-resource development • performance criteria or indicators • project control mechanisms • project governance strategy • project implementation strategy • purpose • quality assurance • quality control • rationale • required project resources • resource management • risk management • roles and responsibilities • schedule or timeline • task or work breakdown structure (WBS).

Project risks and issues may relate to:	• cost:
	  • materials costing more than planned
	  • resources costing more than expected
	• scope:
	  • additional tasks arising due to unexpected events
	  • required tasks missed during planning
	• time management:
	  • tasks taking longer than expected
	  • under estimation of necessary effort.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

IT project management

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPMG501A Manage IT projects

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manage information technology (IT) projects within a medium to large organisation.

Application of the Unit

This unit applies to information and communications technology (ICT) practitioners who manage the initiation, implementation and completion of reasonably complex IT projects in terms of scope, risk, control and financial factors. The projects vary across a wide range of ICT, financial, management and business areas. The provision of specific IT-related project management within projects is a key component of the ICT environment.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Manage project definition activities	1.1 Confirm organisational ***project governance policy and processes***
	1.2 Confirm business problem or opportunity as well as project objectives
	1.3 Develop project charter, including preliminary statement of project scope and obtain sign-off
	1.4 Conduct a ***feasibility*** study and prepare a business case as necessary
2. Undertake project planning	2.1 Plan ***information-gathering activities*** to determine project requirements, ***constraints*** and risks
	2.2 Identify project partitioning on the basis of intended system development life cycle and risk
	2.3 Prepare project work breakdown, schedule and budget
	2.4 Compile ***project-management plan documents*** as necessary to communicate the intended management strategy for the project and obtain sign-off
3. Establish the IT project team	3.1 Identify and select team members, including roles and responsibilities, based on project solution requirements
	3.2 Determine training and support needs of team members
	3.3 Establish project team values and agreed behavioural standards with team members
4. Manage project execution activities	4.1 Monitor delivery and acceptance of assigned project team work activities and manage individuals as necessary
	4.2 Monitor and control the quality of project deliverables
	4.3 Monitor and control project scope changes, risks and issues
	4.4 Manage system testing and ***hand-over activities***
5. Coordinate project closure	5.1 Prepare IT support plans and ***maintenance or support documents***

© Commonwealth of Australia, 2025 Future Skills Organisation

	5.2 Obtain final project sign-off 5.3 Conduct post-project review and document lessons learned 5.4 Review and update disaster recovery plan 5.5 Close project

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to determine current system deficiencies and new system objectives
- communication skills to:
  - gather stakeholder needs
  - liaise with enterprise senior management
- counselling skills to mentor and coach team members and resolve conflict
- literacy skills to present options and recommendations in reports
- negotiation skills to ensure expected project outcomes are achievable
- numeracy and documentation skills to develop cost-benefit analyses
- planning and organisational skills to plan project activities
- research skills to identify solution alternatives
- technical team management and leadership skills, including providing feedback.

Required knowledge

- characteristics of leaders and technical teams
- consultation and communication techniques and strategies
- how to establish technical teams and determine stages of team development
- estimation and cost-analysis techniques
- methods of communication and communication styles, including interviewing techniques
- objectives and benefits analysis
- organisational values, policies and processes
- performance management and project team appraisal methods
- processes for monitoring team and own performance
- project cash flow and budgeting
- range of project-management methods and tools
- self-awareness

© Commonwealth of Australia, 2025 Future Skills Organisation

- systems analysis and modelling techniques
- team roles and delegation within a multi-project methodology context
- technology solution models and frameworks.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • define, plan, execute and close a reasonably complex project to meet project requirements.
Context of and specific resources for assessment	Assessment must ensure access to: • real or appropriate simulated organisation with a desire to implement an IT project to address an identified problem, opportunity or unfulfilled legislative need • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate carrying out project work • verbal or written questioning to assess required knowledge and skills • review of reports and implementation plans • review of a portfolio of the project work undertaken.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be

© Commonwealth of Australia, 2025 Future Skills Organisation

	combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Project governance policy and processes may include:	• established roles and responsibilities for key project stakeholders • mandated positions to be filled on various project-governance boards or committees, such as the project steering committee or quality-review board • mandated project-management standard or development methodology for the organisation • project portfolio prioritisation process or criteria • project selection process or criteria.
Feasibility in relation to IT solutions may refer to:	• economic • operational • technical.
Information-gathering activities may include:	• interviews • research related to existing documents, and similar or previous projects • surveys • workshops.

Constraints may include:	• external or internal project dependencies
	• limitations or standards that the project must adhere to:
	  • resources budget
	  • quality
	  • timeframe.

Project-management plan documents may include:	• change control • communications • human resource • procurement • quality • risk management

© Commonwealth of Australia, 2025 Future Skills Organisation

	• training.
Hand-over activities may include:	• communications to users and other stakeholders • production system environment verification tests • user training and documentation.

Maintenance or support documents may include:	• additional tasks or changed responsibilities within the support team for ongoing support of the new system
	• new policies and procedures and how these differ to current practices
	• technical documents relating to the system:
	  • specifications
	  • system dependencies
	  • technical requirements.

Unit Sector(s)

IT project management

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPMG601A Establish IT project governance

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to establish an information technology (IT) project within small, medium or large organisations.

Application of the Unit

Project managers in small, medium or large organisations apply the skills and knowledge in this unit to ensure governance processes, roles and responsibilities, and stakeholder expectations are established at the commencement of IT projects.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Establish project-governance framework	1.1 Assess current project methodology and determine state of ***project management maturity*** 1.2 Determine ***governance framework*** 1.3 Appoint project governance team 1.4 Establish project governance reporting processes
2. Establish project-governance roles and responsibilities	2.1 Agree with project sponsor on responsibilities 2.2 Delegate steering committee or project board responsibilities 2.3 Confirm project manager responsibilities
3. Establish IT project stakeholder expectations	3.1 Educate stakeholders on ***characteristics of IT projects*** 3.2 Develop and maintain project relationships 3.3 Negotiate successful project outcomes

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - access and prepare information electronically or in hard copy
  - communicate in styles to suit different audiences and purposes
  - establish and manage expectations
  - present complex or technical information and ideas in a way appropriate to the audience
  - resolve conflicts
  - write recommendations and prepare project reports requiring precise expression
- initiative and enterprise skills to:
  - act as a positive role model

© Commonwealth of Australia, 2025 Future Skills Organisation

  - agree achievable project objectives with stakeholders and team members
  - apply OHS procedures in line with project requirements
  - establish and maintain professional relationships at various levels within the organisation
  - establish stakeholder and team member project roles and responsibilities
  - lead and coach project team members to achieve project outcomes
  - use diversity of staff, including gender and disability to improve project outcomes
- planning and organisational skills to use project-management tools to establish reasonably complex projects
- problem-solving and decision-making skills to apply ethical management of reasonably complex projects.

Required knowledge

- organisation’s industry
- organisation's current information systems and processes
- organisational policies and procedures, including:
  - project management and procurement policies
  - environment
  - duty of care
  - contract
  - company
  - freedom of information
  - industrial relations
  - privacy and confidentiality
  - due diligence
  - records management
- project governance approaches and methods
- relevant legislation and regulations that impact on business continuity, such as OHS.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to	Evidence of the ability to: • assess the project environment and establish or implement an

© Commonwealth of Australia, 2025 Future Skills Organisation

demonstrate competency in this unit	appropriate project management governance framework • negotiate with stakeholders to agree achievable project objectives.

Context of and specific resources for assessment	Assessment must ensure access to:
	• appropriate learning and assessment support when required
	• modified equipment for people with special needs
	• relevant documentation:
	  • appropriate policies
	  • current project practices
	  • legislation if applicable.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate carrying out project work • verbal or written questioning to assess required knowledge and skills • review of reports and implementation plans prepared by the candidate for the project • review of a portfolio of the project work undertaken. Note: The preferred assessment method is through a workplace project or through a simulated medium to large enterprise workplace.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Project management maturity may relate to:	• decision-making process
	• internal project management approach
	• methodology
	• strategy
	• five levels of project management maturity:
	  • ad hoc
	  • planned
	  • managed
	  • integrated
	  • adaptive.

Governance framework within an organisation may include:	• principles for how projects should be run • project management methodology • rules about project communication and decision making • specific roles and responsibilities to be adopted for every project • structure of working groups and other stakeholder groups that might be established.

Characteristics of IT projects may include:	• complex interrelated activities
	• difference to operational work
	• high propensity to change:
	  • budget
	  • quality
	  • scope
	  • time
	• inherent risk
	• need to manage uncertainty
	• scope becoming more explicit as the project progresses.

Unit Sector(s)

IT project management

© Commonwealth of Australia, 2025 Future Skills Organisation

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPMG602A Manage IT project initiation

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to initiate an information technology (IT) project within small, medium or large organisations.

Application of the Unit

Project managers in small medium or large organisations apply the skills and knowledge in this unit to ensure IT projects get off to a good start and are seen to be adding value to the organisation.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Define project	1.1 Define ***business problems*** and initial scope 1.2 Identify key stakeholders and analyse ***stakeholder needs*** 1.3 Define ***project constraints***
2. Develop project business case and feasibility	2.1 Identify project objectives and benefits 2.2 Identify and select feasible IT solutions 2.3 Develop and present the business case or ***feasibility*** study 2.4 Obtain appropriate sign-off
3. Select project approach	3.1 Identify project ***core technology areas*** 3.2 Identify solution approach requirements 3.3 Negotiate project outcomes
4. Establish the IT project team	4.1 Identify and select team members 4.2 Establish team member roles and responsibilities 4.3 Develop a cohesive technical team 4.4 Train and support team members

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to determine current system deficiencies and new system objectives
- communication skills to gather stakeholder needs and liaise with senior enterprise management
- literacy skills to present options and recommendations in reports
- numeracy skills to develop cost-benefit analyses
- planning and organisational skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - meet project timeframes and produce required deliverables
  - mentor and coach team members and resolve conflict
- problem-solving skills to negotiate with stakeholders and senior enterprise management to ensure expected project outcomes are achievable
- research skills to identify solution alternatives.

Required knowledge

- characteristics of leadership and technical teams
- consultation and communication techniques, styles and strategies, including interviewing techniques
- estimation and cost-analysis techniques
- how to establish technical teams and determine stages of team development
- objectives and benefits analysis
- organisational values, policies and processes
- performance management and project team appraisal methods
- processes for monitoring team and own performance
- project cash flow and budgeting
- range of project-management methods and tools and how they apply in a formal project -management methodology
- self-awareness
- systems analysis and modelling techniques
- team roles and delegation within a multi-project methodology context
- technology solution models and frameworks.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • produce a comprehensive business case and project implementation approach that takes into account core technology limitations and project constraints • establish and work in a cohesive project team.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required

© Commonwealth of Australia, 2025 Future Skills Organisation

	• modified equipment for people with special needs • real or appropriate simulated organisation with a desire to implement an IT project to address an identified problem, opportunity or unfulfilled legislative need.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate carrying out project work • verbal or written questioning to assess required knowledge and skills • review of reports and implementation plans • review of a portfolio of the project work undertaken. Note: The preferred assessment method is through a workplace project or through a simulated medium to large enterprise workplace.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Business problems may include:	• deficiencies in the current business process • deficiencies or identified problems with current systems or IT infrastructure

© Commonwealth of Australia, 2025 Future Skills Organisation

	• legislative mandated system changes • opportunities identified as part of the strategic or operational planning processes.
Stakeholder needs may include:	• expectations related to agreed project outcomes • project constraints • project objectives based on business problems • solution requirements based on project objectives.
Project constraints may include:	• external or internal project dependencies • limitations or standards that the project must adhere to, such as timeframe, budget resources and quality • organisational policies or procedures, including mandated project management and systems development methodologies.
Feasibility may relate to:	• economic • operational • technical.

Core technology areas may include:	• database-dependent implementations
	• process-oriented implementations
	• software implementations:
	  • C
	  • C++
	  • COBOL or other third generation languages
	  • Java
	  • Visual Basic
	• systems and network architectures:
	  • client or server
	  • legacy mainframe
	  • mid-range
	  • web-oriented solution architectures.

Unit Sector(s)

IT project management

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPMG603A Manage IT project planning

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to plan an information technology (IT) project within small, medium or large organisations.

Application of the Unit

Project managers in small, medium or large organisations apply the skills and knowledge in this unit to ensure IT projects are appropriately planned, required deliverables are identified and understood, and appropriate controls are established.

Their job roles combine high-level management, business and technical skills necessary to manage complex technology projects within the information and communications technology (ICT) industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Establish project control plans	1.1 Develop the project management plan 1.2 Develop ***management sub-plans***
2. Determine appropriate methodology	2.1 Assess ***models of project management*** 2.2 Assess product development or procurement approach 2.3 Select appropriate project management and systems development methodology 2.4 Tailor methodologies to solution requirements
3. Develop project schedule	3.1 Develop project ***component breakdown*** 3.2 Estimate project effort and duration 3.3 Create ***project schedule*** 3.4 Develop and allocate work packages 3.5 Establish schedule controls
4. Finalise project budget	4.1 Identify areas of anticipated project spend 4.2 Determine dollar amounts and timing of cash flows 4.3 Develop a project budget 4.4 Establish budget controls

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- analytical skills to evaluate and select appropriate methods for delivery which suit the technical and business environment
- initiative and enterprise skills to conceptualise and articulate a logical plan for delivery of project stages and related solution components to meet business expectations
- numeracy skills to identify cost components and determine project cash flows and budget
- planning and organisational skills to:
  - meet project timeframes and produce required deliverables
  - mentor and coach team members and resolve conflict
- technical skills to use project-management tools.

Required knowledge

- current and emerging industry practice in relation to:
  - estimation techniques and methods
  - planning techniques and methods
  - project management methodologies
  - system development methodologies
- awareness of impact of business needs on project management, including implications for project control and expected returns on business investment.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop project management plan • select appropriate methodology • develop project schedule • develop a project budget • establish budgetary controls.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • real or appropriate simulated organisation with a desire to implement an IT project to address an identified problem,

© Commonwealth of Australia, 2025 Future Skills Organisation

	opportunity or unfulfilled legislative need • specialist diagramming software or equivalent • specialist project-scheduling software or equivalent.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate carrying out project work • verbal or written questioning to assess required knowledge and skills • review of reports and implementation plans • review of a portfolio of the project work undertaken. Note: The preferred assessment method is through a workplace project or through a simulated medium to large enterprise workplace.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Management sub-plans may include:	• communications • human resource • organisational change • project implementation procurement quality

© Commonwealth of Australia, 2025 Future Skills Organisation

	• risk • scope • change control.

Models of project management refer to:	• project methods and approaches:
	  • agile
	  • green PM
	  • PRINCE2
	  • traditional.

Component breakdown may include:	• feature • product • sprint • work.

Project schedule may include:	• allocated resources and their respective responsibilities
	• bar charts
	• Gantt charts
	• tables or matrices:
	  • activities or products required to be delivered as part of the project
	  • milestones
	  • anticipated timeframes and dependencies between these elements.

Unit Sector(s)

IT project management

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPMG604A Manage IT project delivery

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manage the creation and delivery of the products of an information technology (IT) project within small, medium or large organisations.

Application of the Unit

Project managers in small, medium or large organisations apply the skills and knowledge in this unit to ensure that what is being produced by an IT project continues to meet stakeholder and organisational expectations as the project progresses.

Their job roles combine high-level management, business and technical skills necessary to manage complex technology projects within the information and communications technology (ICT) industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Manage systems analysis and design	1.1 Apply systems thinking to project design 1.2 ***Model*** IT process and systems according to specifications 1.3 ***Re-engineer*** business processes 1.4 Control IT systems development 1.5 Review IT architecture 1.6 Manage the design and integration of the system
2. Facilitate project-related workshops	2.1 Apply facilitation techniques 2.2 Apply problem-solving techniques 2.3 Facilitate requirements gathering 2.4 Facilitate IT design workshops
3. Manage IT project team performance	3.1 Establish a project team performance framework 3.2 Measure team member performance 3.3 Manage the performance of technical staff 3.4 Manage project team dissolution
4. Manage the project delivery cycle	4.1 Delegate project work to project team members 4.2 Review and report status of project 4.3 Assess progress and update plans 4.4 Assess the quality of deliverables and rectify where required 4.5 Control project issues and take corrective action 4.6 Update project control documents

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - review business models and processes
  - review designs
- communication skills to:
  - assess progress
  - delegate project work
  - facilitate IT design workshops
  - facilitate requirements gathering
  - liaise with stakeholders
  - review and report status
  - update plans
- initiative and enterprise skills to:
  - facilitate IT design workshops
  - facilitate requirements gathering
- literacy skills to:
  - develop team performance plans and update plans
  - review recommendations and reports
  - update project control documents
  - re-engineer business processes
- planning and organisational skills to manage and deliver IT project
- problem-solving skills to:
  - apply systems thinking
  - handle project issues and take corrective action.

Required knowledge

- formal management methodology, including project management roles and responsibilities
- problem-solving tools and techniques
- data modelling
- IT design
- business processes.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • manage the execution of a complex IT project, including aspects of the IT solution definition and design process.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • real or appropriate simulated organisation with a desire to implement an IT project to address an identified problem, opportunity or unfulfilled legislative need.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate carrying out project work • verbal or written questioning to assess required knowledge and skills • review of reports and implementation plans • review of a portfolio of the project work undertaken. Note: The preferred assessment method is through a workplace project or through a simulated medium to large enterprise workplace.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required

© Commonwealth of Australia, 2025 Future Skills Organisation

	knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Model may include:	• context and dataflow diagrams • entity relationship diagrams • interaction models • object models • PMBOK and PRINCE2 • screen prototypes • state models • system design models • system diagrams • use cases • user interaction and transaction diagrams.
Re-engineer may include:	• business process re-engineering • business process redesign • business transformation • lean IT.

Unit Sector(s)

IT project management

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPMG605A Manage IT project closure

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to decommission or close an information technology (IT) project within a small, medium or large organisation.

Application of the Unit

Project managers in small, medium or large organisations apply the skills and knowledge in this unit to recommend project decommissioning or closure during or on completion of an IT project.

Their job roles combine high-level management, business and technical skills necessary to manage complex technology projects within the information and communications technology (ICT) industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Evaluate project performance	1.1 Collect ***project performance metrics*** 1.2 Debrief project team 1.3 Debrief project stakeholders 1.4 Summarise and report on results
2. Finalise the project	2.1 Review project performance to determine whether the project should be continued, decommissioned or closed 2.2 Assess the impact of continuing, decommissioning or closing the project 2.3 Recommend appropriate management action to the relevant governing authority 2.4 Decommission or close the project if required
3. Action outstanding activities	3.1 Identify outstanding activities and create an action plan 3.2 Assign responsibilities to action outstanding activities 3.3 Follow up outstanding activities to ensure completion

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse metrics
  - identify issues, root causes and solution options

© Commonwealth of Australia, 2025 Future Skills Organisation

- facilitation and communication skills to conduct interviews, reviews, debrief workshops and presentations
- negotiation skills to negotiate the best outcomes for stakeholders given the results of analysis.

Required knowledge

- problem-solving techniques to address issues related to project closure
- project-management methods, practices and processes.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • recommend and plan the decommissioning or closure of a complex IT project based on collected performance metrics.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • relevant project documentation, including project metrics • project stakeholders.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • preferred assessment method is through a workplace project or through a simulated medium to large enterprise workplace • direct observation of the candidate carrying out project work • verbal or written questioning to assess required knowledge and skills • review of reports, documents and presentations • review of a portfolio of the project work undertaken.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where

© Commonwealth of Australia, 2025 Future Skills Organisation

	appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Project performance metrics may include:	• financial measures:
	  • actual versus planned budget
	  • actual versus planned return on investment (RoI) projections
	  • earned value (EV) and EV performance indexes
	• quality measures:
	  • number of defects
	  • stakeholder satisfaction feedback
	• scope measures:
	  • actual versus expected number of change requests
	  • amount of rework
	  • requirements or user story backlogs
	• time measures:
	  • actual versus expected burn-down rates
	  • planned versus actual schedule.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

IT project management

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPMG606A Manage IT project quality

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to ensure quality within information technology (IT) projects. It covers planning for quality based on stakeholder needs, implementing quality assurance processes, and using quality control data to ensure continuous improvement for the benefit of current and future projects.

Application of the Unit

IT project managers in small, medium or large organisations apply the skills and knowledge in this unit to ensure that appropriate quality processes and controls are established in projects under their control.

Their job roles combine high-level management, business and technical skills necessary to manage complex technology projects within the information and communications technology (ICT) industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Establish a quality management plan	1.1 Determine project ***quality requirements*** with reference to project scope and stakeholder needs and expectations 1.2 Adopt or agree on organisational quality policy and ***quality standards*** with stakeholders 1.3 Determine project quality management approach, including proposed ***quality assurance processes*** and ***quality control*** measurement methods and benchmarks 1.4 Negotiate project quality, cost, time trade-offs and changes to stakeholder expectations if necessary 1.5 Develop a quality management plan for the project and obtain sign-off
2. Perform IT quality assurance processes	2.1 Execute quality assurance activities as the project progresses according to the quality management plan 2.2 Identify project processes not meeting quality standards agreed in the quality management plan 2.3 Raise project change request to action process changes or corrective actions, update project-management plan and ***quality baselines*** as necessary
3. Perform quality control	3.1 Validate project processes and deliverables against quality requirements as the project progresses 3.2 Review ***quality control metrics*** and take action as necessary to investigate and understand the reasons for failure 3.3 Use ***quality-management tools*** to determine failures and root causes and implement continuous improvement processes

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to interpret quality metrics, identify issues, root causes and identify the need for improvement processes
- communication skills to:
  - negotiate and establish stakeholder expectations and gather quality requirements
  - facilitate problem-solving workshops
- literacy skills to:
  - develop quality plans
  - review recommendations and reports
- numeracy skills to develop cost-benefit analyses
- project-management skills to develop a life cycle process.

Required knowledge

- problem-solving tools and techniques
- project-management roles and responsibilities
- quality improvement processes and methodology
- quality management theory, techniques, tools and methodologies
- relevant quality standards.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify and implement appropriate quality management processes within a complex IT project.
Context of and specific resources for	Assessment must ensure access to: • appropriate learning and assessment support when required

© Commonwealth of Australia, 2025 Future Skills Organisation

assessment	• modified equipment for people with special needs • appropriate simulated or real organisation and suitable IT project • facilities suitable for holding quality assurance problem-solving workshops.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate carrying out project work • verbal or written questioning to assess required knowledge and skills • review of reports, plans and documents • review of a portfolio of the project work undertaken.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Quality requirements may include:	• negotiated trade-offs between cost, schedule and performance as these relate to implementation of quality processes • quality aspects that may impact on customer satisfaction • requirements from the client and other stakeholders.

© Commonwealth of Australia, 2025 Future Skills Organisation

Quality standards may refer to:	• ISO 10006:2003, which provides guidance on the application of quality management in projects and other recognised standards and guidelines • national and international standards, such as ISO 9004:2008 and 9004:2009 for guidance on implementing continual improvement processes and quality of product and service delivery • recognised industry best practices.
Quality assurance processes refer to:	• procedures and processes implemented to ensure agreed quality outcomes based on the specific needs of the project.
Quality control may relate to:	• monitoring compliance with best practice, standards, requirements and solution specifications • monitoring the results of regular quality assurance processes, including audits or inspections by internal or external agents • recommending continual improvement activities • recommending ways to eliminate root causes of unsatisfactory performance of processes or products.
Quality baselines may include:	• standard by which quantitative values captured via quality metrics are compared to, such as stakeholder satisfaction index, which must remain above 90%.
Quality-control metrics relate to:	• measures that have been developed to allow quantitative evaluation of the relative performance of specific processes, activities and outcomes over time • defect density • schedule variance • stakeholder satisfaction index • training effectiveness.
Quality-management tools may include:	• benchmarking • brainstorming • charting processes • control charts • cost-benefit analysis • flowcharts • group work activities • histograms • Pareto charts • processes that limit or indicate variation • ranking candidates • run charts • scattergrams • statistical methods.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

IT project management

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPMG607A Manage and control IT project risks

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manage and control risks in an information technology (IT) project within small, medium or large organisations.

Application of the Unit

Project managers in small, medium or large organisations apply the skills and knowledge in this unit to ensure the appropriate identification and treatment of risks within an IT project.

Their job roles combine high-level management, business and technical skills necessary to manage complex technology projects within the information and communications technology (ICT) industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Identify project risks	1.1 Review project planning documents, organisational risk policies and relevant lessons learned from earlier projects 1.2 Identify major project risks and potential ***sources of project risk*** 1.3 Establish relevant ***risk management processes and procedures*** 1.4 Develop a project risk management plan, including a risk register in consultation with stakeholder and obtain sign-off
2. Treat project risks	2.1 Assess the likelihood of the risk occurring and the resulting consequence of the risk 2.2 Develop risk response strategies and contingency measures as appropriate 2.3 Incorporate risk response actions and contingency measures into the risk register and project schedule in consultation with stakeholders and obtain sign-off
3. Monitor project risks	3.1 Undertake activities to monitor the risk factors or identified events as the project progresses 3.2 Establish formal risk reviews at appropriate intervals or project milestones 3.3 Update risk register and raise project change requests to update baseline project schedule as required

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- analytical skills to identify risks, risk mitigations and contingency plans
- communication skills to:
  - negotiate and communicate plans and identified risks and mitigations to stakeholders
  - run project risk workshops and presentations
- initiative and enterprise skills to prioritise and manage stakeholder expectations
- literacy skills to:
  - develop risk management plans
  - write recommendations and reports.

Required knowledge

- methods and techniques of risk management
- organisational policies relating to risk and organisational risk appetite
- processes and techniques of business analysis
- project management and systems development techniques, as well as potential risks associated with these activities.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify and implement appropriate risk-management processes within a complex IT project.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • appropriate simulated or real organisation to implement an IT project • facilities suitable for holding risk management related workshops.

© Commonwealth of Australia, 2025 Future Skills Organisation

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate carrying out project work • verbal or written questioning to assess required knowledge and skills • review of reports, plans and documents • review of a portfolio of the project work undertaken.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Sources of project risk may include:	• change risks, such as:
	  • changes to project scope not approved (scope creep)
	  • solution uncertainty
	• people risks, such as loss of key resource
	• procurement risks, such as required equipment not delivered on time
	• quality risks, such as delivered solution not meeting requirements or expectations
	• schedule or budget risks, such as time or cost of scheduled tasks underestimated

© Commonwealth of Australia, 2025 Future Skills Organisation

	• technology risks, such as new or untried technology as part of the solution, components difficult to integrate.
Risk management processes and procedures may include:	• communicating with stakeholders • dispute resolution and modification procedures • implementing risk control trigger mechanisms • measuring actual progress against planned milestones • recording and reporting major variance • setting key milestones at significant points during the project and at completion.
Risk response strategies may include:	• accept the risk or continue in the knowledge that the risk still exists • avoid the risk or take action to eliminate the risk • mitigate or take action to reduce the risk.

Unit Sector(s)

IT project management

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPMG608A Manage IT project systems implementation

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manage system implementation tasks during an information technology (IT) project within small, medium or large organisations.

Application of the Unit

Project managers in small, medium or large organisations apply the skills and knowledge in this unit to ensure the successful implementation of the products of an IT project into the existing IT production operational environment.

Their job roles combine high-level management, business and technical skills necessary to manage complex technology projects within the information and communications technology (ICT) industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Prepare for system implementation	1.1 Review relevant ***project and system development documentation***
	1.2 Consider organisational culture as part of an implementation risk analysis
	1.3 Identify implementation options and constraints and select a preferred approach in consultation with stakeholders
	1.4 Develop a detailed ***implementation plan*** and a high-level training plan and obtain sign-off
	1.5 Ensure the creation of system-user documentation and obtain sign-off
	1.6 Ensure the preparation of operations documentation and obtain sign-off
2. Manage organisational change	2.1 Communicate ***relevant information*** about the pending change through ***appropriate channels***
	2.2 Establish necessary ***support structures***
3. Coordinate release management	3.1 Establish and confirm release management roles and responsibilities, including those of the ***release manager***
	3.2 Determine release ***configuration items***, including any production system software, hardware and capacity changes required and compile a request for change
	3.3 Ensure the creation of required test environment
	3.4 Establish ongoing monitoring procedure to cover the post-release warranty period
	3.5 Undertake data conversion activities if needed
4. Manage acceptance testing	4.1 Review results of system test and ensure acceptance test entry criteria are met

© Commonwealth of Australia, 2025 Future Skills Organisation

	4.2 Ensure test environment and IT ***configuration management processes*** meet solution requirements and organisational standards 4.3 Ensure acceptance testing is performed and results are collated 4.4 Ensure test results meet acceptance test exit criteria and obtain sign-off
5. Manage user training	5.1 Undertake ***training needs analysis*** 5.2 Review high-level training plan and schedule and add detailed activities as necessary 5.3 Ensure training materials are prepared and user training is conducted
6. Release system to production	6.1 Develop an hour by hour action plan or checklist for release activities 6.2 Create a ***rollback strategy*** and plan to guide rollback of changes if required 6.3 Prepare appropriate communication to inform users of possible interruption to service due to the release 6.4 Manage the installation of the new release into production and ensure performance of operational verification tests and rollback changes if necessary 6.5 Review and update service level agreements (SLAs) and disaster recovery plan

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to identify implementation risks, risk mitigations and contingency plans
- communication skills to:
  - communicate plans and status to stakeholders
  - coordinate training, run implementation workshops and presentations
  - negotiate implementation priorities and manage stakeholder expectations
- literacy skills to develop documentation, recommendations and reports
- planning skills to develop implementation, testing and training plans.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required knowledge

- methods and techniques of configuration management
- organisational policies and standards relating to IT configuration management, e.g. an IT infrastructure library (ITIL)
- business analysis, processes and techniques
- project management and systems development, as well as potential risks associated with implementation activities
- structure and implications of disaster recovery plans and SLAs.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • plan, prepare and implement a complex IT project by ensuring appropriate acceptance testing and training has been conducted.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • appropriate simulated or real organisation to implement an IT project • facilities suitable for holding risk management-related workshops.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate carrying out project work • verbal or written questioning to assess required knowledge and skills • review of reports, plans and documents • review of a portfolio of the project work undertaken.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Project and system development documentation may include:	• planned project schedule tasks and milestones • project and organisational assumptions and constraints • project-management plan documents, such as quality plan, acceptance plan, implementation plan, and training plan • system specification or vendor product specifications in the case of a procured solution.
Implementation plan may include:	• cut-over activities • data conversion.

Relevant information may include:	• background and business need and strategy for the change
	• new policies and procedures and how these differ to current practices
	• planned implementation schedule, including milestones, such as:
	  • data conversion
	  • new system cut-over
	• recognition of staff who contributed to the project in any special way
	• roles and responsibilities within the implementation, and for ongoing operation of the new system.

Appropriate channels may include:	• help desk • organisation intranet

© Commonwealth of Australia, 2025 Future Skills Organisation

	• regular departmental team meetings, including informal discussion and feedback • specific training courses • staff newsletters or wall posters • workshops and staff briefing sessions.
Support structures may include:	• checklists or frequently asked question (FAQ) guides • help desk • identified change leaders.
Release manager may include:	• project manager • specialist release manager • systems administration manager • systems development manager • other nominated technical IT manager given the specific responsibility of managing the release of system changes into the IT production environment.
Configuration items refer to:	• exact list of the items, including version designations that make up the configuration of the system changes at the time of the release.
Configuration management processes refer to:	• processes and procedures developed to control system changes and maintain the integrity of IT systems.
Training needs analysis refers to:	• activity undertaken to identify the extent of training needed to ensure staff can effectively operate in the new or changed system environment.
Rollback strategy:	• refers to strategy or plan to facilitate the act of reverting the production system to its earlier stable state, in response to an unsuccessful release, such as a new system failing operational verification tests • usually includes creation of a backup of the production system or relevant system components.

Unit Sector(s)

IT project management

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPMG609A Plan and direct complex IT projects

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to identify, plan, control and finalise complex IT projects.

Application of the Unit

This unit applies to senior managers responsible for identifying, planning, controlling and finalising complex projects.

The environment in which the project is managed is also complex and involves the management of a project team, which typically will includes staff with diverse skill sets. The management of complex projects also involves significant reporting requirements.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Identify the strategic and operational needs of the IT project during the planning phase	1.1 Identify the strategic and operational needs of the project during the planning phase 1.2 Identify and consider the project's ***strategic context*** and requirements 1.3 Identify and consider the organisation's strategic and business plans and its output requirements 1.4 Identify and explore client requirements and the impact of ***legislation and industry codes and standards*** 1.5 Conduct a ***risk-management analysis*** and develop and document a risk-management plan
2. Prepare the IT project plan	2.1 Define and document precise ***specifications and terms of reference*** for the project 2.2 Identify and document project budget, specified to a level that can be used for the management of sub-tasks 2.3 Define skills needed for the successful completion of project 2.4 Define, document and secure physical and other resources required to support the project 2.5 Develop and document timelines, schedules and critical path for the project, taking into consideration contingencies and planning for time slippages 2.6 Define and document a consultation strategy or process that will be used to inform clients, contractors and other interested parties of the project's progress, and seek their input as required
3. Assemble the IT project team and commence work	3.1 Secure and brief appropriate project team members regarding the project, their roles, levels of delegated responsibility and the outcomes to be achieved 3.2 Implement effective communication processes to coordinate work and inform team members of progress

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.3 Identify and communicate clear reporting processes for team members
4. Manage the IT project	4.1 Monitor project progress according to project plan requirements, using appropriate ***project-management tools*** and methodologies 4.2 Manage team member performance, ensuring that their output is directed to the key performance indicators identified in the project plan 4.3 Make corrections, changes and additions to the project plan in light of changing circumstances to ensure project aims and outcomes 4.4 Monitor resourcing to support the project and make corrections to reflect changing circumstances 4.5 Report overall project progress to senior management or funding bodies as required and in line with the project plan
5. Finalise the IT project	5.1 Finalise the project in line with the project plan 5.2 Conduct handover to staff members responsible for the ongoing implementation or maintenance of project products or services efficiently, effectively and in line with organisational procedures 5.3 Debrief project team members and relevant stakeholders about the conduct of the project and the outcomes achieved 5.4 Prepare a report analysing the strengths and weaknesses of the project plan and the conduct of the project
6. Use the IT project to contribute to improved policies and processes	6.1 Identify and analyse opportunities for wider organisational learning, including changes to processes or policies generated by the project 6.2 Forward opportunities for future further developments following project completion for consideration by senior management 6.3 Consider the strategic impact of the project and feed into the organisation's ongoing strategic planning processes

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- analytical skills to analyse project progress
- communication skills to:
  - facilitate groups
  - liaise and negotiate with clients and team members
  - present, transfer and collect information and gain consensus
- literacy skills to:
  - read and interpret drawings, plans and specifications, including architectural, structural, mechanical, hydraulic and electrical
  - research and evaluate competing technologies in new products and systems
  - review and comment on reports, including building, insurance and corporate
  - search, access, read, interpret and apply current relevant legislation, codes and standards
  - update knowledge of products, software systems and technology
- numeracy skills for budgeting and financial management
- planning and organisational skills to:
  - manage human resources
  - manage time
  - participate in the development of strategic initiatives
  - plan and execute a project
  - plan communications and risk management for a project
  - consider scoping, timeframe, cost and quality for a project
- research skills to specify, analyse and evaluate broad features of a particular business domain and solutions to project problems
- technical skills to formulate milestones.

Required knowledge

- budgets and financial plans
- concepts of risk-management planning and processes
- computer software functions and operation, including relevant proprietary software
- relevant current legislation, codes and standards
- sustainability requirements and ratings, including reporting mechanisms
- tools and models of project management:
  - energy conservation
  - water conservation
- organisational frameworks and functions, including:
  - enterprises
  - government bodies
  - industry associations.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design, implement, manage and finalise a complex IT project • manage planning processes, scheduling, human resources, reporting and response to contingencies • ensure projects undertaken are aligned with and support organisational strategies and requirements • learn from project outcomes and refine and improve future IT project management processes.
Context of and specific resources for assessment	Assessment must ensure access to: • codes and standards • legislation relevant to the jurisdiction and the project being undertaken • project documentation • research resources, including product information and data • theoretical texts and other information to support the assessment of the unit's required skills and knowledge • relevant computer software packages and suitable hardware • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate performing complex IT project management • verbal or written questioning to assess candidate’s ability to formulate metrics and milestones • review of candidate’s project documentation.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and

© Commonwealth of Australia, 2025 Future Skills Organisation

	the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Strategic context may include:	• operating environment in which the project will be conducted.
Legislation and industry codes and standards may include:	• Australian Computer Society Code of Ethics • sector-specific impacts on the project design and delivery.

Risk-management analysis may include:	• business continuity, including emergency plans for activities to continue in the event of loss of building, equipment or systems
	• changing government policy or funding arrangements
	• environmental concerns:
	  • hazardous waste
	  • pollution
	  • tree-retention policies
	• public liability
	• safety of staff
	• workers-compensation claims.

Specifications and terms of reference may include:	• definition of the project aims
	• description of stakeholders
	• description of the outcomes to be achieved using, wherever possible, the nomination of clear metrics
	• description of the project parameters:
	  • flexibilities involved
	  • scope of operations

© Commonwealth of Australia, 2025 Future Skills Organisation

	• identification of the budget • specification of the communication strategy to be used • specification of the timescale.
Project-management tools may:	• be in-house or proprietary software • incorporate scheduling and reporting templates • incorporate the use of Gantt or PERT charts • use critical path analysis.

Unit Sector(s)

IT project management

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG301A Apply introductory programming techniques

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to undertake introductory programming tasks in the development of a game or application.

This unit addresses the knowledge, processes and techniques necessary to develop skills to create simple applications or games.

Application of the Unit

This unit applies to people with responsibility for creating applications or games and includes creating code, using programming standards, testing and debugging.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Apply language syntax and layout	1.1 Apply basic ***language*** syntax rules 1.2 Use language data types, operators and expressions to create clear and concise code 1.3 Apply variables and ***variable scope*** 1.4 Use ***library functions*** in a program 1.5 Use commenting to create clear meaning to code
2. Apply control structures	2.1 Apply language syntax for sequence, selection and iteration constructs 2.2 Use ***logical operators*** to create expressions for use in selection and iteration constructs
3. Code using standard algorithms	3.1 Develop algorithms that use the sequence, selection and iteration constructs 3.2 Create and use ***arrays*** 3.3 Code standard sequential access algorithms for reading and writing text files, including end-of-file detection loops 3.4 Apply ***string manipulation***
4. Test code	4.1 Use ***debugging techniques*** to trace code execution and examine variable contents to detect and correct errors 4.2 Create and conduct simple tests to confirm code meets design specification 4.3 Document the tests performed and results achieved
5. Create an application or game	5.1 Design an algorithm in response to basic program specifications 5.2 Develop the application or game to meet the program specification 5.3 Test and confirm that application or game meets the initial

© Commonwealth of Australia, 2025 Future Skills Organisation

	specifications

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to determine the requirements of the specification
- communication skills to:
  - document the code
  - understand the client requirements
- learning skills to research encountered problems independently
- literacy skills to create program code that uses correct syntax
- planning and organisational skills to complete the program within the required timeframe
- problem-solving skills to translate the required outcomes of the specification into correct program code
- technical skills to apply programming concepts.

Required knowledge

- programming language syntax and command structure
- small-sized application or game development.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • apply programming language syntax, sequence, selection and iteration control structures to the development of an application or game • produce an application or game that is designed and built from a provided program specification

© Commonwealth of Australia, 2025 Future Skills Organisation

	• confirm that the created application or game meets the original program specifications and obtain user sign-off for completed program.
Context of and specific resources for assessment	Assessment must ensure access to: • requirement documents • site documents • software development tools currently used in industry, such as compiler and IDE • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate programming and debugging code • verbal or written questioning to assess candidate's knowledge of language syntax and programming constructs • review of programs to assess candidate's knowledge of language syntax and programming constructs • review of an application or game developed by candidate to meet a specification.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

Language may include:	• C • C++ • Java • VB.
Variable scope may include:	• global • local • local to code block.
Library functions may include:	• getch() • printf, cout • rand() • SDL_BlitSurface() • SDL_PollEvent().
Logical operators may include:	• AND • OR • NOT.

Arrays may include:	• one-dimensional arrays:
	  • declare
	  • initialise
	  • loop through array elements
	  • use
	• 2-D arrays.

String manipulation may include:	• converting strings to numbers • searching a string for tokens • splitting a string based on tokens • stringing concatenation • sub-strings.
Debugging techniques may include:	• printing variable information to screen or log • using debugging tools provided by the integrated development environment (IDE).

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG401A Maintain open-source code programs

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to contribute as a member of an open-source software project community and to maintain open-source code. The open-source development model differs considerably from the traditional commercial model.

Application of the Unit

This unit applies to individuals working in software and system development and maintenance. They may work as open-source software developers who are required to build, test and distribute open-source software applications, or programmers responsible for integrating open-source components, tools or technologies into their applications.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Investigate open-source paradigm	1.1 Examine the open-source paradigm and demonstrate an understanding of the differences from the traditional ***software*** development models 1.2 Investigate and demonstrate understanding of the types of ***online resources*** 1.3 Investigate and demonstrate understanding of the types of project ***documentation*** 1.4 Recognise and demonstrate understanding of the role of an ***online community*** and international collaboration 1.5 Examine and demonstrate understanding of motivational factors for contributors to open-source code 1.6 Analyse and demonstrate understanding of open-source ***licensing models***
2. Familiarise with target project	2.1 Examine online resources associated with the target project 2.2 Download pre-built executable binaries to install and run project 2.3 Download, read and demonstrate understanding of supporting documentation
3. Prepare for maintenance activities	3.1 Select and register with a relevant online community open-source group 3.2 Download nightly snapshots of latest source code and supporting documentation 3.3 Build and execute snapshot where appropriate
4. Maintain code	4.1 Access the project bug database and select bugs to be resolved or features to be added 4.2 Make changes to local copy of code to resolve selected bugs 4.3 Test resulting code to ensure it performs appropriately

© Commonwealth of Australia, 2025 Future Skills Organisation

	4.4 Prepare code patch for submission 4.5 Submit code patch to project 4.6 Use appropriate ***software-development tools*** and environment
5. Maintain documentation	5.1 Access project documentation 5.2 Prepare and contribute new information or updates to existing documentation 5.3 Prepare and submit documentation changes to project
6. Participate in community	6.1 Exchange messages with other project members and actively participate in community activities 6.2 Take action to ensure exchanges are ***socially acceptable*** 6.3 Submit code and documentation code patches for inclusion 6.4 Access ***online project*** resources frequently to keep up-to-date with project and community developments 6.5 Take action to ensure ***community-participation standards*** are observed and maintained

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - apply some of the latest information technology tools and techniques
  - evaluate and compare a range of open-source tools and components to use in software development and maintenance
- communication skills to:
  - discuss issues with global peers
  - participate effectively in discussions on a number of information technology issues
  - participate in volatile communities of interest
- initiative and enterprise skills to:
  - apply information technology knowledge and skills in a multidisciplinary environment
  - participate in open-source projects
- literacy skills to:
  - read and interpret complex technical and non-technical information from a range of sources

© Commonwealth of Australia, 2025 Future Skills Organisation

    - write a clearly structured document or update existing documentation
- problem-solving skills to choose the best solution for a particular context
- research skills to identify and locate possible sources of required information for a target project
- technical skills to:
    - build existing software projects from source
    - create and maintain code
    - use basic language syntax and layout, data structures, arrays and standard algorithms
    - test and debug code at a high level.

Required knowledge

- detailed knowledge of:
    - debugging and testing techniques
    - documentation techniques, including internal documentation, user guides and technical documentation
    - open-source development methodology
- overview knowledge of online project communities.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• provide significant contribution to an open-source project in the form of:
	  • program source code changes and/or additions
	  • documentation changes or additions
	  • online participation in the project direction
	  • local proof of building of snapshots, code modifications and testing.

Context of and specific resources for assessment	Assessment must ensure access to: • software development environment • internet • technical requirements • databases

© Commonwealth of Australia, 2025 Future Skills Organisation

	• information repositories • programming languages • group-facilitation software • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of open-source practices, open-source software and open-source issues such as distribution, compatibility and security
	• evaluation of candidate's:
	  • participation
	  • application code, test and documentation.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Software may include:	• commercial software applications • customised software • in-house software

© Commonwealth of Australia, 2025 Future Skills Organisation

	• organisation-specific software • packaged software.
Online resources may include:	• community sites • CVS trees • FTP sites • gopher sites • news groups • online communities • websites.
Documentation may follow:	• audit trails • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC), and Australian Standards (AS) standards • naming standards • project management templates • report writing principles • version control.

Online community may include:	• local communities
	• online virtual communities of interest
	• organisational communities
	• main tools for online communities:
	  • mailing lists
	  • newsgroups
	  • web conferencing.

Licensing models may include:	• Apache licences • Berkeley Software Distribution (BSD) • General Public License (GPL) • Lesser General Public License (LGPL) • Mozilla.
Software-development tools may include:	• computer language • development methodology • development tools • operating systems • target environments • version control systems.

Socially acceptable should be:	• designed and sent with regard to recipient's:
	  • culture
	  • ethnicity
	  • location
	  • race
	  • social sensitivities.

© Commonwealth of Australia, 2025 Future Skills Organisation

Online project may include:	• commercial hosting facility hosting community code • CVS site • FTP site • other type of group repository • private website.
Community-participation standards may include:	• informal or formal rules and regulations used by groups to manage their online projects • procedures or guidelines • verbal or written policies.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG402A Apply query language

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to retrieve and manipulate information stored in information systems using a query language.

Application of the Unit

This unit applies to individuals in a range of work environments who are required to extract information from a source, such as database, text file, and eXtensible markup language (XML), by creating and running queries.

These individuals may support the job functions of managers and developers. They may work as application support, database support, junior IT administrator, database programmer and data programmer.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine the requirements of developing queries	1.1 Recognise various query-related ***terminologies*** 1.2 Identify the type of ***data source*** for a chosen ***query language*** 1.3 Identify and use necessary ***tools*** and environment in building queries
2. Write queries to retrieve and sort values	2.1 Use an ***expression*** to retrieve values from a single ***unit*** 2.2 Use an expression to combine values from more than one unit 2.3 Use an expression to sort values into certain order
3. Write queries to selectively retrieve values	3.1 Use an expression to filter a sequence based on a predicate or condition 3.2 Use an expression to filter a subset of sequence based on a predicate or condition 3.3 Use an expression to extract a specific value by position
4. Perform calculation in queries	4.1 Use expression to perform calculation on numeric values 4.2 Use expression to perform operation on text values 4.3 Use expression to perform operation on date and time values

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - analyse and comprehend interdependencies between data fields
  - examine and define system requirements for data
  - review requirements and determine the availability of information
- communication skills to:
  - interact with developer to determine data requirement
  - interact with end user personnel to determine data requirement
  - liaise with management on report and result matters
- literacy skills to:
  - produce basic ad hoc report
  - read and interpret specifications developed by business and technical experts
- numeracy skills to:
  - make basic calculations involving basic arithmetic operations
  - make estimates and comparisons involving date and time data
- problem-solving skills to:
  - address common problems in operating a computer system
  - perform basic debugging, such as defining simple problems, locating source of the problems, and providing solutions to problems
- technical skills to:
  - perform basic data-management operations, such as insert, update and delete operations
  - perform basic operations of a computer system.

Required knowledge

- broad knowledge of:
  - information gathering methods
  - data analysis
  - data mining
- characteristics of data source
- features of information system
- typical systems and procedures.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

© Commonwealth of Australia, 2025 Future Skills Organisation

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• select and use tools in developing, storing and executing queries to extract the appropriate data required for ad hoc reports or to support developers
	• incorporate calculations using:
	  • control statements
	  • operators
	  • functions.

Context of and specific resources for assessment	Assessment must ensure access to:
	• tools in:
	  • accessing a data source
	  • developing queries using the chosen query language
	• specific requirements, including client and functionality
	• policy and naming standard
	• resources to aid calculation
	• appropriate learning and assessment support when required
	• modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of candidate's ability to:
	  • integrate query into larger systems to support application development team
	  • implement programmability objects (such as stored procedures) containing queries stored in an information system to support operational functions
	• direct observation of candidate using query language to retrieve or manipulate data
	• verbal or written questioning to assess candidate's knowledge of the features of the query language.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be

© Commonwealth of Australia, 2025 Future Skills Organisation

	combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Terminologies may include:	• attribute • command • data item • expressions • item type • statement.
Data source may include:	• arrays • databases • entities • enumerable classes • objects • text files • eXtensible markup language (XML).
Query language may include:	• abstract object query language (AOQL) • XML • Google base query language (GBQL) • Java persistence query language (JPQL) • language integrated query (LINQ) • structured query language (SQL) • xQuery.
Tools may include:	• application programming interface (API) • class libraries • database engine • integrated development environment (IDE) • programming language.
Expression may include:	• function • operator • statement.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit may include:	• node • object • result set • table.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG403A Develop data-driven applications

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to create data-driven applications that access data from a range of sources, such as databases, object data sources or eXtensible markup language (XML).

Application of the Unit

This unit applies to those who work as programmers or database application developers who are responsible for data-access coding.

The context of the unit applies to different types of data-access methods, such as data retrieval and storage, back-end coding, disconnect data management, and reading and writing XML documents.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Design data-access layer (DAL)	1.1 Design DAL in a ***multi-layer application*** model 1.2 Determine ***data-access application programming interface*** (API) for connecting to various data sources
2. Establish a connection with a data source	2.1 Create and manage connection strings 2.2 Connect to a ***data source*** by using different ***data providers*** 2.3 Create code to handle connection exceptions
3. Execute commands and return results from the data source	3.1 ***Query data*** from the data source 3.2 Retrieve data from the data source as result sets 3.3 Manage result sets 3.4 Manage exceptions when retrieving data
4. Modify data in the data source	4.1 Insert, update or delete data 4.2 Manage ***data integrity*** 4.3 Manage exceptions when modifying data
5. Manage disconnected data	5.1 Research a ***disconnected data*** management strategy 5.2 Ensure that application can deal with disconnected data
6. Document data-access layer	6.1 Document the code 6.2 Document database connectivity

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- analytical skills to design complex multi-layer application model
- communication skills to interact with developer to ensure proper implementation
- learning skills to investigate potential new techniques to access data from various resources
- literacy skills to:
  - read and interpret database design document
  - read basic technical data
- problem-solving skills to develop and refine strategies to access data sources
- technical skills to:
  - create code for the data-access layer
  - create structured query language (SQL) commands to select, insert, update or delete data
  - test and debug code.

Required knowledge

- features of:
  - object-oriented design and multi-layer applications
  - relational database management systems
- object-oriented programming at an intermediate level
- SQL at a basic level.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design and code the data-access layer of multi-layer applications • retrieve and update data from various data sources.
Context of and specific resources for assessment	Assessment must ensure access to: • integrated development environment (IDE) • data access APIs

© Commonwealth of Australia, 2025 Future Skills Organisation

	• database management system software • database files • coding standard • specific tools and licences, depending on particular data-access API • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• review of candidate's DAL design
	• evaluation of candidate's data-access management strategy
	• verbal or written questioning to assess candidate's knowledge of:
	  • multi-layer applications
	  • database access.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Multi-layer application	• business logic layer (BLL) • data-access layer (DAL)

© Commonwealth of Australia, 2025 Future Skills Organisation

may include:	• user interface layer (UI).

Data-access application programming interface may relate to:	• object-oriented set of libraries used to interact with data sources:
	  • active data objects (ADO.NET)
	  • ADO.NET Entity Framework
	  • Java database connectivity (JDBC)
	  • language integrated query (LINQ).

Data source may include:	• databases:
	  • Microsoft SQL server
	  • MySQL
	  • Oracle
	  • Postgre Structured Query Language (Postgre SQL)
	• fat-files database
	• internal data
	• object data sources
	• XML database.

Data providers may include:	• managed providers • Microsoft object linking and embedding (OLE) DB • native providers • open database connection (ODBC) • SQL client • third-party providers.
Query data may include:	• access input and output parameters and return values • access stored procedures • create command objects.
Data integrity may include:	• cascading deletes • cascading updates • constraints.
Disconnected data may include:	• DataSet • DataTable • service data objects (SDO).

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG404A Test applications

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to prepare test plans, write test procedures or scripts according to test plans, and maintain test plans and scripts.

Application of the Unit

This unit is relevant to those responsible for test plan preparation, execution, maintenance, and reporting of tests; as well as defect management in the software development life cycle.

The positions in this role include programmers, developers, testers and test analysts.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine testing need in development	1.1 Identify testing role across software development life cycle 1.2 Identify ***testing types*** and ***testing tools*** 1.3 Recognise testing benefits, standard and terms
2. Prepare test plan document	2.1 Gather requirements to develop test plan 2.2 Analyse and identify test data using various ***test-case design techniques*** 2.3 Define and design test cases
3. Write and execute test procedures	3.1 Choose and adopt a ***unit test framework*** 3.2 Design and implement algorithm in ***test procedures*** 3.3 Perform test executions
4. Review test results	4.1 Record test results 4.2 Analyse test results 4.3 Produce test progress reports 4.4 Manage defects

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - liaise with developers on programming matters
  - liaise with managers or leaders on report and result matters

© Commonwealth of Australia, 2025 Future Skills Organisation

  - seek requirements and information from business and technical experts
- literacy skills to:
  - develop reports and documentation in relation to presentation of information
  - read and interpret program specifications developed by business and technical experts
- problem-solving skills to apply basic debugging techniques in the context of software and application development
- research skills to:
  - locate and interrogate complex and varied sources of information
  - source information from available sources
- technical skills to:
  - develop a small scale application
  - execute an application.

Required knowledge

- characteristics of programming language
- detailed knowledge of input and output requirements
- overview knowledge of software development life cycle
- processes and techniques related to small-size application development.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • apply test case design techniques to develop test plan and test cases that adequately cover specific test requirements • design, implement and execute test procedures or scripts by using a unit test framework and an integrated development environment (IDE) • create test progress reports based on recorded test results.
Context of and specific resources for assessment	Assessment must ensure access to: • software development environment • specific test requirements, such as test-plan document • suitable code to be tested • word-processing software

© Commonwealth of Australia, 2025 Future Skills Organisation

	• appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to key issues in testing software applications related to a specific project • evaluation of candidate's ability to create testing project and execute test cases in a specific context • observation of test cases development and documentation based on specific requirements.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Testing types may include:	• acceptance testing • accessibility testing • alpha testing • beta testing • component testing • integration testing • performance testing

© Commonwealth of Australia, 2025 Future Skills Organisation

	• security testing • system testing • usability testing.

Testing tools may include:	• graphical user interface (GUI) test tools:
	  • AutoHotkey
	  • AutoIt
	  • Selenium
	  • White
	• load and performance tools:
	  • BrowserMob
	  • QTest
	  • SiteBlaster
	  • Xceptance LoadTest
	• static analysis tools:
	  • Coverity
	  • FindBugs
	  • FxCop
	  • PMD
	• test coverage tools:
	  • JCover
	  • NCover
	• test design tools:
	  • ADL
	  • AllPairs.java
	  • DGL
	  • Jenny
	  • Multi
	  • TSL
	• unit test tools:
	  • csUnit
	  • MbUnit
	  • NUnit
	  • OCUnit
	  • xUnit.

Terms must include:	• defect • failure • quality • verification • validation.

© Commonwealth of Australia, 2025 Future Skills Organisation

Test-case design techniques may include:	• black box design techniques:
	  • boundary value analysis
	  • decision table test
	  • equivalence partitioning
	  • error guessing
	• desk checking
	• white box design techniques:
	  • basic path testing
	  • branch coverage
	  • condition coverage
	  • loop testing
	  • statement coverage.

Unit test framework may include:	• cppUnit • jUnit • mbUnit • nUnit • ocUnit • pyUnit • xUnit.
Test procedures may include:	• fake • mock • stub • test class • test fixture • test method.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG405A Automate processes

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to write scripts to automate solutions by using basic scripting processes and application-specific scripting options.

Application of the Unit

This unit applies to individuals in information and communications technology (ICT) support roles who are required to automate tasks. System administrators make decisions about what processes to automate in order to expedite servers' operations.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Develop algorithms to represent solution to a given problem	1.1 Develop an algorithm which is an exact and sufficient description of the solution 1.2 Develop an algorithm which takes account of all expected possible situations 1.3 Develop an algorithm which is guaranteed to end
2. Describe structures of algorithms	2.1 Demonstrate use of structure, sequence, selection and iteration 2.2 Use structures to describe algorithmic solutions to a problem
3. Design and write script or code	3.1 Create an abstract design to fulfil the ***requirements*** of the proposed process 3.2 Review the abstract design for omissions or errors 3.3 Translate the abstract design to the chosen ***language*** 3.4 Create internal documentation
4. Verify and review script or code	4.1 Check the script or code for syntax and semantic errors 4.2 Identify areas that are not covered or are covered incorrectly in the script or code
5. Document script or code	5.1 Create technical-level documentation 5.2 Create user-level documentation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to interact with user via script
- literacy skills to create technical and user level documentation

© Commonwealth of Australia, 2025 Future Skills Organisation

- technical skills to:
  - create scripts to automate application system tasks
  - execute scripts for set repeat time slices, single runs or break-out loops
  - manipulate and automate data
  - use inbuilt scripting options for a variety of scenarios.

Required knowledge

- detailed knowledge of:
  - debugging for a variety of scripting scenarios
  - scripting language syntax
  - scripting techniques.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop an algorithmic statement of a solution for a set process • produce a functional script to automate a set process • document this script both internally and externally.
Context of and specific resources for assessment	Assessment must ensure access to: • applications capable of being scripted or having own scripting language • templates for automating processes • executable scripts for set repeat time slices, single runs or break-out loops • debugging tools • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess knowledge of application or process that scripting will control

© Commonwealth of Australia, 2025 Future Skills Organisation

	• evaluation of algorithm design and scripting concepts to a variety of manual operations
	• review of scripting:
	  • results on appropriate device
	  • documentation.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Requirements may relate to:	• application • business • network • people in the organisation • system.
Language may include:	• JavaScript • Perl • Python • shell script • VBScript.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG406A Apply introductory object-oriented language skills

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to undertake introductory programming tasks using an object-oriented programming language. Competency includes tool usage, documentation, debugging and testing techniques in support of the programming activities.

Application of the Unit

This unit applies to programmers in a variety of fields who are required to produce simple programs in object-oriented languages.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Apply basic language syntax and layout	1.1 Demonstrate understanding and application of basic ***language*** syntax rules and best practices 1.2 Select and use language data types, operators and expressions to create clear and concise code 1.3 Use the appropriate language syntax for sequence, selection and iteration constructs 1.4 Use a modular programming approach within member or function logic 1.5 Apply arrays, including arrays of objects to introductory programming tasks 1.6 Use ***standard-array processing algorithms*** 1.7 Use the facilities of the language to read and write data from and to text files and record outcomes
2. Apply basic object-oriented principles in the target language	2.1 Implement a class that contains primitive member or instance variables 2.2 Implement a class that contains multiple options for object construction 2.3 Implement a class that uses user-defined aggregation (object instance or member variables) 2.4 Use the facilities provided in the language to implement inheritance to at least two levels of depth 2.5 Use polymorphism at a simple level through inheritance to enable easy extension of code
3. Debug code	3.1 Use an ***integrated development environment***, in particular the language debugging facilities, to debug code 3.2 Interpret compiler or interpreter messages to resolve syntax errors and use debugging techniques to resolve logic errors
4. Document activities	4.1 Follow organisational guidelines for developing maintainable code and adhere to the provided ***coding standards*** when

© Commonwealth of Australia, 2025 Future Skills Organisation

	documenting activities 4.2 Apply internal documentation to all code created and use documentation tools available in the target language when documenting activities
5. Test code	5.1 Create and conduct simple tests to confirm code meets ***design specification*** 5.2 Document the tests performed and results achieved
6. Create an application	6.1 Develop a solution when provided with a basic ***object-oriented design document*** 6.2 Refer to appropriate documentation for the language

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to translate requirements from problem space to machine space
- communication skills to liaise with client
- literacy skills to:
  - document results
  - read and interpret program specifications
- problem-solving skills to debug problems with program code
- technical skills to:
  - debug and test
  - use integrated development environment
  - use internal (code) documentation
  - use programs.

Required knowledge

- processes and techniques related to the use of:
  - object-oriented programming concepts and language
  - small-size application development
  - graphical user interface (GUI) to interact with operator.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • use an application program to design and build standard reusable software modules in response to a design specification • generate code documentation • undertake testing to confirm that the created application meets the original specification and solves original problem.
Context of and specific resources for assessment	Assessment must ensure access to: • software development environment • technical requirements • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of processes and techniques related to object-oriented programming concepts and language • evaluation of object-oriented solution • review of developed program documentation.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Language may include:	• C#.net • C++ • Java • Small Talk • VB.NET.
Standard-array processing algorithms may include:	• insertion and deletion algorithms • search.
Integrated development environment may include:	• Code Warrior • Eclipse • JBuilder • J-Edit • Visual C++ • Visual Studio suite.
Coding standards may include:	• GNU • Java.
Design specification may include:	• current system functionality • technical requirements • user problem statement.
Object-oriented design document may include:	• class diagrams • supplementary specifications • use-cases.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG407A Write script for software applications

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to plan, design and build scripts using a scripting language to construct a highly interactive and automated software application.

Application of the Unit

This unit applies to individuals who build and integrate interactive applications or websites for internal and public sites.

These individuals may work as an application developer, application support, programmer specialised in a scripting language, web application programmer, and web developer.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine the requirements of building script	1.1 Identify the main characteristics of ***scripting languages***
	1.2 Identify and use a ***framework*** and ***integrated development environment*** (IDE) to build script using the chosen scripting language
	1.3 Identify the ***protocols*** and ***object model*** used in the chosen scripting language
2. Design script	2.1 Create pseudo code to describe the logic needed in the script
	2.2 Review pseudo code for missing logic and error
3. Write script	3.1 Translate pseudo code into scripts incorporating the use of ***basic language elements***
	3.2 Create internal documentation in the script
	3.3 Incorporate ***item*** manipulation using the chosen scripting language
	3.4 Review, debug, and document script

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - liaise with developers on programming matters
  - seek requirements and information from business and technical experts
- literacy skills to:
  - read and interpret program specifications developed by business and technical experts

© Commonwealth of Australia, 2025 Future Skills Organisation

  - read and interpret technical documentation
  - write a basic documentation
- problem-solving skills to apply basic debugging techniques in the context of software and application development
- research skills to:
  - locate and interrogate complex and varied sources of information
  - source information
- technical skills to:
  - develop a small scale application
  - perform basic operations of a computer system.

Required knowledge

- overview knowledge of:
  - computing platforms
  - copyright and intellectual property
  - software development life cycle
- processes and techniques related to small-size application development.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design, write, and integrate scripts into software solutions to accommodate specified requirements, such as data manipulation and data automation • use a framework and IDE in developing scripts.
Context of and specific resources for assessment	Assessment must ensure access to: • requirements of the brief, including those relating to client and functionality • runtime environment, such as a scripting engine to execute and test script • development environment to create and debug script • scripting language, such as application programming interface (API)

© Commonwealth of Australia, 2025 Future Skills Organisation

	• appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of ability to create:
	  • dynamic (web) application with automatic elements generation, interactive user input, and persistent information storage
	  • macros to automate routine manual tasks such as report generation.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Scripting languages may include:	• application scripting language:
	  • visual basic for applications (VBA)
	• web scripting languages:
	  • client-side scripting languages:
	  • ActionScript
	  • JavaScript

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Jscript • VBScript • server-side scripting languages: • ASP.NET • ColdFusion • JSP • Perl • PHP • Python.
Framework may include:	• catalyst • django • flex • jQuery • mach-II • .NET framework • spring • struts • yii.
Integrated development environment may include:	• FlashBuilder • Microsoft Office • NetBeans • Visual Studio • .NET.
Protocols may include:	• file transfer protocol (FTP) • file transfer protocol secure (FTPS) • hypertext transfer protocol (HTTP) • hypertext transfer protocol secure (HTTPS) • secure sockets layer (SSL).
Object model may include:	• component object model (COM) • data-access object (DAO) model • document object model (DOM) • VBA object model.
Basic language elements must include:	• data flow statements such as conditional statements and iteration statements • data types • expressions • functions • operators • variables.

© Commonwealth of Australia, 2025 Future Skills Organisation

Item may include:	• browser • cookie • database • device • text file • spreadsheet • eXtensible markup language (XML) documents.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG409A Develop mobile applications

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop, debug, test and deploy applications for hand-held devices, such as mobile phones, pocket PCs, personal digital assistants (PDAs) and enterprise digital assistants (EDAs).

Application of the Unit

This unit is relevant to those who work as mobile device application developers. They may be programmers, game developers, designers, or testers who are working in the area of mobile applications development.

The context of the unit applies to all development platform environments which provide tools to build and deploy applications into the target platform environment, such as Android, Symbian, Java ME, .NET compact platform, iPhone, Google phone and BlackBerry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Define a platform	1.1 Determine target ***platform*** for the hand-held device 1.2 Choose and evaluate a ***development environment*** based on the target platform, hardware and mobile phone manufacturer on which the application will run 1.3 Prepare and configure the application development environment
2. Design user interface for a mobile application	2.1 Create views for different screen orientations and resolutions 2.2 Integrate appropriate ***navigation*** techniques 2.3 Design page ***layout and content*** 2.4 Integrate appropriate ***user input*** techniques
3. Permit the personalisation of parameters	3.1 Write code to allow users to configure application settings 3.2 Write code to allow users to configure application output, such as text size, brightness and sound effects
4. Build user interface for a mobile application	4.1 Itemise the required functionality 4.2 Build user interface in the determined development environment to fulfil this functionality
5. Connect to data sources	5.1 Bind controls to data sources 5.2 Persist data using eXtensible markup language (XML) serialisation 5.3 Access remote data using XML web services
6. Test and debug a mobile device application	6.1 Test application for overall functionality according to requirements 6.2 Iterate application design or build until test results meet requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

7. Deploy a mobile device application	7.1 Create application packaging for deployment 7.2 Deploy an application to target devices

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - design for small devices
  - evaluate appropriate mobile development environment
- communication skills to provide advice and guidance to others
- literacy skills to read and interpret technical and non-technical information
- numeracy skills to make basic calculations for specifying the layout of the mobile user interface design
- problem-solving skills to:
  - address common problems in building and deploying mobile applications
  - perform basic programming debugging skills
- research skills to find and evaluate relevant technologies in mobile applications development
- technical skills to:
  - create XML documents
  - design user interface
  - develop software applications
  - test and debug applications
  - use an integrated development environment (IDE).

Required knowledge

- basic knowledge of:
  - hardware and networking
  - object-oriented programming
  - user-interface design
  - web design: HTML, JavaScript, cascading style sheet (CSS), and AJAX
- detailed knowledge of XML programming and web services.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• design, build, test and deploy applications for small devices:
	  • mobile phones
	  • pocket PCs
	  • personal digital assistants (PDAs)
	  • enterprise digital assistants (EDAs).

Context of and specific resources for assessment	Assessment must ensure access to: • hand-held devices or stimulators • integrated development environment (IDE) • internet and web services • server system with sufficient privileges to deploy applications • specific tools and licences, depending on particular platform • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following example is appropriate for this unit: • verbal or written questioning to assess knowledge of mobile development environment.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Platform may include:	• Android • BlackBerry • Google iPhone • Java ME • .NET compact platform • Symbian.

Development environment may include:	• cross-platform deployment
	• emulator availability
	• frameworks:
	  • Flash
	  • Java Platform, Micro Edition and Java Platform Standard Edition
	  • .NET compact platform
	  • Qtopia for embedded Linux-based mobile devices
	  • Sprout Core (open-source JavaScript framework)
	  • wireless application protocol (WAP)
	• integrated development environment:
	  • BlackBerry
	  • Eclipse
	  • NetBeans
	  • Visual Studio
	  • XCode
	• languages:
	  • C#
	  • C/C++
	  • Java
	  • JavaScript
	  • Objective-C
	  • Perl hypertext pre-processor (PHP)
	  • Python
	  • Ruby

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Visual Basic (VB) or VBScript • wireless markup language (WML) • server and client tools libraries and tools.
Navigation may include:	• access keys • image maps • navigation bar • navigation links.

Layout and content may include:	• content:
	  • bandwidth
	  • limited screen area
	  • load time and cost
	  • use clear language
	• layout:
	  • font and colour
	  • images
	  • page size
	  • positioning controls
	  • scrolling to display content.

User input may include:	• multi-press • multi-touch • on-screen keyboard • phone keypad.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG410A Build a user interface

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design, build and test a user interface (UI) to specification.

Application of the Unit

This unit is relevant to those who work as user-interface designers and responsible for specifying the layout and style of the desired user interface. They may be developers working in the area of user-interface design and implementation.

The context of the unit applies to different types of user interfaces, such as command-line interfaces (CLI), graphical user interfaces (GUI), web user interfaces (WUI) and natural user interfaces (NUI).

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Build a prototype user interface	1.1 ***Gather requirements*** for the user interface 1.2 Determine the application ***development language*** for writing the user interface 1.3 Build a prototype using ***prototyping tools*** available in the determined language 1.4 Review UI prototype with client and edit as required
2. Design UI	2.1 Formulate application content flow 2.2 Design ***UI components*** 2.3 Define ***UI actions*** 2.4 Itemise UI events
3. Build UI	3.1 Determine the appropriate language 3.2 Build UI with the required functionality
4. Test UI	4.1 Test UI for overall functionality according to requirements 4.2 Iterate UI design or build until test results meet requirements
5. Document UI and obtain client sign-off	5.1 Document user requirements 5.2 Document UI 5.3 Obtain client sign-off to completed UI

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- communication skills to provide advice and guidance to others
- literacy skills to read basic technical data
- numeracy skills to make basic calculations for specifying the layout of the UI
- research skills to keep up-to-date with UI technologies and tools
- technical skills to:
  - create applications using basic programming techniques
  - create web pages using hypertext markup language (HTML) and cascading style sheet (CSS)
  - debug applications using basic debugging techniques
  - test applications using basic testing techniques.

Required knowledge

- maths at a basic level
- object-oriented programming
- open-source development tools
- small-size application development.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design a fully functional UI in consultation with the user using the determined language • create a prototype UI • review the prototype with the user • build the UI • test that created UI is complete, consistent and functional.
Context of and specific resources for assessment	Assessment must ensure access to: • internet in order to use online tools available for prototyping and UI design • integrated development environment (IDE) for the determined language

© Commonwealth of Australia, 2025 Future Skills Organisation

	• specific tools and licenses are available depending on particular platform, such as Windows, Linux, Unix, Mac and Google Chrome • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of candidate's:
	  • UI prototype
	  • completed UI
	• review of candidate's UI documentation
	• verbal or written questioning to determine candidate's knowledge of:
	  • UI components
	  • prototyping methodology.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Gather requirements may include:	• interviews • observation • questionnaires.
Development language	• object-oriented language, such as:

© Commonwealth of Australia, 2025 Future Skills Organisation

may include:	• ASP.NET • C++ • Java • JavaScript • JSP • NET (VB, C#) • Python • XHTML, DHTML and CSS.
Prototyping tools may include:	• commercial applications, such as: • Adobe FireWorks CS4 • Adobe Flash Catalyst • Axure • Balsamiq Mockups • Microsoft Expression Blend • MockupScreens • open-source tools, such as: • FluidIA • Napkin Look & Feel • Pencil Sketching • web-based tool, such as: • Hot Gloo • Mockingbird.
UI components may include:	• common and basic controls, such as button, label, textbox, checkbox and combo box • container controls • data controls • dialogs • menus and toolbars controls • printing controls.
UI actions may include:	• keyboard actions along with the key modifiers • keyboard actions, such as key press, key release and key action • mouse actions include moves, button presses, button releases and dragging • use of emerging interactive surface technologies and the NUI.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG412A Configure and maintain databases

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to install a database, manage data, data access and data security, and improve database performance.

Application of the Unit

This unit applies to individuals responsible for the maintenance and coordination of database operations. They usually work in a company or organisation to provide daily services related to databases.

These individuals may work as database administrators, database developers, database coordinators, or application developers.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine requirements of database administration	1.1 Identify ***components*** of a ***database*** instance 1.2 Define and use tools to administer database
2. Install and configure database system	2.1 Verify database software installation prerequisites 2.2 Install database software and related services 2.3 Configure database instance, components and services 2.4 Perform ***data-management tasks***
3. Manage database security and integrity	3.1 Create and administer users 3.2 Create and manage ***permissions*** to perform database operations 3.3 Create and manage ***roles***
4. Optimise and back up database	4.1 Configure database for backup and recovery operations 4.2 Create and manage database ***backups*** 4.3 Restore and perform database ***recovery*** 4.4 Tune and perform database ***optimisation***
5. Document database	5.1 Document maintenance and tuning work performed on database 5.2 Document users added to system

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- analytical skills to:
  - evaluate interdependencies between data fields
  - examine and define system requirements for data
  - review requirements and determine the availability of information
- communication skills to:
  - interact with developer to determine data requirement
  - interact with end user personnel to determine data requirement
  - liaise with management on report and result matters
- literacy skills to:
  - read and interpret specifications developed by business and technical experts
  - write a report
- problem-solving skills to:
  - address common issues relating to the operation of a computer system
  - perform basic troubleshooting to diagnose system problems
- technical skills to:
  - perform basic data-management operations, such as insert, update and delete operations
  - perform basic operations of a computer system.

Required knowledge

- basic knowledge of:
  - database design
  - desktop operating systems
  - relational databases
  - computer hardware and components
  - computer networking and components
  - structured query language (SQL).

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and	Evidence of the ability to:

© Commonwealth of Australia, 2025 Future Skills Organisation

evidence required to demonstrate competency in this unit	• install and configure database software • manage database files, integrity, users and security • create backup and restore databases • monitor database performance.
Context of and specific resources for assessment	Assessment must ensure access to: • database-management system software • database instance • tools in administering database • specific requirements, including client and functionality requirements • policy and naming standard • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of candidate performing:
	  • the installation, configuration and troubleshooting of a database management system software
	  • database tuning for performance using appropriate techniques and tools
	  • database backup creation and restore using the backup file
	  • data-management tasks, such as importing and exporting data, and instance creation
	  • database security tasks, such as creating users, and assigning roles and permissions to database users
	• verbal or written questioning to determine candidate's knowledge of database tuning and database security
	• review of candidate's database documentation.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Components may include:	• memory structure • relational database management system (RDBMS) software • stored procedures • table structure.
Database may include:	• MS Access • MySQL • Oracle • structured query language (SQL) server.
Tools may include:	• MySQL Workbench • Oracle Enterprise Manager Database Control • phpMyAdmin • SQL Server Management Studio.
Data-management tasks may include:	• implement data compressions • import and export data • maintain indexes • manage collations • manage data partitions.
Permissions may include:	• implied • object • statement.

Roles may include:	• application
	• database:
	  • fixed
	  • public
	  • defined
	• server, such as fixed-server roles.

Backups may include:	• compressed • differential • file • full database

© Commonwealth of Australia, 2025 Future Skills Organisation

	• online and offline database • transaction log.
Recovery may include:	• bulk-logged • full • simple.
Optimisation may include:	• cache mechanism • data compression • indexing.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG413A Use a library or pre-existing components

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to identify, evaluate and incorporate reuse components from a library or other source as part of a software project.

Application of the Unit

This unit applies to individuals working in a programming role in a variety of IT areas who are required to use programming libraries to support their work.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify potential reuse units	1.1 Analyse ***project*** design and functionality to identify ***reuse components***
	1.2 Source reuse components with desired functionality
2. Evaluate reuse components for suitability in parent project	2.1 Evaluate reuse component or libraries for suitability for use within the parent software project
	2.2 Compare functionality of each potential reuse component to functionality required by parent project
	2.3 Evaluate cost of implementing reuse component
	2.4 Consider technical impact on parent project design
	2.5 Consider reuse component vendor licensing issues
	2.6 Finalise selection of reuse components
	2.7 Document selection, evaluation and decision processes as part of the parent project-design ***documentation***
3. Incorporate reuse components	3.1 Configure ***development environment*** to include reuse components during build process
	3.2 Construct test programs or use provided example programs to become familiar with reuse components in preparation for incorporation into parent project
	3.3 Add reuse components to parent project incrementally
	3.4 Resolve reuse component dependencies
	3.5 Assemble and test parent project with a focus on the functionality provided by reuse components

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- analytical skills to:
  - analyse project design and functionality
  - evaluate reuse components
- literacy skills to document selection, evaluation and decision processes
- numeracy skills to evaluate cost of reusing components
- planning and organisational skills to identify, analyse and evaluate a range of solutions
- problem-solving skills to solve issues with the use of the library
- research skills for identifying, analysing and evaluating broad features of current reuse issues and best practice in component reuse
- technical skills to:
  - complete abstraction for a range of solutions
  - apply appropriate naming standards for a range of solutions.

Required knowledge

- broad knowledge of:
  - contract specifications
  - current industry development and design methodologies
- detailed knowledge of:
  - domain modelling
  - genericity specification
  - content and structure of libraries
  - techniques for metrics collection
  - patterns, frameworks and idioms
  - repository tools.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • meet project requirements by efficiently identifying, modifying and integrating components for reuse.

© Commonwealth of Australia, 2025 Future Skills Organisation

Context of and specific resources for assessment	Assessment must ensure access to: • software development environment • reuse library • technical requirements • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess knowledge of the purpose of reuse libraries • review of the documentation when selecting a reuse component • evaluation of the completed program code incorporating the reuse library.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Project may include:	• business improvement process • business involved in a total organisational change • ebusiness solution involving the total organisation or part of

© Commonwealth of Australia, 2025 Future Skills Organisation

	the organisation • systems-only change.
Reuse components may include:	• code • design patterns • metadata • requirements • specifications.
Documentation may follow:	• audit trails • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC), and Australian Standards (AS) standards • naming standards • project-management templates • report-writing protocols • version control.
Development environment may include:	• computer language used • development methodology • development tools • operating systems • target environments • version control systems.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG414A Apply introductory programming skills in another language

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to undertake programming tasks using a procedural approach to programming. An object-oriented language may be used in this approach.

Application of the Unit

This unit applies to individuals working in programming, development and technical roles.

They may work as programmers, software developers or may be IT staff with responsibility for undertaking programming activities, including writing, maintaining and updating programs, defining data and file handling.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Apply basic language syntax and layout	1.1 Apply basic ***language*** syntax rules 1.2 Use language data types, operators and expressions to create clear and concise code 1.3 Use appropriate language syntax for sequence, selection and iteration ***constructs***
2. Code using data structures	2.1 Demonstrate understanding of ***data structures*** 2.2 Write code to create and manipulate ***arrays*** 2.3 Design, define and use data structures
3. Code using standard algorithms	3.1 Create sequential search, binary search, insertion and deletion algorithms to operate on arrays 3.2 Code standard sequential access algorithms and random access algorithms
4. Debug code	4.1 Use stand-alone debugging tools or tools provided by ***integrated development environment*** (IDE) to debug code 4.2 Use a debugger to trace code execution and examine variable contents to detect and correct errors
5. Document activities	5.1 Follow ***organisational guidelines*** for developing maintainable code and adhere to the provided coding standard when documenting activities 5.2 Apply internal ***documentation*** suitable for use by peers to all code created and use documentation tools available in the target language when documenting activities
6. Test code	6.1 Design and document tests 6.2 Capture and record test results

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- literacy skills to:
  - read and interpret:
    - code standards and organisational guidelines
    - program specifications
  - write internal documentation
- problem-solving skills to develop solutions for applications
- technical skills to use integrated development environment.

Required knowledge

- basic knowledge of:
  - documentation techniques
  - programming techniques
  - testing techniques
  - small-size application development.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • perform programming coding to create, debug and test medium-size applications • generate design and code documentation • test and confirm that created application meets program specifications.
Context of and specific resources for	Assessment must ensure access to: • IDE for the determined language

© Commonwealth of Australia, 2025 Future Skills Organisation

assessment	• specific tools and licences, depending on particular platform and language • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of candidate's application code, test and documentation
	• verbal or written questioning of candidate on key programming concepts, such as:
	  • syntax and language features
	  • aggregate data types (such as collections, lists, hash tables, arrays and queues) that are appropriate to the language studied
	  • using an IDE
	  • debugging code.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

Language may include:	• C++ • C# • Java • JavaScript • Visual Basic (VB) • VBScript.

Constructs may include:	• iterations or loops
	• nested control structures
	• selection statements:
	  • if
	  • switch.

Data structures may include:	• arrays • collections • dictionaries • lists • maps • sets.
Arrays may include:	• multi-dimensional arrays • one-dimensional arrays.
Integrated development environment may include:	• C++Builder • CodeLite • Eclipse • JavaBuilder • Microsoft Visual Studio • NetBeans • Xcode.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access • templates • virus risk.
Documentation may include:	• audit trails • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC), and Australian Standards (AS) standards • naming standards

© Commonwealth of Australia, 2025 Future Skills Organisation

	• project management templates • report writing • version control.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG415A Apply skills in object-oriented design

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to apply the cyclic process of iteration from identification of class, instance, role and type to the final complete object-oriented model of the application.

Application of the Unit

This unit applies to system designers who are required to design systems in an object-oriented method.

Object-oriented languages are an important feature of software development processes world-wide.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Derive the high-level design from specification	1.1 Develop a static class diagram from a given set of ***specifications*** 1.2 Develop either a collaboration diagram or a sequence diagram from a given set of specifications 1.3 Develop either an activity diagram or a state diagram from a given set of specifications
2. Refine the design	2.1 Investigate and refine behaviour, state of classes and the collaboration between classes 2.2 Validate the correct visibility of class services and state data 2.3 Identify generalisations within classes 2.4 Identify specialisations within classes 2.5 Apply the principles of aggregation and composition to refine class design
3. Document the design	3.1 Create detailed uniform modelling language (UML) static class diagrams 3.2 Create detailed UML collaboration or sequence diagrams 3.3 Create detailed UML activity or state diagrams

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with clients and staff

© Commonwealth of Australia, 2025 Future Skills Organisation

- technical skills to:
  - abstract classes related to producing the required design
  - conduct completion of abstractions to successfully produce the required design
  - conduct domain analysis to successfully produce the required design
  - conduct refinement of inheritance hierarchies to successfully produce the required design.

Required knowledge

- design quality metrics, such as coupling and cohesion
- design refinement techniques
- programming design principles
- different programming methodologies
- various developmental life cycle options.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• produce an object-oriented design from requirements documents or system specifications, including:
	  • static class diagrams
	  • collaboration or sequence diagrams
	  • activity or state diagrams.

Context of and specific resources for assessment	Assessment must ensure access to: • system specifications • requirement documents • design specifications • detailed design • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• direct observation of candidate performing the process of iteration from identification of class, instance, role and type to the object-oriented model • verbal or written questioning to assess candidate's knowledge of object-oriented techniques and analytical skills, including evaluating development methodologies to a project or scenario to the scope and tasks involved in the object-oriented design processes • review of documentation as required by the chosen methodology.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Specifications may include:	• specifications of a system or process application that includes use-case diagrams • requirements document.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG416A Manage a software component reuse library

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to store, document and maintain IT components for reuse.

Application of the Unit

This unit applies to individuals in a software development area who are required to manage a library that contains reusable code.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Specify components for reuse library	1.1 Determine ***component*** suitability for reuse by checking its quality and uses 1.2 Review the size and complexity of ***reuse components*** for generalisation and remove ***project***-specific refinements 1.3 Evaluate components, including patterns, clusters and frameworks, and break down into smaller components for greater flexibility or use 1.4 Review components for duplication and remove duplicates
2. Document reuse library	2.1 Document components internally and externally to ensure efficient retrieval 2.2 Document public constants, data structures, component interfaces and limitations 2.3 Document possible relationships between data structures or objects 2.4 Provide example code, demonstrating the use of components within the documentation 2.5 Document ***development environment*** configuration 2.6 Provide simple test programs to prove the functionality of the library
3. Set up library structure	3.1 Classify data structures or objects in a consistent and logical manner 3.2 Ensure that library has a logical structure so that the ***user*** is aware of library contents and can understand the logic of how the functionality may be used by another developer 3.3 Develop the structure in a manner that avoids redundancy within the library 3.4 Configure development environment to automate build of reuse components and library 3.5 Take action to ensure interfaces to library components are consistent and abstracted 3.6 Add, update and remove reuse components as development is undertaken

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - classify data structures
  - determine the quality of reuse components for efficient retrieval and use
  - evaluate components to allow for greater flexibility or use
- communication skills to liaise with users
- literacy skills to provide technical documents
- planning and organisational skills to:
  - manage own work priorities
  - produce a logical library structure
- technical skills to:
  - provide example code to demonstrate functionality
  - use simple test programs to prove the functionality of the library.

Required knowledge

- abstraction of code module interfaces
- component libraries
- design paradigms
- patterns, frameworks and idioms
- reuse components and metrics
- reuse libraries content and structure.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and	Evidence of the ability to:

© Commonwealth of Australia, 2025 Future Skills Organisation

evidence required to demonstrate competency in this unit	• reuse libraries and manage components within the library structure • store, document and improve the quality of reuse components for efficient retrieval and use • organise and communicate library contents.
Context of and specific resources for assessment	Assessment must ensure access to: • software development environment • technical requirements • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of design paradigms • review of the candidate's library structure • evaluation of the library components added.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Component may include:	• classes

© Commonwealth of Australia, 2025 Future Skills Organisation

	• code • design • documents • metadata • methods • modules • test cases.
Reuse components may include:	• code • design patterns • metadata • requirements • specifications.
Project may include:	• business improvement process • business involved in a total organisational change • ebusiness solution involving the total organisation or part of the organisation • systems-only change.
Development environment may include:	• computer language used • development methodology • development tools • operating systems • target environments • version control systems.
User may include:	• department within the organisation • person within a department • third party.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG417A Apply mathematical techniques for software development

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use basic mathematical methods and operations with real numbers and their precedence, the evaluation and construction of formulas in standard and computer notation, and the use of Boolean algebra, data types and computer storage.

Application of the Unit

This unit applies to individuals in software development roles who are required to use mathematical constructions in programming.

Mathematics and algebraic manipulation forms the underpinning structure of computer architecture and memory storage as well as programming languages.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Manipulate algebraic terms, leading to the solution of linear equations	1.1 Position number types on the number line 1.2 Evaluate various numerical expressions involving integers, fractions and indices 1.3 Simplify various algebraic expressions involving integers, fractions and indices
2. Construct mathematical formulas	2.1 Solve simple equations 2.2 Convert formulas between standard algebraic form and computer form 2.3 Create several formulas in standard algebraic form and in computer form
3. Simplify and evaluate Boolean expressions and formulas	3.1 Simplify and evaluate several ***Boolean expressions*** 3.2 Complete truth tables based on simple Boolean expressions and logic 3.3 Simplify and evaluate several formulas
4. Manipulate number and character representation systems	4.1 Convert numbers between binary, decimal and hexadecimal number systems 4.2 Add, subtract and multiply numbers in binary 4.3 Determine binary memory storage of an integer and a character

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- analytical skills to evaluate various numerical expressions
- numeracy skills to solve simple equations
- planning and organisational skills to meet deadlines
- problem-solving skills to recognise and address issues and problems.

Required knowledge

- overview knowledge of mathematical terms and operations and calculation tools.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• solve and evaluate various mathematical problems in various computational contexts
	• demonstrate a knowledge, use and manipulation of:
	  • Boolean algebra
	  • number types
	  • memory storage.

Context of and specific resources for assessment	Assessment must ensure access to: • programming language • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of:
	  • Boolean algebra and how it applies to various computational contexts
	  • different number bases
	  • arithmetic involving different number bases
	• review of candidate's program code containing mathematical

© Commonwealth of Australia, 2025 Future Skills Organisation

	equations.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Boolean expressions may include the use of:	• AND • NOT • OR.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG418A Apply intermediate programming skills in another language

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to undertake intermediate programming tasks using another programming language. The language may be an object-oriented language.

Application of the Unit

This unit applies to programmers in a variety of fields who are required to produce software programs.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Code using user defined data structures	1.1 Design, define and use data structures that are an aggregate of other ***data types***
	1.2 Code using an array of user-defined data types
	1.3 Use the facilities in the language to create, manipulate and destroy dynamic variables, such as arrays
2. Code using standard algorithms	2.1 When coding, use a modular programming approach, including pass-by-reference parameter passing
	2.2 Write code to create and manipulate a 2-D array
	2.3 Create and maintain a sorted array and use language-provided facilities for sorting an array of ordered elements
	2.4 Code a simple binary search technique for use with an array of sorted data
	2.5 Code binary file-handling solutions using random access algorithms
3. Debug code	3.1 Use stand-alone debugging tools or tools provided by ***integrated development environment*** to debug code
	3.2 Use a debugger to trace code execution and examine variable contents to detect and correct errors
4. Document activities	4.1 Follow ***organisational guidelines*** for developing maintainable code and adhere to the provided ***coding standard*** when documenting activities
	4.2 Apply internal ***documentation*** suitable for use by peers to all code created
	4.3 Use documentation tools available in the target ***language*** when documenting activities
5. Test code	5.1 Design and document tests
	5.2 Undertake limited testing of produced code to ensure compliance with program specification
	5.3 Capture and record test results

© Commonwealth of Australia, 2025 Future Skills Organisation

6. Create an application	6.1 Build an application in response to a user requirement 6.2 Access multiple source code files 6.3 Employ integrated development environment project maintenance facilities or make files to automate program building 6.4 Develop a program specification solution when provided with a basic design document 6.5 Design the algorithm, and document, construct and test applications in response to a problem description using the language 6.6 Document the completed application

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - read and interpret program specifications
  - undertake user testing
- communication skills to deal with clients and colleagues
- initiative and enterprise skills to produce a solution to the programming requirement
- literacy skills to:
  - follow organisational guidelines
  - produce documentation required for the chosen methodology
- problem-solving skills to debug problems with object-oriented code
- technical skills to:
  - apply a programming methodology to a project or scenario
  - interpret program specifications
  - translate from problem space to machine space
  - use a range of debugging tools
  - use an integrated development environment
  - use program-coding techniques.

Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

- detailed knowledge of:
  - dynamic variables
  - medium-size application development
  - standard array and file handling algorithms
  - user-defined data structures
- limited range of development methodologies and their application
- limited knowledge of language development.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design and build application programs to a problem scenario and program specification • generate code documentation and test it to confirm that created application meets original specification and solves original problem • produce technical documentation for the application program.
Context of and specific resources for assessment	Assessment must ensure access to: • software development environment • technical requirements • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of:
	  • arrays
	  • dynamic variables
	  • modular programming
	• evaluation of candidate's application
	• review of candidate's technical documentation.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where

© Commonwealth of Australia, 2025 Future Skills Organisation

	appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Data types may include:	• language-provided data types • standard data types • database management system (DBMS)-specific data types.
Integrated development environment may include:	• Borland C++ • Code Warrior • Eclipse • Visual C++ • Visual Studio suite.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access • virus risk.
Coding standard may include:	• ANSI C • GNU.

© Commonwealth of Australia, 2025 Future Skills Organisation

Documentation may follow:	• audit trails • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC), and Australian Standards (AS) standards • naming standards • project-management templates • report writing • version control.
Language may include:	• C • C++ • Java • Small Talk • VB • VB.NET.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG419A Analyse software requirements

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to research and analyse client requirements, produce a range of options, and create a software requirements document.

Application of the Unit

This unit applies to individuals in a range of work environments who are required to perform an analysis role in formulating software requirements.

These individuals may work as database or computer developers, business analysts or project managers.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Gather and confirm client requirements	1.1 Confirm requirements and scope with the ***client*** 1.2 Gather information regarding requirements via ***sources of information*** and business processes 1.3 Analyse client requirements to determine the ***project scope*** and the problem context or opportunity faced by the business 1.4 Document client requirements, project scope, related problems and sources of information
2. Analyse functional and related non-functional requirements	2.1 Map business processes using modelling tools, such as ***unified modelling language*** (UML) 2.2 Determine opportunities for business process efficiencies 2.3 Document functional and related non-functional processes
3. Analyse the feasibility of a project	3.1 Analyse the technical ***feasibility*** of the project 3.2 Analyse the operational feasibility of the project 3.3 Determine the budget and schedule feasibility of the project 3.4 Examine how the project will fit within the organisation
4. Develop high-level system solutions	4.1 Develop and document feasible ***solutions*** for client ***requirements*** 4.2 Explore and document the feasibility of each solution 4.3 Examine alternatives against project ***constraints*** 4.4 Document assumptions, dependencies and required ***resources*** 4.5 Produce a project risk analysis 4.6 Document future requirements
5. Prepare and publish software-requirements documentation	5.1 Develop ***software-requirements document*** 5.2 Submit software-requirements report to ***appropriate person*** for ***project*** approval

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - evaluate audience needs
  - model business processes
- communication skills to:
  - determine appropriate content, formats and styles
  - question and actively listen
- literacy skills to:
  - evaluate and present information
  - write reports for business requiring in-depth analysis and evaluation of information in a defined range of areas
- numeracy skills to produce financial models for identifying, analysing and evaluating a range of solutions
- planning and organisational skills to:
  - identify target audiences
  - plan projects in relation to scope, time, cost, quality, communications and risk management
- problem-solving skills to identify viable solutions to meet client requirements
- research skills to:
  - identify, analyse and evaluate broad features of a particular business domain and best practice in system development
  - identify relevant content
- technical skills to:
  - use modelling tools
  - use word-processing software and multimedia-authoring tools.

Required knowledge

- client-business domain
- content features, such as clarity and readability
- detailed knowledge of the system's current functions
- document design and usability
- functions and features of templates and style guides

© Commonwealth of Australia, 2025 Future Skills Organisation

- instructional-design principles
- role of stakeholders and the degree of stakeholder involvement
- two or more current industry systems development methodologies.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • research and analyse client requirements in order to present a range of solution options • create a software requirements document applying content format and style according to relevant organisational standards.
Context of and specific resources for assessment	Assessment must ensure access to: • specific requirements, including client and functionality • word-processing software, such as Microsoft Word • modelling software currently used in industry • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of candidate's software requirements documentation • verbal or written questioning to assess candidate's knowledge of modelling tools.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required

© Commonwealth of Australia, 2025 Future Skills Organisation

	knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• external organisations • individuals • internal departments • internal employees.
Sources of information may involve:	• business-strategic plans • change-management plans • current systems-design plans • project-management plans.
Project scope may include:	• budget • features • hardware • policy and legal constraints • resource • software • time.
Unified modelling language may include:	• activity diagram • class diagram • use-case diagram • use-case narrative.
Feasibility may include:	• economic and schedule feasibility as well as the principal inputs and outputs • expected improvements and impacts • operational feasibility • physical requirements of each solution • revenue and cost-benefits • risks • technical feasibility.
Solutions may include:	• hardware upgrades • new system implementation

© Commonwealth of Australia, 2025 Future Skills Organisation

	• new hardware • new software • software upgrades • user training.
Requirements may be in reference to:	• application • business • network • organisational policies • people in the organisation • system.
Constraints may include:	• budget • hardware • legal • organisational policy • resources • software • time.
Resources may include:	• equipment • infrastructure • networks • personnel.
Software requirements document may include:	• brochures • help references, such as online help • operational procedures • reports • solution design • solution feasibility • system design • system functionality • system or project specifications • technical manuals • training materials and self-paced tutorials • user guides.
Appropriate person may include:	• authorised business representative • client • supervisor.
Project may include:	• business improvement process • ebusiness solution involving the total organisation or part of the organisation • projects involving a business undertaking a total organisational change

© Commonwealth of Australia, 2025 Future Skills Organisation

	• systems-only change.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG425A Use structured query language

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use a structured query language (SQL) to define, create and manipulate database structures and associated data in a relational database.

Application of the Unit

This unit applies to a wide variety of information technology (IT) roles where relational databases and SQL are being used. SQL database functions are in place for most organisations and have become integral to internet-based data provision and data retrieval.

Examples of job roles where this unit applies would be:

- IT generalists who work in environments in which relational databases and SQL are part of an overall solution
- systems administrators or network engineers who install and manage systems that run on an SQL server
- developers who build applications that use SQL
- IT professionals who work with third-party applications that are built using SQL databases
- database administrators who manage the relational database environment
- advanced users who write queries to extract data from a relational database.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

© Commonwealth of Australia, 2025 Future Skills Organisation

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Write a simple SQL statement to retrieve and sort data	1.1 Retrieve all the data from a single table 1.2 Retrieve data from specific columns in a single table 1.3 Use 'order by' to sort query output
2. Write an SQL statement that selectively retrieves data	2.1 Restrict the number of rows retrieved by placing criteria in the 'where' clause 2.2 Restrict the number of rows retrieved by placing specific criteria in the select statement 2.3 Use ***comparison operators*** in the 'where' clause to compare numeric, character, string, date and time data 2.4 Use ***Boolean operators*** with the correct precedence 2.5 Use criteria in the 'where' clause to check for a range of values, to select values from a list, and to check for values that match a pattern 2.6 Use SQL syntax to suppress duplicate values from query results 2.7 Take action to exclude null values from a query result
3. Write SQL statements that use functions	3.1 Use ***arithmetical operators*** with the correct precedence 3.2 Use string functions and operators to obtain the required query

© Commonwealth of Australia, 2025 Future Skills Organisation

	output 3.3 Use ***mathematical functions*** to obtain the required output, where required 3.4 Use date functions to obtain the required output 3.5 Use SQL aggregate functions to obtain the required output
4. Write SQL statements that use aggregation and filtering	4.1 Use 'group by' to aggregate data by multiple columns 4.2 Sort aggregated data in the query output 4.3 Filter aggregated data using the 'having' clause
5. Write SQL statements that retrieve data from multiple tables	5.1 Employ the inner join syntax to retrieve data from two or more tables 5.2 Use 'left outer', 'right outer' and 'full outer' syntax to join tables in the select statement 5.3 Use correct syntax in the 'where' clause to retrieve data from multiple tables 5.4 Write a union query that retrieves data from more than one table
6. Write and execute SQL sub-queries	6.1 Construct single and nested sub-queries 6.2 Construct sub-queries that return a single row and multiple rows 6.3 Use correlated sub-queries to retrieve required data 6.4 Write sub-queries that use aggregates
7. Create and manipulate tables	7.1 Identify required columns, data types, keys, relationships, indexes and constraints 7.2 Use relevant naming conventions for ***database*** elements 7.3 Create tables that implement required elements 7.4 ***Manipulate tables*** to meet specific requirements
8. Create and use views	8.1 Create views that satisfy ***information requirements*** 8.2 Use check constraints in a view 8.3 Retrieve, insert, update and delete data using a view 8.4 Drop a view from a database
9. Create and use stored procedures	9.1 Create and execute stored procedures that use SQL to retrieve, insert or modify data according to information requirements 9.2 Create and execute stored procedures that use one or more parameters

© Commonwealth of Australia, 2025 Future Skills Organisation

	9.3 Drop a stored procedure from the database 9.4 Create and test database triggers that automate data management or perform specific required data-related functions

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to evaluate business requirements to determine:
  - report and view requirements
  - required data objects and data structures
- numeracy skills to use arithmetical operators and mathematical functions
- planning and organisational skills to analyse and organise data according to business query and reporting requirements
- problem-solving skills to:
  - troubleshoot SQL syntax errors
  - understand typical warnings and errors
- technical skills to:
  - run data modelling, particularly during the design and development phases
  - write SQL queries.

Required knowledge

- client-server concepts
- data-integrity concepts
- data-modelling structures
- databases and database objects, including data types, data structures, identifiers and metadata
- programming concepts
- query design
- relational database design
- SQL client environment
- SQL server architecture.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design a simple relational database • use SQL to create database structures, and store, retrieve and manipulate data in a relational database • create a variety of SQL queries to match client requirements • create and use views and stored procedures.
Context of and specific resources for assessment	Assessment must ensure access to: • client requirements • functionality and scope requirements • naming standards • SQL server and client software • networked computers • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning of required skills and knowledge • evaluation of an existing database created by the candidate. Assessment needs to ensure that the database and queries were created by the candidate using SQL statements as outlined in this unit. It would not be appropriate for the candidate to create the database or queries using graphical tools that generate the required SQL statements.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking

© Commonwealth of Australia, 2025 Future Skills Organisation

	background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Comparison operators may include:	• equal to • greater than • greater than or equal to • less than • less than or equal to • not equal to.
Boolean operators may include the use of:	• AND • NOT • OR.
Arithmetical operators may include:	• addition • modulus division • multiplication • subtraction.
Mathematical functions may include:	• cos • log • power • sin • square root.
Database may include:	• Informix • Ingres • Microsoft SQL server • MySQDB2 • Oracle • Postgre Structured Query Language (Postgre SQL) • Sybase.

© Commonwealth of Australia, 2025 Future Skills Organisation

Manipulating tables may include:	• inserting rows into a table • updating some or all of the data in a table • adding columns to a table • modifying a column within a table • deleting a column from a table • deleting rows from a table • viewing detailed information regarding a table • deleting tables with regard to referential integrity rules.
Information requirements may include:	• letters • other business documents required by the organisation • reports • summaries.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG426A Prepare software development review

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to establish standards associated with IT technical requirements in the context of quality assurance processes applicable to software development.

Application of the Unit

This unit applies to staff in the software development area who are required to ensure that the software development process incorporates quality.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Review software standards	1.1 Ensure that ***stakeholders*** have an understanding of the ***organisational requirements***
	1.2 Document software ***standards*** according to ***project standards***
2. Review implementation standards	2.1 Assign software standards to functions according to detailed technical plan
	2.2 Take action to ensure that ***communication*** and distribution strategies are clear, coherent and meet overall project plan requirements
	2.3 Monitor and report on implementation of standards against acceptance criteria and detailed technical specifications
3. Review software metrics and milestones	3.1 Define metrics related to the project milestones, and timeframe and cost considerations
	3.2 Develop schedule of quality reviews
	3.3 Determine quality considerations by identifying in-process measurement points that relate to critical organisational requirements
	3.4 Determine method to benchmark and scale achievement against stated stakeholders requirements and cost considerations
	3.5 Report metrics and milestones to stakeholders in a clear and coherent manner and take action to ensure written agreement

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse and evaluate a range of solutions using database modelling
- communication skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - liaise with stakeholders
  - provide clear communication and distribution strategies to meet project plan requirements
- literacy skills to provide clear and coherent technical reports
- numeracy skills to account for cost considerations in project plan
- planning and organisational skills to develop a detailed project plan and schedule of quality reviews
- problem-solving skills to develop technical solutions
- technical skills to use metrics software.

Required knowledge

- current industry-accepted software configuration management processes
- quality assurance practices and the identification of standards
- software metrics development
- client business domain.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • establish the standards associated with the IT technical requirements, taking into account quality assurance processes that are in place for the development of software • monitor the application of these standards within the project.
Context of and specific resources for assessment	Assessment must ensure access to: • technical specifications • organisational standards for documentation and version control • project management process and hierarchy • future organisational business processes • software requirement specifications • interface requirement specifications • system requirements • design specifications

© Commonwealth of Australia, 2025 Future Skills Organisation

	• project budget and timeframe • appropriate learning and assessment support when required • modified equipment for people with special needs. Note: Data used in preparing the development review should be validated and come from other projects or related organisational activities.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of:
	  • quality assurance
	  • appropriate quality standards for software development
	  • benchmarking
	• review of candidate's documented software standards
	• evaluation of candidate's report to stakeholders.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Stakeholders may include:	• development team • project team

© Commonwealth of Australia, 2025 Future Skills Organisation

	• sponsor • user.
Organisational requirements may include:	• how and what the organisation wants in regard to work environment • preventative maintenance and diagnostic policy • problem solution processes • roles and technical responsibilities in the IT department • vendor and product service level support agreements.
Standards may include:	• International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • Java coding standards • GNU coding standards • organisational standards • project standards.
Project standards may include:	• change control • delivery against required milestones and budget • development methodology • ease of modification and maintenance • project plan • quality of software modules • reporting mechanisms • sharing of code or libraries.
Communication may include:	• non-verbal methods, such as written messages, emails and memos • verbal methods, such as telephone, meetings and video conferencing.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG427A Use XML effectively

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to create eXtensible markup language (XML) documents, web service applications, and client applications to consume web services.

Application of the Unit

This unit applies to programmers who build Windows or web-based applications that access data in XML format. Others may be programmers who develop and consume web services.

These individuals may work as web developer, web programmer, and application programmer.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Represent structured data with XML	1.1 Gather information by analysing data, documents and problem domains 1.2 Write well-formed XML document by incorporating proper ***structure*** and ***syntax*** 1.3 Validate XML document using ***validation tools*** 1.4 Format XML document using ***styling tools***
2. Access and manipulate XML document	2.1 Create new XML document using an ***XML parser application programming interface*** (API) 2.2 Access and traverse elements and attributes using an XML parser API 2.3 Modify elements and attributes using an XML parser API 2.4 Delete elements and attributes using an XML parser API 2.5 Transform XML document into data object using an XML parser API 2.6 Transform data object into XML document using an XML parser API
3. Create service-oriented application using XML	3.1 Define web services architecture and ***platform elements*** 3.2 Develop and deploy web service applications using a language 3.3 Develop a client application to consume web service using a ***language***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- analytical skills to:
  - analyse and comprehend interdependencies between data fields
  - examine and define structure requirements for data
- communication skills to:
  - liaise with developers on programming matters
  - seek requirements and information from business and technical experts
- literacy skills to:
  - read and interpret program specifications developed by business and technical experts
  - read and interpret technical documentation
  - write a basic documentation
- numeracy skills to identify order and position of element in a sequence, such as first and last
- problem-solving skills to apply basic debugging techniques in the context of software and application development
- research skills to:
  - locate and interrogate complex and varied sources of information
  - source information from available sources
- technical skills to:
  - develop a small scale application
  - perform basic operations of a computer system.

Required knowledge

- basic knowledge of:
  - hierarchy and tree structure
  - programming concept and language
  - world wide web (WWW)
  - data modelling
  - hypertext markup language (HTML)
  - information system features
  - source characteristics.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • produce, validate, transform, format and transport XML data • exchange data between different applications and different platforms by creating and consuming web services.
Context of and specific resources for assessment	Assessment must ensure access to: • tools in accessing and developing a data source, such as integrated development environment (IDE), text editor and web browser • specific requirements, including client and functionality requirements • web server and software that host services to deploy and test web service application • libraries to develop web service and client applications, such as SOAP libraries • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of ability to:
	  • develop XML applications to generate a report in HTML or portable document format (PDF) file by applying certain presentation style using styling tools
	  • develop web or stand-alone applications that access and store information in XML data format
	  • develop and consume web service applications to solve interoperability problem by writing client code in different platform
	• verbal or written questioning to assess candidate's knowledge of XML.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support.

© Commonwealth of Australia, 2025 Future Skills Organisation

	In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Structure must include:	• child element • root element • sub-child element.
Syntax must include these rules:	• case sensitive • closing tag • entity reference • proper nesting • quoted attribute values • single-root element.
Validation tools may include:	• document type definition (DTD) • validating parsers • XML schema • XSD schema validator.
Styling tools may include:	• cascading style sheets (CSS) • eXtensible stylesheet language (XSL) • eXtensible stylesheet language transformations (XSLT).
XML parser application programming interface may include:	• data binding • document object model (DOM) • language-specific API, such as XML API in .NET, JAXP in Java, and E4X in ActionScript • simple API for XML (SAX) • XMLPULL.
Platform elements may include:	• simple object access protocol (SOAP) • universal description, discovery and integration (UDDI) • web services description language (WSDL).
Language may include:	• Java • Net languages

© Commonwealth of Australia, 2025 Future Skills Organisation

	• PHP • Python.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG428A Use regular expressions in programming languages

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use regular expressions for manipulating text and data.

Application of the Unit

Programmers and system administrators apply the skills and knowledge described in this unit. Their main responsibility is to code complex text processing such as search and replace tasks, validate inputs and create regex-based queries.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Differentiate the use of regular expressions in programming languages	1.1 Compare regular expression features among different ***languages*** and tools 1.2 Define different ***regular expression engine*** types and how they work 1.3 Determine the programming language and tools for writing regular expressions
2. Code using regular expressions	2.1 Use regular expression characters, operators, anchors and quantifiers to match patterns of text 2.2 Write regular expression ***patterns*** to search and manipulate text 2.3 Write code to split strings and collect matches 2.4 Validate user input using regular expressions
3. Test regular expressions	3.1 Use ***test tools*** to test and validate regular expressions 3.2 Capture results and edit as required

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - evaluate and compare a range of tools and languages
  - write complex regular expressions for text processing
- literacy skills to read basic technical data
- problem-solving skills to:
  - find best solutions using regular expressions to a wide range of problems
  - perform basic debugging and testing skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- research skills to locate and interrogate complex and varied sources of information
- technical skills to:
  - debug applications using basic debugging techniques
  - test applications using basic testing techniques
  - write code using an integrated development environment (IDE).

Required knowledge

- maths at a basic level
- basic knowledge of:
  - coding
  - database systems
  - object-oriented programming
  - open-source development tools
  - small-size application development.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • build and test regular expressions • match, replace or split text within a document or input field.
Context of and specific resources for assessment	Assessment must ensure access to: • internet in order to use online tools available for regular expressions • IDE • specific tools and licences, depending on particular platform • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess knowledge of writing

© Commonwealth of Australia, 2025 Future Skills Organisation

	regular expressions to solve common text-processing problems
	• evaluation of ability to:
	  • create code to search files and input fields
	  • handle data validation
	  • manipulate text based on patterns.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Languages may include:	• .NET languages • C++ • Java • JavaScript • MySQL • Perl • PHP • PowerShell • Python • Ruby on Rails • XML Schema • XQuery and XPath.

© Commonwealth of Australia, 2025 Future Skills Organisation

Regular expression engine types may include:	• deterministic finite automaton (DFA) • non-deterministic finite automaton (NFA) • portable operating system interface for Unix NFA (POSIX NFA).
Patterns may include:	• alternatives • character classes • grouping • repeating sequences • sub-patterns.
Test tools may include:	• Grep • java.util.regex • PowerGREP • RegexBuddy • RegexMagic • RegexPal • Regular Expression Checker • Rubular.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG501A Apply advanced object-oriented language skills

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to undertake advanced programming tasks using an object-oriented programming language.

Application of the Unit

This unit applies to programmers who are required to produce complex object-oriented programming.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Develop client-server application	1.1 Build and test object-oriented applications 1.2 Make use of the features of the language that enable inter-process communication through at least one ***mechanism*** 1.3 Make use of the features of the language that enable remote procedure calls (RPC) using a class that is based on multiple inheritances 1.4 Build programs using classes that are based on nested classes
2. Develop graphical user interface (GUI)	2.1 Code to implement drag and drop 2.2 Develop GUI help files 2.3 Code using 2-D graphics
3. Build applications	3.1 Code within an existing ***architectural framework*** 3.2 Ensure code follows standards for object-oriented language 3.3 Develop an application that includes data transfer between client and server 3.4 Review the concept of design patterns used by the architectural framework
4. Debug code	4.1 Use stand-alone debugging tools or tools provided by ***integrated development environment*** to examine running code 4.2 Detect logical and coding errors using debugger 4.3 Detect and correct errors by tracing code and examining variable content
5. Test application	5.1 Design and document tests to be undertaken 5.2 Undertake limited testing of produced code to ensure it complies with program specification 5.3 Document test results
6. Document system	6.1 Demonstrate adherence to guidelines for developing maintainable code and company or institutional ***coding standards*** 6.2 Create code using supplied design documents

© Commonwealth of Australia, 2025 Future Skills Organisation

	6.3 Create and maintain program documentation 6.4 Ensure that user documentation in the form of online help is built into applications

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to interpret design specifications, translating requirements from problem space to machine space
- literacy skills to interpret and write technical documents
- planning and organisational skills to produce work within an agreed schedule
- problem-solving skills to debug code
- technical skills to:
  - follow coding standards
  - produce client-server application development
  - produce internal (code) documentation techniques
  - use an integrated development environment (IDE)
  - use good programming techniques
  - use web-enabled application development
  - use debugging techniques
  - write a GUI to interact effectively with operator.

Required knowledge

- detailed knowledge of:
  - architecture of a framework for web-enabled application development
  - techniques for implementing inter-process communication
  - large-size application development
  - testing techniques as applied to distributed application development
  - techniques for implementing third-party supplied code.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design an application to meet user requirements using object-oriented techniques • build an application program using a range of tools for a given problem • test application to ensure that it meets client requirements • document the application.
Context of and specific resources for assessment	Assessment must ensure access to: • database management system (DBMS) • networked computers • software-development environment • technical requirements • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of completed application
	• review of:
	  • application documentation
	  • testing documentation
	• verbal or written questioning to determine knowledge of:
	  • object-oriented techniques and terms
	  • DBMS access
	  • software testing.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Mechanism may include:	• pipes • sockets.
Architectural framework may include:	• J2EE • .NET.
Integrated development environment may include:	• Code Warrior • Eclipse • JBuilder • J-Edit • Visual C++ • Visual Studio suite • WebSphere.
Coding standards may include:	• GNU • Java.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG502A Manage a project using software management tools

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use software-management tools to manage a project from initiation to completion.

Application of the Unit

This unit applies to individuals who either work in a team or individually in order to develop a system to specification and use software management tools in order to manage the delivery of the system within time and budget parameters.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Identify software management tools	1.1 Determine ***software development methodology*** to be used for project development 1.2 Determine ***project-management software*** to be used to manage the development of the project 1.3 Determine ***source-control system*** to manage source code and handle conflicts 1.4 Determine ***collaboration software*** to be used in the project development
2. Implement software management tools	2.1 Create project plan according to software requirement specifications 2.2 Define source-control procedures 2.3 Create collaboration environment
3. Monitor use of software management tools	3.1 Monitor and adjust project plan accordingly to maintain progress according to the project plan 3.2 Ensure code is correctly entered into source control system 3.3 Monitor collaboration environment and resolve issues where required

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to interact with developers and stakeholders during the development cycle
- literacy skills to read and interpret software requirement specifications
- numeracy skills of basic maths for project planning

© Commonwealth of Australia, 2025 Future Skills Organisation

- planning and organisational skills to:
  - create project plan
  - implement software-management tools
- research skills to determine appropriate software-management tools
- technical skills to use software-management tools.

Required knowledge

- basic knowledge of:
  - project management
  - software development life cycle (SDLC)
  - software requirement specifications
  - version control.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • use software-management tools to manage the development of a system to specification • prepare a project plan using project-management software • use source-control software to manage code • use collaboration tools.
Context of and specific resources for assessment	Assessment must ensure access to: • internet • project-management software • source-control software • specific tools and licences, depending on particular platform • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of candidate's project plan

© Commonwealth of Australia, 2025 Future Skills Organisation

	• verbal or written questioning on knowledge of:
	  • source-control methods
	  • collaboration methods.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Software development methodology may include:	• agile software development • joint applications design • prototyping • rapid application development • waterfall.
Project-management software may include:	• dotProject • FastTrack Schedule • Microsoft Project • OpenProj • Oracle Project Portfolio Management • Teamwork.
Source-control system may include:	• CVS • Microsoft Visual SourceSafe.
Collaboration software	• blogs

© Commonwealth of Australia, 2025 Future Skills Organisation

may include:	• forums • Microsoft SharePoint • wikis • Zimbra.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG503A Debug and monitor applications

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to debug and monitor a software application.

Application of the Unit

This unit addresses the knowledge and processes necessary for debugging and monitoring software applications.

This unit is relevant to those who work as developers, testers and support engineers who use logging and tracing techniques to identify software problems and monitor systems.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Implement a framework for logging and error handling	1.1 Determine the ***logging framework*** for writing text messages at a certain ***level*** or priority to log files or sending data to monitoring applications 1.2 Create a custom event log for an application 1.3 Analyse the logs to check the state of the running application
2. Debug and trace an application	2.1 Apply basic debugging techniques such as breakpoints and stepping through and over code and stack trace 2.2 Identify and use ***tools*** to debug software applications 2.3 Write code for debugging (print, assert and stop statements)
3. Monitor the application performance	3.1 Identify and use ***profiling tools*** to verify the parts of the system that consume the most resources, such as random access memory (RAM), central processing unit (CPU) and time 3.2 Analyse performance issues and apply changes to improve the performance of the application

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - evaluate and compare results from different profiling tools
  - evaluate log file information and develop solutions as a result of analysis
- communication skills to recommend an approach to debugging and performance issues

© Commonwealth of Australia, 2025 Future Skills Organisation

- initiative and enterprise skills to identify potential improvements to the application performance
- literacy skills to:
  - read log files
  - write log messages
- numeracy skills to read and interpret the monitoring applications data
- research skills to keep up-to-date with monitoring and debugging technologies and tools
- technical skills to:
  - use software development tools
  - write code to create custom event log.

Required knowledge

- basic knowledge of:
  - computer hardware, networking and components
  - database-management systems
  - object-oriented programming
  - open-source development tools
- maths at a basic level
- procedures for developing small-size applications
- software development life cycle (SDLC).

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • create error logging framework to persist error logs, debug and trace an application, and plan a performance-monitoring strategy • use debugging techniques and tools, and profiling tools and analyse performance issues.
Context of and specific resources for assessment	Assessment must ensure access to: • client and server system • sufficient privileges to access and use performance monitoring tools in client and server systems

© Commonwealth of Australia, 2025 Future Skills Organisation

	• debugging tools • specific tools and licences, depending on particular platform • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • written or verbal questioning of debugging, diagnostics and monitoring strategy • evaluation of candidate's logging framework and custom event log for an application • direct observation of candidate using an integrated development environment (IDE) for code development and debugging and the monitoring applications.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Logging framework may include:	• Java logging framework:
	  • Apache Commons Logging
	  • Java Logging application programming interface (API)
	  • Log4J

© Commonwealth of Australia, 2025 Future Skills Organisation

	• SLF4J
	• .NET logging and tracing tools:
	  • C# Logger
	  • DebugWriter
	  • Log4net
	  • LogThis
	  • Logview4net
	  • Microsoft's Enterprise Library
	  • NetTrace
	  • TrafficMonitor.

Level may include:	• debug • error • fatal • information • trace • warning.
Tools may include:	• Eclipse debugger • Firebug (JavaScript debugger) • Java debugger • NetBeans debugger • Visual Studio debugger • WinDBG, NTSD, and CDB to debug .NET applications.

Profiling tools may include:	• CLR profiler
	• Microsoft operations manager
	• open-source profilers in Java:
	  • Cougaar Memory Profiler
	  • Extensible Java Profiler
	  • JMP
	  • NetBeans Profiler
	  • TomcatProbe
	• structured query language (SQL) profiler
	• system monitor
	• Visual Studio profiler.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG504A Deploy an application to a production environment

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to install, uninstall and configure an application to a production environment.

Application of the Unit

This unit applies to individuals responsible for software deployments of enterprise applications. They may work as application developers, administrators, release managers or deployment coordinators.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Plan software installation	1.1 Determine if a client system and a server system meet the ***requirements*** for installation 1.2 Determine an ***installation method*** 1.3 Review ***security requirements*** 1.4 Prepare ***software-installation plan***
2. Perform software installation	2.1 Create an ***install package*** for an application 2.2 Test the install package in a test environment 2.3 Deploy the install package to a production environment
3. Plan and test application removal	3.1 Create an uninstall package for removal of installed components 3.2 Test the uninstall package in a test environment
4. Perform database installation	4.1 ***Deploy a database*** from the development environment to the production environment 4.2 Specify the connection string to the database
5. Manage application configuration	5.1 Configure the application to use parameters that are valid for the production environment 5.2 Use configuration files to modify deployment variables 5.3 Configure security features in an application

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

- interact with developers and stakeholders during the deployment process
- negotiate requirements to deploy the application with client
- literacy skills to:
  - read and interpret complex technical and non-technical documents
  - write a software installation plan document
- planning and organisational skills to:
  - organise resources for deployment
  - plan software installation
- problem-solving skills to troubleshoot the software installation
- technical skills to:
  - test client and server system specifications
  - write code to create install and uninstall packages.

Required knowledge

- basic knowledge of:
  - database management systems
  - software development life cycle (SDLC)
  - web hosting and domain name registration provider
- detailed knowledge of:
  - coding to create deployment application
  - IT hardware, software and security protocols and standards
  - organisational IT policies, plans and OHS procedures.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• deploy software applications to a production environment including:
	  • preparing software installation plan
	  • planning application re-installation
	  • planning database installation
	  • planning application removal

© Commonwealth of Australia, 2025 Future Skills Organisation

	• performing software deployment • using configuration files to easily modify deployment variables • troubleshooting software installation.
Context of and specific resources for assessment	Assessment must ensure access to: • client and server system • sufficient privileges to install packages in client and server systems • database management system software • deployment tools • specific tools and licences, depending on particular platform • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• review of candidate's software installation plan
	• evaluation of:
	  • software installation and removal
	  • database installation
	  • configuration files.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Requirements may include:	• hard disk space • hardware requirements • memory size • operating system • platform • processor • software requirements • target framework.

Installation method may include:	• ClickOnce
	• domain name system (DNS) entries, hosting and file transfer protocol (FTP)
	• MSI
	• standard Java deployment technologies:
	  • executable Java Archive Files (JARs)
	  • Java WebStart
	  • launch scripts
	• third party
	• Xcopy

Security requirements may include:	• authentication and authorisation • database security requirements • network security requirements.
Software installation plan may include:	• backup procedures • configuration definition • constraints • data requirements • dependences • installation procedures • release notes • resource requirements.
Install package may include:	• cab project • executable JAR files • set up project for Windows applications • web setup project.

© Commonwealth of Australia, 2025 Future Skills Organisation

Deploying a database may include:	• using file transfer protocol (FTP) to back up database • publishing the database using Database Publishing Wizard • using host-provider tools.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG505A Build advanced user interface

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design, build and test advanced user interface (UI), including interaction techniques, rich controls, improved client-side validation, customisation and personalisation, graphics and multimedia.

Application of the Unit

This unit is relevant to those who work as user interface designers responsible for managing and implementing complex UI design.

This unit focuses on the skills and knowledge needed to implement effective complex user interfaces. It includes, advanced layout and style techniques, interactions, navigations, rich components, client-side validation, graphics, multimedia and templates.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Plan UI design	1.1 Determine appropriate ***client technology*** and ***development tools*** and platform for writing the UI 1.2 Review conceptual design with client and edit as required 1.3 Design ***UI layout and structure***
2. Implement interaction techniques	2.1 Apply ***interaction design patterns*** 2.2 Implement ***client-side validation***
3. Implement customised and personalised UI	3.1 Build ***customisable UI*** to allow users to select own custom version of the underlying application 3.2 Build ***personalised UI*** to improve user experience
4. Implement graphics and multimedia	4.1 Create and display graphics 4.2 Add multimedia content to an application

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to define UI structure
- communication skills to review UI design with client
- literacy skills to read and interpret technical documentation
- numeracy skills to make basic calculations for specifying the layout of the UI
- research skills to research and evaluate new interactive technologies
- technical skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

- build basic UI
- create applications using basic programming techniques
- create web pages using hypertext markup language (HTML) and cascading style sheet (CSS).

Required knowledge

- basic knowledge of:
  - client-side programming
  - object-oriented programming
  - web design, including HTML, CSS and JavaScript
- detailed knowledge of UI prototyping
- documenting requirements for UI.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• apply advanced techniques to create complex user interface, including:
	  • user and custom controls
	  • enhanced client validation
	  • multimedia audio and video
	  • graphics 2-D and 3-D
	  • strategies to enhance user experiences.

Context of and specific resources for assessment	Assessment must ensure access to: • integrated development environment (IDE) • client and server system • multimedia tools • specific tools and licences, depending on particular platform • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are

© Commonwealth of Australia, 2025 Future Skills Organisation

	appropriate for this unit:
	• review of candidate's UI layout and structure
	• evaluation of candidate's UI:
	  • functions
	  • user validation
	  • multimedia content
	  • customisation and personalisation.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client technology may include:	• AJAX • Java Server Faces • Java server pages and Struts • .NET ASP • Silverlight framework • Windows Forms • Windows Presentation Foundation.
Development tools may include:	• Borland JBuilder • Eclipse Java IDE • Microsoft Expression

© Commonwealth of Australia, 2025 Future Skills Organisation

	• NetBeans Java IDE • Oracle JDeveloper • Visual studio.
UI layout and structure may include:	• grouping by group controls • intuitiveness • size • spacing and positioning by layout controls.

Interaction design patterns may include:	• choices:
	  • options
	  • rating
	  • selectors
	• data models:
	  • carousel
	  • details view
	  • grid view
	  • list view
	  • panels
	  • tabs
	• navigation models:
	  • links
	  • menus
	  • trees
	• search models:
	  • auto-complete
	  • help wizard
	  • site map
	  • tag cloud
	  • tips.

Client-side validation may include:	• ASP validation controls • JavaScript client-side validation • jQuery client-side validation • regular expression validation • struts validator framework • xVal validation framework for ASP.NET MVC.
Customisable UI may include:	• custom controls • custom HTML and eXtensible stylesheet language transformations (XSLT) • web parts • Windows Presentation Foundation (Syndicated Client Experiences [SCE]).

© Commonwealth of Australia, 2025 Future Skills Organisation

Personalised UI may include:	• personalisation providers • personalised styles and themes • user profiles • web parts.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG506A Design application architecture

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design the structure of software or systems components and how they interact. The unit focuses on layered architectural style.

Application of the Unit

This unit is relevant to those who work as software architects, developers, designers, software engineers or programmers responsible for designing and building solution architects.

This unit addresses the knowledge and processes necessary to produce the high-level design (blueprint) of a system.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Gather and confirm architecture requirements	1.1 Gather information regarding architectural requirements 1.2 Establish and document ***architectural requirements***
2. Design layered architecture	2.1 Separate the areas of concern into logical ***layers*** 2.2 Determine the ***cross-cutting concerns*** 2.3 Define the system into components 2.4 Identify the responsibilities of each component 2.5 Identify interconnections between components
3. Plan a strategy to re-use components	3.1 Determine an appropriate strategy for communicating with external systems 3.2 Interact with existing legacy components
4. Design for globalisation and localisation	4.1 Determine culture-specific information 4.2 Consider database design features 4.3 Select appropriate user interface 4.4 Develop software product for worldwide distribution 4.5 Develop software product for specific country

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - assign a priority to each architectural requirement
  - determine areas of concern
- communication skills to:
  - interact with others of different cultures to globalise a software product
  - interact with stakeholders to gather architectural requirements
- initiative and enterprise skills to identify potential improvements to the structure of software and existing systems
- literacy skills to:
  - maintain a complete list of architectural requirements
  - prepare architectural requirements questionnaire to system stakeholders
- problem-solving skills to:
  - communicate with external systems
  - determine the possibility of reusing the existing legacy components
- technical skills to:
  - analyse software requirements
  - design software applications.

Required knowledge

- basic knowledge of database design
- current software development methodologies
- detailed knowledge of:
  - object-oriented programming
  - software development life cycle.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design layered applications to increase application performance, scalability and re-usability • create flexible and configurable applications and adapt to suit different locales • adapt a software product to a particular language and culture of the target market.

© Commonwealth of Australia, 2025 Future Skills Organisation

Context of and specific resources for assessment	Assessment must ensure access to: • specific requirements, including functional and non-functional requirements • tools to design software architecture • culture-specific information for the target culture or language • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of candidate's architecture requirements documentation • evaluation of software-layered architecture.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Architectural requirements may include:	• design requirement • functional requirements • non-functional requirements: • maintainability

© Commonwealth of Australia, 2025 Future Skills Organisation

	• performance • reliability • scalability • security • usability • quality requirements.
Layers may include:	• business logic layer (BLL) • data-access layer (DAL) • services layer • user interface (UI) layer.
Cross-cutting concerns may include:	• caching (improve performance) • communications (protocols) • configuration management • data protection • operational management • security: • authentication • authorisation.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG507A Implement security for applications

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to implement security for software applications. It includes code access security, security access control, cryptographic and secure input and output handling.

Application of the Unit

This unit applies to individuals responsible for coding secure software applications. These individuals may work as software developers, software engineers, system and security administrators and testers.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Implement policy-based code-access security in an application	1.1 Demonstrate understanding of the purpose of ***application security*** in software development 1.2 Configure platform security configuration files using ***security configuration tools*** 1.3 Define a custom ***code access permission*** to restrict access to protected resources or run protected operations
2. Implement security access control in an application	2.1 Plan ***authentication and authorisation strategy*** 2.2 Develop an appropriate authentication and authorisation strategy for an application
3. Write code to encrypt and decrypt data for secure communication	3.1 Demonstrate understanding of the standard ***cryptographic algorithms*** 3.2 Encrypt and decrypt data using standard cryptographic algorithms
4. Protect an application against injections	4.1 Plan ***secure input and output handling*** to prevent vulnerabilities related to code injections 4.2 Use secure input and output handling

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - deal with common programming security problems
  - identify security weaknesses in existing code
- literacy skills to evaluate complex and varied information and concepts in software security

© Commonwealth of Australia, 2025 Future Skills Organisation

- planning and organisational skills to ensure privacy for users and protect sensitive user data
- problem-solving skills to develop and refine security access control strategies
- technical skills to:
  - use security configuration tools
  - write secure code for application.

Required knowledge

- basic hardware and networking knowledge
- basic programming algorithms
- detailed knowledge of object-oriented programming
- maths at basic level.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • create secure applications • plan security strategies • ensure safe communications • prevent security attacks.
Context of and specific resources for assessment	Assessment must ensure access to: • security configuration tools • software development environment • testing and debugging tools • network resources • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of: • application security concepts

© Commonwealth of Australia, 2025 Future Skills Organisation

	• cryptographic algorithms • application protection against injections • evaluation of candidate's ability to: • create secure code and perform security configurations • apply secure communications • protect data and code.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Application security may include:	• code protection • cryptography • injections • security access control (SAC): • authentication • authorisation.
Security configuration tools may include:	• Java Policy Tool (policytool.exe) for setting code and principal-based security policies • .NET security configuration files: • enterprise • machine

© Commonwealth of Australia, 2025 Future Skills Organisation

	• user
	• .NET security configuration tools:
	  • Caspol.exe
	  • Mscorcfg.msc.

Code access permission may include:	• file system rights and authorisation • java.security.Permission or java.security.BasicPermission • NET Code Access Permission class.
Authentication and authorisation strategy may include:	• certificate management • login mechanism • membership provider • role-based security • user access control (UAC) • web service rights and authentication.
Cryptographic algorithms may include:	• asymmetric • hashes • password-based encryption • signatures • symmetric.
Secure input and output handling may include:	• escaping • input encoding • input validation • output encoding • parameterised structured query language (SQL) queries.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG508A Create mashups

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to combine content from more than one source into new integrated applications and create custom mashups.

Application of the Unit

This unit is for individuals responsible for developing modern web application (Web 2.0) using the enabling technologies to create mashup applications.

This unit addresses the knowledge and skills necessary to remix content from external data services, evaluate Web 2.0 application programming interfaces (APIs) and create mashups.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Remix elements from multiple websites to create new mashups	1.1 Demonstrate understanding of ***Web 2.0 concepts*** and the web as a platform 1.2 Search various API providers and the types of ***services*** available 1.3 Evaluate and select which APIs to use 1.4 Determine which ***programming language*** to use with the selected APIs 1.5 Create mashups of several services
2. Use mashup tools	2.1 Search various ***mashup tools*** 2.2 Evaluate and select which tool to use 2.3 Create mashups using the selected tool

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - choose the right APIs for the mashup
  - evaluate and compare a range of API providers
- literacy skills to:
  - read and interpret API-specific tutorials and introductions
  - read API provider documentation
- problem-solving skills to find the best possible mashup solution to a problem
- research skills to source information from available sources

© Commonwealth of Australia, 2025 Future Skills Organisation

- technical skills to:
  - create basic mashups with coding
  - use an integrated development environment (IDE)
  - use mashup tools.

Required knowledge

- basic knowledge of:
  - HTML, CSS and JavaScript
  - server-side scripting language
  - XML, web services, AJAX and metadata
- web design
- web development.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • create programmable web applications that combine data and functionality from various sources to create new services.
Context of and specific resources for assessment	Assessment must ensure access to: • the internet, in order to use mashup tools and API providers • Web 2.0 tools • IDE • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess knowledge of Web 2.0 concepts and technologies • review of output from: • mashups using code

© Commonwealth of Australia, 2025 Future Skills Organisation

	• mashups using mashup tools.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Web 2.0 concepts may include:	• AJAX • atom syndication format • blogs • representational state transfer (REST) • rich site summary (RSS) feeds • simple object access protocol (SOAP) • social bookmarking and folksonomies • social networking sites • tagging • user-generated content • web services technology • wikis.
Services may include:	• blogging services • book search services • calendar services • chart creation service • content sharing service

© Commonwealth of Australia, 2025 Future Skills Organisation

	• CRM services • geocoding services • mapping services • music search services • online news • photo sharing services • search services • shopping services • SMS, WAP and email messaging • social bookmarking • social networking service • telephony service • video sharing and search • weather forecast services • widgets.
Programming language may include:	• Java • JavaScript • NET • PHP • Ruby.
Mashup tools may include:	• Apatar • Chickenfoot • Dapper • Google Mashup Editor (GME) • IBM Mashup Center • Intel Mash Maker • WaveMaker • Wayfaring • Yahoo Pipes.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG509A Build using rapid application development

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to build using rapid application development (RAD) tools.

Application of the Unit

This unit applies to programmers who are required to develop new systems.

RAD building for a software project should be carefully managed to deliver maximum benefit for cost and quality. Selection of the most appropriate RAD tool will take into consideration the targeted platform or multi-platform options.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Construct application using RAD	1.1 Capture and record business rules using a methodology well-suited for the chosen RAD and ***RAD techniques***
	1.2 Design ***application*** with focus on modularity and future extension
	1.3 Develop code by other ***RAD tools***
	1.4 Build and demonstrate completed transaction to user for revision within the agreed terms of reference
	1.5 Take action to ensure that design caters for continuous change by involving user in iteration process
	1.6 Provide quality assurance (QA) testing throughout the phase and provide feedback to ***appropriate person***
	1.7 Demonstrate use of code optimisers and performance tools
2. Prepare handover stage	2.1 Track implemented modules and follow up where necessary with appropriate person
	2.2 Review user and builds for each module in the deliverables as preparation for handover
	2.3 Compare ***specifications*** and implementation schedules for each module and confirm the functional requirements according to specifications
	2.4 Document the completed work

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- communication skills to liaise with users while managing iterative changes in design by involving end users in the development process
- literacy skills to write technical documents and present written material for review
- planning and organisational skills to keep accurate technical records
- problem-solving skills to solve problems with design
- technical skills to identify, analyse and evaluate a range of solutions using prototyping tools.

Required knowledge

- broad knowledge of industry-accepted prototyping tools
- overview knowledge of:
  - quality assurance practices
  - client business domain
  - role of stakeholders and the degree of stakeholder involvement
  - three or more current industry development methodologies
  - three or more programming languages.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design application and develop high quality code according to client specifications • provide QA testing and monitoring • demonstrate use of code optimisers using RAD techniques • document completed work.
Context of and specific resources for assessment	Assessment must ensure access to: • CASE repository to facilitate the re-use of templates and components • CASE tools • code generator • detailed user requirements • prototyping software

© Commonwealth of Australia, 2025 Future Skills Organisation

	• requirements document, including model and scope • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of completed code • review of documentation • verbal or written questioning to assess knowledge of prototyping and RAD process.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

RAD techniques may include:	• computer-aided software engineering (CASE) tools • iterative life cycles • prototyping • re-use of applications, templates and code • SWAT teams • timebox-development methodology • workshops.

© Commonwealth of Australia, 2025 Future Skills Organisation

Application may include:	• commercial software applications
	• organisation-specific software:
	  • communication packages
	  • database
	  • graphic
	  • presentation functionalities
	  • spreadsheet
	  • word-processing.

RAD tools may include:	• CASE tools • code generators.
User may include:	• department within the organisation • person within a department • third party.
Appropriate person may include:	• authorised business representative • client • supervisor.
Specifications may include:	• current system functionality • metrics • project plan • software requirements • technical requirements • user problem statement.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG510A Maintain custom software

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to maintain software so that it continues to meet client user requirements.

Application of the Unit

This unit applies to programmers who are required to maintain existing software.

Organisations may use either software that has been developed in-house or off-the-shelf packages. Some customisation generally occurs with off-the-shelf packages. It is important that all changes made to standard software products are documented. Changes may be made in response to user requests or organisational requirements.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine software fault to be corrected	1.1 Collect and review software fault details from sources 1.2 Obtain ***technical data*** to assist in identifying problem 1.3 Clarify nature of the problem with ***appropriate person*** where necessary
2. Identify and isolate fault	2.1 Review program documentation for specific modules in order to pinpoint problem areas 2.2 Review source code for logic errors 2.3 Read manuals, help files and 'read me files' to determine if there is a known fix 2.4 Undertake additional testing to identify or duplicate fault 2.5 Escalate difficult faults that cannot be identified
3. Design fix for fault	3.1 Ensure requirements to fix the fault are understood by client 3.2 Consider alternative options and choose the most effective solution 3.3 Consider the possible impact of the fix on other parts of the system 3.4 Document changes according to organisational guidelines
4. Carry out fix to software	4.1 Identify and obtain access to appropriate software development tools, source code and libraries 4.2 Construct appropriate code to correct the fault according to organisational and programming standards 4.3 Compile or regenerate code for changed programs and associated modules 4.4 Correct and resubmit code until error free 4.5 Document changes according to organisational and programming standards

© Commonwealth of Australia, 2025 Future Skills Organisation

5. Test fix and associated system areas	5.1 Check logic to ensure that it works with test data, corrects original fault, and does not cause problems elsewhere 5.2 Request users to perform acceptance testing and record outcomes
6. Hand over to systems operations area	6.1 Update ***documentation*** to reflect all changes made 6.2 Confirm acceptance by systems operations and arrange for sign-off according to procedures

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to review software fault details and interpret complex technical data
- communication skills to liaise with clients
- literacy skills to interpret and write technical documents
- planning and organisational skills to ensure adherence to standards and procedures in programming
- problem-solving skills to consider alternative options and possible impacts
- technical skills to use, customise and adapt software packages.

Required knowledge

- detailed knowledge of:
  - concepts relating to system performance
  - concepts relating to testing of software systems
  - current industry-accepted hardware and software products, and their general features and capabilities
  - system's current functionality.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • effectively maintain custom software • apply a fix that works • deploy a possible range of solutions to produce the same results.
Context of and specific resources for assessment	Assessment must ensure access to: • fault logs and help-desk reports • software development tools, documentation and environment • source code and libraries • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of completed code
	• review of candidate's updated program documentation
	• verbal or written questioning to determine candidate's understanding of:
	  • impact of changes on applications and systems
	  • programming standards.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Technical data may be obtained from:	• error messages • memory dumps • software traces • other information.
Appropriate person may include:	• authorised business representative • client • supervisor.
Documentation may follow:	• audit trails • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • maintaining equipment inventory, client training and satisfaction reports • naming standards • project-management templates and report writing • version control.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG511A Monitor and support data conversion to new IT system

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to monitor and support data conversion to a new IT system.

Application of the Unit

This unit applies to individuals involved in the development process who are required to convert data to work on new systems.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Monitor data conversion	1.1 Obtain conversion ***supporting documentation*** and apply to conversion process 1.2 Protect production data by taking action to ensure backup before conversion 1.3 Determine ***requirements*** of the ***client*** and impact on business operation 1.4 Identify and confirm ***software***, ***hardware*** or ***environmental prerequisites*** in the conversion plan 1.5 Validate data accuracy and integrity according to conversion specifications 1.6 Identify data rejected by conversion ***tools*** and carry out actions detailed in conversion plan 1.7 Document data rejection or errant behaviour of the conversion process
2. Support conversion	2.1 Verify results 2.2 Present to ***appropriate person*** and obtain sign-off 2.3 Maintain and document backup copies of conversion files according to requirements 2.4 Develop clear and coherent ***technical documentation***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with clients
- literacy skills to evaluate and write technical documents

© Commonwealth of Australia, 2025 Future Skills Organisation

- problem-solving skills to develop strategic initiatives, such as data accuracy and integrity are validated according to conversion specifications
- problem-solving skills to address data rejected by converters
- technical skills to operate software, hardware or environmental prerequisites listed in the conversion plan.

Required knowledge

- current data modelling methodologies
- current industry data conversion tools
- current industry-accepted hardware and software products, including their general features and capabilities
- data conversion from legacy systems.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify inherent data requirements of both old and upgraded or new systems in order to achieve a physical transfer or transformation of data • back up data before conversion process • validate converted data • document the process.
Context of and specific resources for assessment	Assessment must ensure access to: • conversion specifications • data conversion plan • documentation guidelines • sample data to be converted • data conversion tools • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• direct observation of candidate's handling of rejected data • review of candidate's technical documentation • verbal or written questioning to assess candidate's knowledge of backups.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Supporting documentation may include:	• conversion specifications • data conversion plan • documentation guidelines.
Requirements may relate to:	• application • business • database • network • people in the organisation • platform • system.
Client may include:	• clubs • external organisations • individuals • internal departments • internal employees.

© Commonwealth of Australia, 2025 Future Skills Organisation

Software may include:	• commercial software applications • in-house or customised software • organisation-specific software • packaged software.
Hardware may include:	• modems and other connectivity devices, such as digital subscriber line (DSL) modems • networks • personal computers • remote sites • servers • workstations.
Environmental prerequisites may consist of:	• air circulation • dust • extreme cold • heat • moisture • temperature stability.
Tools may include:	• data management tools • tools for cleansing data (identifying invalid field entries and forcing to legal values) • tools for extraction and transformation • tools that analyse data quality.
Appropriate person may include:	• authorised business representative • client • supervisor.
Technical documentation may include:	• brochures • help references • online help • project specifications • reports • technical manuals • training materials and self-paced tutorials • user guides.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG512A Prepare for the build phase of an IT system

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to prepare the development environment for the build phase and actual coding of the IT system.

Application of the Unit

This unit applies to individuals in software development environments who are required to organise documents, environments and tools for the build phase of the software development.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify best development platform for project	1.1 Identify ***requirements*** of the ***development platform*** using the detailed ***technical specifications*** 1.2 Match the technical specification of the development platform with the technical specification of the project and ***quality standards***
2. Identify best development tools for project	2.1 Identify functional requirements for development tools using the detailed technical specifications and other ***program documentation*** 2.2 Evaluate development tools for match with requirements and document evaluation outcomes 2.3 Select appropriate ***development tools***
3. Prepare development environment	3.1 Obtain ***components*** for development platform, development tools and required ***hardware*** 3.2 Install, configure and test development platform and tools 3.3 Document the configuration of the development platform

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to identify, analyse and evaluate a range of solutions
- literacy skills to:
  - read and correctly interpret technical design documentation
  - write quality-related software documentation
- planning and organisational skills to complete the preparation tasks according to project timescales
- research skills to identify best development tools for project
- technical skills to install, configure and test a variety of development tools and platforms.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required knowledge

- client business domain
- current industry-accepted coding methods and standards in a recognised language and database management system (DBMS) modelling techniques
- processes and techniques related to software and database design, architectures and their technical requirements
- quality assurance practices.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • meet technical requirements by successfully preparing the development environment.
Context of and specific resources for assessment	Assessment must ensure access to: • design specification • software requirement specifications • system requirements • technical specifications • version control standards • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of candidate's completed development environment • review of candidate's documented configuration • verbal or written questioning to assess candidate's knowledge of software development environments.
Guidance information	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where

© Commonwealth of Australia, 2025 Future Skills Organisation

for assessment	appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Requirements may relate to:	• application • business • database • network • people in the organisation • platform • system.
Development platform may include:	• computer language used • development methodology • development tools • operating systems • target environments • version control systems.
Technical specification may include:	• system functionality • technical requirements • user problem statement.
Quality standards include:	• AS3925.1-1994 Software quality assurance - plans • AS4042-1992 Software configuration management plans • AS4043-1992 Software configuration management • AS/NZS 14102:1998 Information technology - guideline for

© Commonwealth of Australia, 2025 Future Skills Organisation

	evaluation and selection of CASE tools • AS/NZS4258:1994 Software user documentation process • AS/NZS ISO/IEC 12207:1997 Information technology - Software life cycle processes Note: International and Australian standards are updated and changed on a regular basis. It is therefore important to check the Standards Australia website on a regular basis for new standards.
Program documentation may include:	• architecture documentation • code comments • design documents • in-code documentation • internal module documentation • release documents • requirement documents • test documents • user manuals.
Development tools may include:	• computer-aided software engineering (CASE) tools • fourth-generation language • program generator • screen generator.
Components may include:	• CD and DVD drives • central processing unit (CPU) • complementary metal oxide semiconductor (CMOS) battery • CPU upgrades • drives • fax or modem cards • interface cards • motherboards • random access memory (RAM) upgrades.
Hardware may include:	• modems and other connectivity devices, such as asymmetric digital subscriber line (ADSL) modems • networks • personal computers • remote sites • servers • workstations.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG513A Coordinate the build phase of an IT system

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to coordinate activities to be carried out during the build phase and actual coding of an IT system.

The unit focuses on the day-to-day management of tasks associated with making sure that the software product is developed according to the design specifications and project plan.

Application of the Unit

This unit applies to individuals in the software development area who are required to synchronise the coding activities of a new system.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Prepare work	1.1 Review the specifications and standards for the ***project***
	1.2 Review the project documentation for the ***development environment***
	1.3 Analyse and confirm that the development environment matches the project documentation and meets standards
	1.4 Select ***development tools***
2. Coordinate work	2.1 Determine work units based on the design
	2.2 Delegate work units to the appropriate developers
	2.3 Brief developers on standards, procedures, schedules and other ***requirements***
	2.4 Implement project management techniques to ensure that all tasks are completed on time and according to standards and the specification
3. Coordinate development environment	3.1 Implement and test changes to the development environment and document outcomes
	3.2 Update the project documentation for the development environment

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse requirements and confirm environment is appropriate to the tasks involved

© Commonwealth of Australia, 2025 Future Skills Organisation

- communication skills to brief team members on their tasks
- literacy skills to review and write technical documents
- planning and organisational skills to manage a project
- problem-solving skills to coordinate build phase
- technical skills to:
  - identify, analyse and evaluate algorithms for a range of solutions
  - model data for identifying, analysing and evaluating a range of solutions
  - review coding work on units under testing.

Required knowledge

- client business domain to inform the system build
- client-server architecture
- current industry-accepted coding in a recognised language, including features and capabilities
- current industry-accepted database management system (DBMS) modelling techniques
- current industry-accepted hardware and software products, including their general features and capabilities
- at least three or more current principles of databases
- database design
- quality assurance practices.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • coordinate coding, testing, administration and graphical user interface (GUI) design • fulfil technical requirements by successfully managing allocated tasks • understand performance benchmarks and module design • control the testing process.
Context of and specific resources for assessment	Assessment must ensure access to: • design specification • software requirement specifications

© Commonwealth of Australia, 2025 Future Skills Organisation

	• system requirements • technical specifications • version control standards • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of candidate's project documentation
	• review of candidate's tested development environment and documentation
	• verbal or written questioning to assess candidate's knowledge of:
	  • software development
	  • project management
	  • testing
	• direct observation of candidate briefing developers on standards, procedures and schedules.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

Specifications may include:	• current system functionality • metrics • project plan • software requirements • technical requirements • user problem statement.
Project may include:	• business improvement process • business involved in a total organisational change • ebusiness solution involving the total organisation or part of the organisation • systems-only change.
Development environment may include:	• computer language used • development methodology • development tools • operating systems • target environments • version control systems.
Development tools may include:	• computer-aided software engineering (CASE) tools • fourth-generation language • program generator • screen generator.
Requirements may relate to:	• application • business • database • network • people in the organisation • platform • system.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG514A Prepare for software development using rapid application development

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to carry out rapid application development (RAD), in the context of preparing for software development.

Application of the Unit

This unit applies to programmers in a variety of IT areas who are required to develop software using RAD.

The selection and use of suitable RAD tools can have an impact on cost and quality of a software project and should be carefully selected and used with code projects.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine RAD requirements	1.1 Select and demonstrate use of the most suitable industry standard ***tool set***
	1.2 Implement a prioritised plan using a series of recursive stages of build and review for delivery of the ***system***
	1.3 Implement and incorporate a physical ***database***
	1.4 Identify, ***document*** and schedule modules to be implemented by incremental development techniques
	1.5 Identify and formally allocate responsibilities to authorised user and suitably skilled builders for each module
	1.6 Plan for and document the endorsement of reviews, administration schedules and development milestones
2. Determine work metrics	2.1 Set development goals
	2.2 Seek and secure agreement on and adherence to single common notation
	2.3 Determine tools, features and techniques most appropriate to the development environment
	2.4 Facilitate, plan, develop and document version and change control methods
	2.5 Facilitate training and exposure to the user participants via RAD
3. Implement administration method	3.1 Determine and reach agreement of ***stakeholders*** on the specifics
	3.2 Confirm dates for milestones with stakeholders and secure with written agreement
	3.3 Inform production system parties and secure with written acknowledgment

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.4 Administer and maintain relevant time recording and management methodologies

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - liaise with stakeholders and users, especially when seeking agreement from all parties
  - facilitate training
- literacy skills to interpret and write technical documents
- planning and organisational skills to manage risk when a prioritised plan is implemented, using a series of recursive stages of build and review for delivery of the system
- problem-solving skills to determine RAD requirements.

Required knowledge

- broad knowledge of industry-accepted prototyping tools
- detailed knowledge of:
  - client business
  - two or more programming languages
- overview knowledge of:
  - quality assurance practices
  - two or more current industry development methodologies.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to	Evidence of the ability to: • use RAD tools and prototyping methods in order to meet client requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

demonstrate competency in this unit	• document the outcomes of the RAD.
Context of and specific resources for assessment	Assessment must ensure access to: • computer-aided software engineering tools (CASE) repository to facilitate the re-use of templates and components • CASE tools • detailed user requirements • prototyping software • requirements document, including model and scope • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• observation of candidate participating in RAD
	• review of candidate's documentation of RAD process
	• verbal or written questioning to assess candidate's knowledge of:
	  • client business requirement
	  • RAD process.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Tool set may include:	• bug analyser • code beautifier • compiler • integrated development environment • test harness software.
System may include:	• application service provider (ASP) • applications • databases • gateways • internet service provider (ISP) • operating system • servers.
Database may include:	• commercial off-the-shelf (COTS) database packages • object-relational databases • proprietary databases • relational databases.
Documentation may follow:	• audit trails • client training • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC), and Australian Standards (AS) standards • maintaining equipment inventory • naming standards • project management templates and report writing • satisfaction reports • version control.
Stakeholders may include:	• development team • project team • sponsor • user.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG515A Review developed software

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge to apply quality standards associated with software development.

Application of the Unit

This unit applies to senior programmers who are required to ensure the quality of software produced by others.

Quality assurance is a necessary part of any code development. Imposing quality on software development involves the review of quality standards, the determination of development quality issues, and a closer review of specific quality areas.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Review quality standards	1.1 Review copies of the organisation's ***quality standards*** and ***standards*** related to software development and prepare for use 1.2 Contact ***appropriate person*** to discuss their involvement in the review and establish their role 1.3 Determine and document the approach to be used to validate quality during the review
2. Determine development quality issues	2.1 Examine and document processes that have a significant impact on the quality of a particular product under development 2.2 Hold discussions on quality issues with development staff and establish agreed actions 2.3 Allocate responsibilities to development staff 2.4 Obtain agreement from appropriate person on procedures to ensure quality of development, where necessary
3. Review specific quality areas	3.1 Review plans to ensure that they are adequate to control the quality of the development process 3.2 Review testing processes to ensure that defect-free software will be developed 3.3 Examine ***documentation*** and methods for development to ensure that software will be supportable 3.4 Monitor ***requirements*** to ensure that ***client*** needs are met

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- communication skills to liaise with clients and development staff
- literacy skills to interpret and write technical documents
- planning and organisational skills to:
  - plan a project that addresses scope, time, cost, quality and risk
  - manage staff responsibilities
- problem-solving skills to test processes during the development of defect-free software
- technical skills to use data-modelling tools.

Required knowledge

- client business domain
- broad knowledge of industry accepted hardware and software products
- input and output drivers
- operating systems
- programming languages: two or more procedural languages and three or more object-oriented languages
- quality assurance practices and the identification of standards
- real-time programming techniques
- software application measuring and estimating methodology
- software development and configuration-management processes
- software-metrics development.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • determine quality standards and procedures that support the development of defect-free products to meet client requirements • apply appropriate quality standards to the development of products • conduct quality testing of developed software.
Context of and specific resources for	Assessment must ensure access to: • data dictionaries

© Commonwealth of Australia, 2025 Future Skills Organisation

assessment	• design specifications • data stream management system (DSMS) • simulated scenario • Australian and international software quality standards • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of quality testing processes • review of documented processes to ensure quality • verbal or written questioning on quality standards.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Quality standards may include:	• AS3925.1-1994 Software quality assurance - plans • AS4042-1992 Software configuration management plans • AS4043-1992 Software configuration management • AS/NZS14102:1998 Information technology - guideline for evaluation and selection of CASE tools • AS/NZS4258:1994 Software user documentation process

© Commonwealth of Australia, 2025 Future Skills Organisation

	• AS/NZS ISO/IEC 12207:1997 Information technology - Software life cycle processes • current international and Australian standards.
Standards may include:	• Australian Standards (AS) • International Electrotechnical Commission (IEC) • International Organization for Standardization (ISO) • software development standards.
Appropriate person may include:	• authorised business representative • client • supervisor.
Documentation may follow:	• audit trails • ISO, IEC and AS standards • maintaining equipment inventory, client training and satisfaction reports • naming standards • project-management templates and report writing • version control.
Requirements may relate to:	• application • business • database • network • people in the organisation • platform • system.
Client may include:	• clubs • external organisations • individuals • internal departments • internal employees.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG516A Develop integration blueprint for IT systems

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to document and maintain details of the technology and architectural components incorporated into the integration blueprint for an IT system.

Application of the Unit

This unit applies to individuals in senior roles in the development environment who are required to integrate a series of components.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Review technical architecture documents	1.1 Review technical architecture documents, supplemented with discussions where necessary 1.2 Identify and evaluate technical considerations that cover the overall ***requirements*** and provide best technical fit against requirements 1.3 Update the integration blueprint according to best-fit technical ***specifications***
2. Undertake compatibility tests	2.1 Assemble ***components*** and ***component technologies*** according to design specifications 2.2 Test components for functionality against design specifications 2.3 Identify non-compliance against technical specifications 2.4 Update the integration blueprint to reflect functionality and non-compliance changes
3. Assess risk areas	3.1 Identify the scope of ***modifications*** required from compatibility test 3.2 Negotiate modifications required with the suppliers, based on outcomes of compatibility test 3.3 Update the integration blueprint to reflect modifications to risk areas
4. Assess readiness for stress testing	4.1 Continue integration activities until platform is stable 4.2 Evaluate the platform's compliance against technical requirements 4.3 Update the integration blueprint for stress testing

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- analytical skills to apply a range of test procedures
- communication skills to liaise with clients and suppliers
- literacy skills to review and write technical documents and keep accurate records
- problem-solving skills to develop strategic initiatives and manage risk
- technical skills to test components for functionality.

Required knowledge

- sources of technology suppliers and components
- overview knowledge of:
  - current industry development and design methodologies
  - current industry-accepted hardware and software products, features and capabilities
  - current industry-accepted testing procedures
  - stress load testing.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify and capture technical design changes important for future integration activities on a particular platform • avoid integration activities that have been previously performed.
Context of and specific resources for assessment	Assessment must ensure access to: • design specifications • high-level diagrammatic view of the main system components • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of systematic methods used to identify and select

© Commonwealth of Australia, 2025 Future Skills Organisation

	tests from component test suites to form integration test suites
	• review of reusable integration infrastructure to build an integration test platform to cope with integration of diversified components
	• verbal or written questioning to assess candidate's knowledge of:
	  • system components
	  • integration activities.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Requirements may relate to:	• application • business • database • network • people in the organisation • platform • system.
Specifications may include:	• current system functionality • metrics • project plan • software requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

	• technical requirements • user problem statement.
Components may include:	• file system object in Windows operating systems • transactional processing component.
Component technologies may include:	• ActiveX • component object model (COM) • common object request broker architecture (CORBA) distributed component object model (DCOM) • JavaBeans • NET • OpenDoc.
Modifications may include:	• board and chip revisions • custom-designed components • distribution release details • driver and firmware revisions • internal or external hardware model information • software patches and upgrades • software versions • telecommunications hardware and software version details.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG517A Install, test and evaluate pilot version of IT system

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to install a pilot version of a developed IT system, test it and evaluate it among a subset of clients to gauge reaction and gather feedback.

Application of the Unit

This unit applies to senior staff in a development area who are required to test a new system among a small group of users, analysing their responses and comments.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Prepare for pilot system	1.1 Establish and confirm objectives, success criteria and ***acceptance criteria*** for pilot implementation 1.2 Identify and secure technical and ***organisational resources*** required for pilot implementation 1.3 Establish and confirm executive support for pilot 1.4 Complete ***project plan*** for pilot and refer project documentation to ***appropriate person*** for approval
2. Install pilot system	2.1 Install and configure pilot according to project plan 2.2 Verify and record technical readiness of pilot 2.3 Take necessary actions to determine accuracy of data 2.4 Prepare a status report and submit to appropriate person for sign-off
3. Test pilot system	3.1 Work with stakeholders to identify and release appropriate pilot group 3.2 Brief members of pilot team on objectives of test 3.3 Train pilot-team members in new system 3.4 Run test
4. Evaluate results and feedback of pilot	4.1 Assess computerised results of pilot test 4.2 Interview pilot group members to obtain feedback 4.3 Document feedback and results 4.4 Evaluate according to success and acceptance criteria previously established 4.5 Report final recommendations from pilot with regard to a complete installation of the piloted system to appropriate person

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- analytical skills to analyse results of pilot
- communication skills to:
  - facilitate training and user participants, including exposure to joint application development (JAD) process
  - liaise with clients
- literacy skills to prepare status reports and final recommendation
- planning and organisational skills to manage scope, time, cost, quality, communications and risk management
- problem-solving skills to participate in the development of strategic initiatives
- technical skills to install pilot system.

Required knowledge

- role of stakeholders and the degree of stakeholder involvement in the developed system
- system's current functionality
- three or more current industry information-gathering methodologies
- client business domain with regard to the developed system
- current industry system development and design methodologies
- current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge of installing pilot systems
- current industry-accepted system piloting methodologies, including general features and capabilities
- overall project objectives and client requirements when preparing for pilot
- quality assurance practices with regard to installing, testing and evaluating developed system.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate	Evidence of the ability to: • plan the pilot of a new system • define objectives, success criteria and acceptance criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

competency in this unit	• run the piloting of a new system • obtain feedback from pilot group members • evaluate the pilot • make recommendations about the full installation.
Context of and specific resources for assessment	Assessment must ensure access to: • pilot system • acceptance criteria • people to be involved in the pilot • pilot plan • project plan • technical materials • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of pilot project documentation prepared by candidate
	• review of candidate's documented recommendation
	• verbal or written questioning to assess candidate's knowledge of acceptance testing
	• direct observation of candidate:
	  • briefing pilot members on the piloted system
	  • obtaining feedback from pilot members after the test.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Acceptance criteria may include:	• cost implications • logistical considerations • technical • timeframe.
Organisational resources will vary subject to nature of pilot and may include:	• financial resources secured to fund the pilot • staffing resources expected from user community, technical operations, technical support, technical development, supplier, project manager and executive sponsor • personnel with an understanding of corporate governance, such as legal, audit and data security specialists • representative experts from business areas, such as functional managers or operational staff • representative users • systems developers and IT technicians.
Project plan may include a number of variables, including:	• parties and their responsibilities • project budget • project objectives • project scope • schedule.
Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG518A Monitor the system pilot

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to evaluate the performance of the developed system among a subset of clients.

Application of the Unit

This unit applies to senior programmers and systems analysts who are required to implement systems.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Monitor implementation of pilot system	1.1 Review ***pilot*** and support documentation 1.2 Identify pilot and ***system*** procedures 1.3 Supervise system functionality and integrity tests 1.4 Document findings 1.5 Provide appropriate technical support as required
2. Evaluate pilot system	2.1 Review pilot objectives and success criteria against pilot operation 2.2 Review ***client*** and executive feedback on pilot against ***acceptance criteria*** 2.3 Identify and prioritise areas of success and improvement 2.4 Assess the impact of changes on the pilot 2.5 Document review process and submit to ***appropriate person***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to evaluate the pilot by monitoring performance
- communication skills to:
  - facilitate and present concepts and obtain group consensus
  - liaise with clients and team members
- literacy skills to interpret and write technical documents
- planning and organisational skills to manage the system pilot
- research skills to identify, analyse and evaluate broad features of a particular business domain and best practice in system piloting.

Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

- current industry-accepted system piloting methodologies, including their general features and capabilities, with particular emphasis in acceptance criteria
- current industry system development and design methodologies
- broad knowledge of industry-accepted hardware and software products
- project objectives and client requirements, e.g. when monitoring implementation of pilot
- client business domain
- three or more current industry information-gathering methodologies
- role of stakeholders and the degree of stakeholder involvement
- system's current functionality, with specific emphasis on:
  - system integration
  - system response and recovery times
  - user interfaces
  - validation of inputs and outputs.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• observe and evaluate the pilot by:
	  • monitoring performance
	  • analysing performance issues from a systems and a client user perspective
	  • documenting findings
	  • evaluating against acceptance criteria.

Context of and specific resources for assessment	Assessment must ensure access to: • acceptance criteria • pilot plan • system to be piloted • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of piloting process

© Commonwealth of Australia, 2025 Future Skills Organisation

	• review of pilot documentation prepared by candidate
	• verbal or written questioning to assess candidate's knowledge of:
	  • piloting methodologies
	  • system's current functionality.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Pilot may relate to:	• nature of system • organisational requirements.
System may include:	• application service provider (ASP) • applications • databases • gateways • internet service provider (ISP) • operating system • servers.
Client may include:	• external organisations • individuals • internal departments • internal employees.

© Commonwealth of Australia, 2025 Future Skills Organisation

Acceptance criteria may include:	• accessibility • cost implications • logistical considerations • technical • timeframe.
Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG520A Validate an application design against specifications

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to check the software application design against specifications and apply validation techniques across the system life cycle.

Application of the Unit

This unit applies to individuals employed in the area of software development responsible for verifying and validating software-design specifications.

They may be individuals who work as software project managers, testers, software engineers, system analysts and software developers.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Evaluate software-requirement specification	1.1 Review ***software requirement specifications document*** to ensure that requirements are completely specified and correct before software design begins 1.2 Validate the software requirement specifications document
2. Create a proof-of-concept prototype	2.1 Use rapid application development tools to create prototype system 2.2 Present prototype system for demonstration to appropriate person 2.3 Validate proof of concept
3. Evaluate software design	3.1 Determine if the design is complete, accurate, consistent and feasible 3.2 Validate ***software design document*** 3.3 Validate ***database structure and elements*** 3.4 Validate ***user interface*** (UI) 3.5 Review software risk analysis
4. Evaluate source code	4.1 Validate consistency between code and software design document 4.2 Validate logical structure and syntax using ***static analysis tools***
5. Evaluate testing requirements	5.1 Review and validate test plans 5.2 Review and validate test cases
6. Document validation	6.1 Document results of validation exercise 6.2 Recommend current software design or itemise required

© Commonwealth of Australia, 2025 Future Skills Organisation

	alterations 6.3 Submit report to appropriate person for action

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to determine audience needs
- communication skills to:
  - interact with developer to ensure proper implementation
  - provide leadership and motivation
- literacy skills to:
  - create technical documentation related to software design
  - read and interpret complex technical and non-technical information from a range of sources
- technical skills to use:
  - software design tools, such as unified modelling language (UML) tools
  - word-processing software
  - UI design.

Required knowledge

- basic knowledge of database design and implementation
- business and technical modelling using UML tools at intermediate level
- current software development methodologies
- detailed knowledge of system development life cycle (SDLC)
- object-oriented programming
- open-source development tools
- organisational procedures for documenting technical specifications
- software-testing techniques.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• verify and validate software application design, including:
	  • creating proof of concept (PoC) prototype
	  • evaluating the technical specification and comparing against the PoC
	  • interpreting and evaluating software design documentation requirements and confirming details with the client
	  • analysing and validating user interface and database requirements
	  • effectively using static analysis tools
	  • walkthrough documents, test plans and test cases.

Context of and specific resources for assessment	Assessment must ensure access to: • tools to create prototype systems • static analysis tools • test plan and test cases • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of candidate's validation documents • evaluation of validation documents.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Software requirement specifications document may include:	• reports • risks and resourcing • software functions • software system inputs and outputs • timeframe.
Software design document may include:	• module test plan generation • test-design generation • traceability analysis • update software risk analysis.
Database structure and elements may include:	• database consistency • database integrity • database structure.
User interface may include:	• appearance • consistency • design • functions • navigation.
Static analysis tools may include:	• Blast (c language) • Checkstyle (for Java) • JSLint (JavaScript checker) • StyleCop (for .net languages).

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG523A Apply advanced programming skills in another language

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to undertake advanced programming tasks using a selected choice of another programming language. The second language may be an object-oriented language.

Application of the Unit

This unit applies to programmers who are required to develop program code.

Programming languages form the underpinning software infrastructure of all computer data processing. It is important that the stages of the development methodology are followed within the scope of any project or scenario, and the relevant supporting documentation produced.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Code using advanced data structures	1.1 Design ***dynamic data structures*** 1.2 Implement and use dynamic data structures, including double-linked lists and binary trees for coding
2. Code using advanced algorithms	2.1 Code using hashing techniques 2.2 Consider and record the advantages and disadvantages of at least three sorting algorithms 2.3 Code at least one sorting algorithm 2.4 Code advanced searching techniques for use with complex data structures
3. Write simple multi-process application	3.1 Demonstrate use of the features of the language that enable inter-process communication through at least one ***mechanism*** 3.2 Demonstrate use of features of the language that allow for operating system ‘signals’ to be captured and responded to
4. Use third-party libraries	4.1 Use a third-party library in the construction of an application 4.2 Reference third-party documentation 4.3 Use procedural techniques to write an application to work within a graphical user interface (GUI) environment
5. Debug code	5.1 Use ***integrated development environment*** (IDE) debugging facilities or a stand-alone debugger 5.2 Use program debugging techniques to detect and resolve errors of syntactical, logical and design origin
6. Document activities	6.1 Demonstrate use of source code version control 6.2 Demonstrate adherence to guidelines for developing maintainable code and to a set of provided ***coding standards*** 6.3 Apply suitable internal documentation to all code created

© Commonwealth of Australia, 2025 Future Skills Organisation

	using documentation tools available in the target ***language***
7. Test code	7.1 Design and document tests to be undertaken 7.2 Undertake limited testing of produced code to ensure it complies with program specification 7.3 Capture test results
8. Create an application	8.1 Develop a solution from a program specification design document 8.2 Design the algorithm, and construct and test applications in response to a problem description and language

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to read and interpret program specifications
- literacy skills to write technical documentation
- problem-solving skills to solve bugs in program code
- technical skills to:
  - debug, program and test code in specified language
  - use an IDE
  - work with version control.

Required knowledge

- detailed knowledge of:
  - range of programming languages
  - languages in a GUI environment
  - techniques for developing large scale applications
  - procedures for programming with complex data structures
  - procedures for using third-party supplied library for standard programming features.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design application programs using a range of tools to support programming activities • produce design documentation for these programs • build application programs according to the design • document these programs • conduct testing procedures on these programs to ensure validity • analyse test results to determine program's accuracy.
Context of and specific resources for assessment	Assessment must ensure access to: • software development environment • technical requirements • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of candidate's program response to specifications
	• review of candidate design, program and testing documentation
	• verbal or written questioning to determine candidate's knowledge of:
	  • user requirements
	  • programming techniques
	  • testing techniques.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking

© Commonwealth of Australia, 2025 Future Skills Organisation

	background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Dynamic data structures may include:	• binary trees • double-linked lists.
Mechanism may include:	• pipes • sockets.
Integrated development environment may include:	• C • Code Warrior • Eclipse • J-Edit • VB • Visual C++ • Visual Studio suite.
Coding standards may include:	• C coding standard • GNU.
Language may include:	• C • C++ • Java • Small Talk • VB • VB.NET.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG524A Develop high-level object-oriented class specifications

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to analyse requirements and produce a set of high-level object-oriented class specifications.

Application of the Unit

This unit applies to systems designers who are required to develop object designs as part of the systems design process.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Analyse behaviour of objects	1.1 Analyse behaviour scenarios and prepare ***documentation*** according to ***standards***
	1.2 Identify classes, objects and abstract data types according to ***requirements***
	1.3 Prepare class, object, module and process diagrams according to ***specifications***
2. Prepare state model	2.1 Analyse data requirements and iterate data flows
	2.2 Prepare state-transition diagrams according to standards
	2.3 Improve abstract data types and specifications
3. Describe roles and responsibilities of classes	3.1 Review functional requirements, assign responsibilities and update class structures
	3.2 Specify interface and class communication requirements
	3.3 Prepare interaction diagrams according to standards
4. Iterate and review the object model	4.1 Review current object model, class functionality and data transformation
	4.2 Identify and develop class relationships, priorities and inheritance hierarchy
	4.3 Review class-service requirements and initial test criteria
	4.4 Identify object processes and reuse classes
	4.5 Document model and forward to ***appropriate person***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- communication skills to present information and liaise with colleagues
- literacy skills to analyse, evaluate and present information when documenting behaviour scenarios
- problem-solving skills to specify and develop classes, objects and system abstract data types
- research skills to specify, analyse and evaluate broad features of a particular business domain and best practice in program development
- technical skills to:
  - develop class relationships
  - prepare diagrams for class, object, module and process
  - prepare interaction diagrams.

Required knowledge

- overview knowledge of:
  - configuration management
  - current industry-accepted object-oriented methodologies
  - current program development methodologies
- detailed knowledge of:
  - data modelling techniques
  - object-oriented analysis tools
  - quality assurance practices.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • specify and model abstract data types • specify the interface between classes and objects • document the result.
Context of and specific resources for assessment	Assessment must ensure access to: • business, system and user requirement • unified modelling language (UML) modelling tool • appropriate learning and assessment support when required

© Commonwealth of Australia, 2025 Future Skills Organisation

	• modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of identifying classes, objects and abstract data types and preparing class, object, module and process diagrams • verbal or written questioning to assess knowledge of roles and responsibilities of classes • review of documented model.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Documentation may follow:	• audit trails • client training • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC), and Australian Standards (AS) standards • maintaining equipment inventory • naming standards • project-management templates and report writing

© Commonwealth of Australia, 2025 Future Skills Organisation

	• satisfaction reports • version control.
Standards may include:	• ISO, IEC and AS standards • organisational standards • project standards.
Requirements may refer to:	• application • business • network • people in the organisation • system.
Specifications may include:	• current system functionality • technical requirements • user-problem statement.
Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG525A Build Java applets

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to compile and run an applet that executes in Java-enabled browsers and interacts with users.

Application of the Unit

This unit applies to individuals involved in software, web or games development who are required to build applets using Java that interact with users via a browser.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Create Java source file	1.1 Create a file with a text editor 1.2 Create a sub-class of the class java.applet.Applet 1.3 Ensure that applet sub-class implements at least one of the following methods: init and paint 1.4 Define classes that contain instance variables, methods and local variables 1.5 Ensure that the init method initialises instance variables and constructs any graphical interface used in the applet sub-class 1.6 Implement the paint and update methods to manage output that is drawn in the applet window 1.7 Incorporate event handling methods 1.8 Implement code that allows a ***user*** to enter values and assigns these values to variables 1.9 Use available graphical user interface (GUI) components to allow user interaction with the applet 1.10 Specify and load images and sounds 1.11 Include comments to describe the behaviour of the applet
2. Compile source file	2.1 Use a ***Java compiler*** to compile the file 2.2 Correct errors detected by the compiler 2.3 Confirm basic correctness of file to ensure that all variables have been initialised 2.4 Ensure compiler creates a class file and the class is interpreted correctly
3. Run applet	3.1 Create and name a hypertext markup language (HTML) file and add APPLET tag 3.2 Write the applet class file to match the HTML document that contains APPLET tag 3.3 Confirm that the applet loads and executes correctly 3.4 Identify and correct run-time errors 3.5 Identify and correct logic errors

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.6 Ensure that the appearance of the applet window renders it accessible and intuitive for the user, and that its design complies with organisational standards 3.7 Ensure that user interaction is implemented efficiently and effectively

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- problem-solving skills to apply solutions to Java applet problems
- technical skills to:
  - use Java programming
  - use object-oriented design software
  - write HTML code.

Required knowledge

- detailed knowledge of:
  - object-oriented programming concepts
  - theoretical concepts of Java programming
- overview knowledge of Australian Computer Society Code of Ethics
- sources of browser security restrictions.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate	Evidence of the ability to: • review the requirements to provide an applet that executes in Java-enabled browsers and allows users to customise the applet's operation

© Commonwealth of Australia, 2025 Future Skills Organisation

competency in this unit	• write, compile and run an applet that accepts user input and generates response based on the input.
Context of and specific resources for assessment	Assessment must ensure access to: • Java development environment • Java compiler and interpreter • Java enabled web browser • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of candidate's Java applet code • evaluation of candidate's Java applet • verbal or written questioning to assess candidate's knowledge of Java applets.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

User may include:	• department within the organisation • person within a department • third party.

© Commonwealth of Australia, 2025 Future Skills Organisation

Java compiler may include:	• adaptable layout environment (ALE) • alma 0.28 • AnyTool • AutoRad • Bean scripting framework • BEanACTION • Codemesh • DocWiz: the JavaDoc documentation tool • Eclipse • eXtensible pre-processor (EPP) kit • generating graphical editors (GRACE) • Java 2 SDK • Java Runner • JBuilder 3.5 • JCreator • jGRASP • Metamata Development Environment • Netscape Directory SDK for Java: Source Code • Utility+ • Visual Age 3.0 • Visual J++ • WingSoft • Zero G software.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG526A Maintain functionality of legacy code programs

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to maintain the functionality of legacy code programs.

Application of the Unit

This unit applies to individuals working in software development who are required to maintain legacy programs, updating them as required.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Determine functional changes required	1.1 Consult ***user*** to determine and document the functional change required 1.2 Clarify impact of changes with operational personnel
2. Review legacy language	2.1 Identify the basic structures of the legacy language 2.2 Review the data storage of the legacy language with regard to global variables, modularisation, cohesion and coupling 2.3 Review the basic algorithms of the legacy language
3. Identify and isolate change	3.1 Review the ***technical documentation*** for the system to determine modules to change 3.2 Review source code to determine program logic and flow 3.3 Update the technical documentation to reflect current state of program
4. Determine framework for change	4.1 Determine the ***change approach*** to be used to implement the change 4.2 Ascertain and detail the risks for each approach 4.3 Determine the personnel who will make the changes
5. Design change	5.1 Develop the changes required, considering the impact of the changes on other parts of the system 5.2 Document the changes according to change-management standards
6. Code change	6.1 Identify and obtain appropriate ***hardware*** and ***software*** for the change 6.2 Write code according to programming standards 6.3 Compile and unit test the changes 6.4 Document the changes according to programming standards
7. Test change	7.1 System test the changes and record outcomes 7.2 Perform user acceptance testing and record outcomes 7.3 Sign off change request

© Commonwealth of Australia, 2025 Future Skills Organisation

8. Archive system	8.1 Create new version of software according to configuration management standards 8.2 Archive the development system, including source code, compilers and test data

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to determine functional changes and impacts these changes will have on the system
- communication skills to liaise with user and operational personnel
- literacy skills to interpret and write technical documentation
- planning and organisational skills to determine change-management process
- technical skills to:
  - code in legacy language
  - test new code
  - use change-management system.

Required knowledge

- operational procedures on the required operating system
- organisational standards for software development
- security and viruses
- privacy legislation and copyright with regard to legacy code, the particular system involved and its data
- technical terminology related to reading help files and manuals
- types of software.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • read legacy language • identify and isolate the required change • implement the change via the chosen technique.
Context of and specific resources for assessment	Assessment must ensure access to: • documents detailing organisational standards for software development • existing legacy code • appropriate compilers • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of candidate's completed change in legacy code
	• review of candidate's documentation that reflects modification in legacy programs
	• verbal or written questioning to determine candidate's knowledge of:
	  • key design alternatives
	  • change-management process.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

User may include:	• department within the organisation • person within a department • third party.
Technical documentation may include:	• brochures • help references • online help • project specifications • reports • technical manuals • training materials and self-paced tutorials • user guides.
Change approach may include:	• implementing a new layer or replacing an existing layer to the architecture of the system • implementing the changes in the legacy language • implementing wrappers to the legacy code.
Hardware may include:	• modems and other connectivity devices, such as asymmetric digital subscriber line (ADSL) modems • networks • personal computers • remote sites • servers • workstations.
Software may include:	• commercial applications • customised • in-house • organisation-specific • packaged.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG527A Apply intermediate object-oriented language skills

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to undertake intermediate level programming tasks using an object-oriented programming language.

Application of the Unit

This unit applies to programmers in a variety of fields who are required to produce programs in object-oriented languages.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Build applications using provided language utilities	1.1 Review program requirements 1.2 Divide multiple source-code files into logical units and packages 1.3 Use at least two of the utilities of the target language allowing for internal storage of ***collections of data*** 1.4 Use the utilities of the target language providing internal data sorting and searching facilities 1.5 Employ ***integrated-development environment*** facilities to make files to automate program building 1.6 Follow guidelines for developing maintainable code adhering to ***coding standards*** 1.7 Use the facilities in the language for persisting objects to binary files 1.8 Use the operator and function or method overloading facilities available in the ***language*** at an introductory level 1.9 Demonstrate ability to use exception-handling techniques to ensure program stability 1.10 Demonstrate use of a class that is based on multiple inheritances
2. Write programs that interact with a database	2.1 Design and implement programs that connect to a ***database*** 2.2 Design and implement programs that use the language facilities to extract, update and delete data stored in a database 2.3 Design and implement programs that use the language facilities to manipulate database structure (query, create and delete) 2.4 Write programs that deliver transactional integrity
3. Write graphical user interface (GUI)	3.1 Employ GUI framework or text windowing interface appropriate to the chosen language 3.2 Demonstrate use of standard ***GUI components*** 3.3 Use the facilities within the language for GUI objects to respond to user and program-generated events

© Commonwealth of Australia, 2025 Future Skills Organisation

4. Debug application	4.1 Use stand-alone debugging tools or tools provided by integrated development environment to examine variables and trace running code 4.2 Use debugger to detect logical and coding errors 4.3 Use tracing of code and examination of variable contents during execution to detect and correct errors
5. Test application	5.1 Design and document limited tests of code 5.2 Undertake limited testing of produced code to ensure it complies with program specification 5.3 Capture and document test results
6. Create and maintain documentation	6.1 Read and interpret supplied design document to create code 6.2 Create and maintain program documentation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse requirements document
- communication skills to communicate with user and colleagues
- initiative and enterprise skills to produce an appropriate application to fulfil requirements
- literacy skills to:
  - produce program documentation
  - read requirements documentation
- planning and organisational skills to produce output in a timely fashion as required
- problem-solving skills to debug program code
- technical skills to:
  - interpret program specifications
  - translate requirements from problem space to machine space
  - integrate development environment usage
  - use internal documentation techniques
  - test program to ensure it meets its requirements.

Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

- detailed knowledge of:
  - data structures
  - small-size and medium-size application development
  - object-oriented programming concepts
  - object-oriented programming language
  - process and techniques related to the use of GUI to interact with operator
- documentation techniques to document the application.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design and build application programs from a problem scenario and program specification.
Context of and specific resources for assessment	Assessment must ensure access to: • requirements document or object-oriented design structures • programming languages that support object-oriented development • database management system (DBMS) • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of completed application
	• review of documentation of this application
	• verbal or written questioning to ensure knowledge of:
	  • object-oriented programming
	  • coding standards
	  • methods used to access data in databases
	  • documentation techniques.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where

© Commonwealth of Australia, 2025 Future Skills Organisation

	appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Collections of data may include:	• hash tables • lists • queues • sets • stacks • trees.
Integrated development environment may include:	• Code Warrior • Eclipse • J-Edit • Visual C++ • Visual Studio suite.
Coding standards may include:	• GNU • Java.
Language may include:	• C#.net • C++ • Java • Small Talk • VB.NET.
Database may be:	• object

© Commonwealth of Australia, 2025 Future Skills Organisation

	• relational.
GUI components may include:	• buttons • check boxes • drop-down lists • option buttons • text input fields.
Documentation may include:	• architecture documentation • code comments • design documents • in-code documentation • internal module documentation • release documents • requirement documents • test documents • user manuals.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG528A Perform IT data conversion

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to translate IT data from one format to another by means of a data conversion process.

Application of the Unit

This unit applies to individuals in support and implementation roles who are required to convert data from one system to another.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Prepare system for conversion	1.1 Obtain data stores that are subject to conversion 1.2 Protect and confirm backup solutions 1.3 Trial conversion work in an isolated environment secure from production ***system*** 1.4 Map and document required data fields from the old system to the new or upgraded system 1.5 Determine field validation ***requirements*** from conversion plans, including data field legal ranges 1.6 Determine actions to be taken with fields or records that are rejected by the conversion plan 1.7 Consult ***stakeholders*** on creation of conversion plan 1.8 Design data conversion program modules from conversion ***specifications*** 1.9 Code and test data conversion program modules according to conversion specifications 1.10 Confirm data conversion and test converted production data
2. Perform data conversion	2.1 Estimate and plan for conversion time 2.2 Prepare production system for data conversion and take off-line 2.3 Undertake action to protect production data 2.4 Take action to ensure minimal disruption to ***client*** business requirements during the conversions process 2.5 Document data rejected by conversion routines and the reason for rejection 2.6 Execute conversion program modules 2.7 Document results of the conversion process and report to ***appropriate person***

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with stakeholders and clients
- literacy skills to write technical documents
- planning and organisational skills to ensure minimal disruption to client business requirements
- problem-solving skills to develop strategic initiatives when performing data conversion
- technical skills to:
  - back up data
  - code data conversion modules.

Required knowledge

- current and emerging industry knowledge of:
  - hardware and software products, including their general features and capabilities
  - data conversion tools and data modelling methodologies
- overview knowledge of:
  - conversion from legacy systems
  - industry-accepted database management system (DBMS) modelling.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • define inherent data requirements of both old and upgraded or new systems • remodel data to achieve successful conversion • back up data prior to conversion • code conversion programs.
Context of and specific resources for	Assessment must ensure access to:

© Commonwealth of Australia, 2025 Future Skills Organisation

assessment	• analysis of the source data • business quality assurance rules associated with data • data mappings • logic to convert the data • plan of the conversion routines • software development environment • technical requirements • data conversion plan • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of data conversion tools and data modelling methodologies • evaluation of candidate's data conversion modules • review of candidate's documented conversion results.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

System may include:	• application service provider (ASP) • applications

© Commonwealth of Australia, 2025 Future Skills Organisation

	• databases • gateways • internet service provider (ISP) • operating systems • servers.
Requirements may relate to:	• application • business • database • network • people in the organisation • platform • system.
Stakeholders may include:	• development team • project team • sponsor • user.
Specifications may include:	• current system functionality • technical requirements • user problem statement.
Client may include:	• external organisations • individuals • internal departments • internal employees.
Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG529A Apply testing techniques for software development

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop test strategies and implement tests to assure the reliability and quality of an application.

Application of the Unit

This unit is relevant to those responsible for test plan preparation, execution and maintenance; reporting of tests; and defect management in an application.

The positions that undertake this role include quality assurance analysts, test analysts, testers, system testers, software testers, test leads and developers.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Plan and design test	1.1 Analyse and review ***software development specifications*** 1.2 Determine test context, scope, ***standard*** and ***methodology*** 1.3 Determine ***test types*** and ***tools*** 1.4 Determine test input data requirements 1.5 Design test plan and test cases using various ***test design techniques***
2. Prepare test environment	2.1 Analyse and review ***documents*** to prepare test environment 2.2 Determine ***test environment requirements*** 2.3 Build and ***set up test environment***
3. Implement and execute test	3.1 Build input data for testing 3.2 Create test suite or script from test cases 3.3 Execute test cases 3.4 Create test record to store test result
4. Manage defect and testing process	4.1 Evaluate and report test results 4.2 Track defect and verify fixes 4.3 Maintain and archive ***testware***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- analytical skills to review and evaluate technical and business requirements
- communication skills to:
  - liaise with programmers on fault debugging matters
  - liaise with project managers or leaders on report and result matters
  - seek requirements and information from business and technical experts
- literacy skills to:
  - develop reports and documentation related to test result report
  - read and interpret software specifications developed by business and technical experts
- problem-solving skills to apply basic debugging techniques in the context of software or application development
- research skills to:
  - locate and interrogate complex and varied sources of information
  - source information from available sources
- technical skills to:
  - operate software applications and navigate the internet
  - develop a small scale application
  - execute an application.

Required knowledge

- characteristics of programming language
- detailed knowledge of input and output requirements
- software development life cycle (SDLC) methodologies
- system layers, such as data network, hardware, operating system, database management systems, web servers, application servers and client deployment
- processes and techniques related to small-size application development.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop test-plan document and test cases to verify the completeness, reliability and performance of an application according to requirement specifications • analyse and prepare test environment, and execute test cases

© Commonwealth of Australia, 2025 Future Skills Organisation

	by using automated test tools • document and manage test result by performing application debugging process and re-testing application.
Context of and specific resources for assessment	Assessment must ensure access to: • test environment that closely resembles production environment • business, functional, system and user requirements • system or application suitable for testing • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• review of test-plan document that follows a certain standard, such as AS/NZS15026:1999
	• evaluation of candidate's ability to:
	  • select and use features of automated testing tool to perform certain type of test (e.g. stress testing)
	  • analyse and document test results
	  • debug application.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Software development specifications may include:	• budget requirements • customer requirements • functional design • internal design specifications • schedule requirements • user stories.
Standard may include:	• ASNZS15026:1999 • IEEE 829.
Methodology may include:	• agile • extreme • rapid application development (RAD) • spiral • traditional plan driven development (TPDD) • waterfall.
Test types may include:	• accessibility testing • load testing • performance testing • smoke testing • stress testing • usability testing • volume testing.
Tools may include:	• automated test • configuration management • defect management • dynamic analysis • modelling • monitoring • requirement management • review • static analysis • test-data preparation • test-design • test-execution

© Commonwealth of Australia, 2025 Future Skills Organisation

	• test-management.
Test design techniques may include:	• black-box • experience-based • specification-based • structure-based • white-box.
Documents may include:	• configuration guides • installation guides • reference documents • user manuals.
Test environment requirements may include:	• communications • configuration • hardware • software • versions.
Set up test environment may include:	• obtain and install software releases • set up logging and archiving processes • set up or obtain test input data • set up test tracking processes.
Testware may include:	• automation tools • defect repositories • script • test cases • test plan • test report • test result • testing framework.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG601A Develop advanced mobile multi-touch applications

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design, develop, debug, test and deploy applications for hand-held devices such as mobile phones, pocket PCs, personal digital assistants (PDAs) and enterprise digital assistants (EDAs) using advanced features of these devices.

Application of the Unit

This unit applies to mobile device application developers. They may be programmers, game developers, designers and testers who are working in the area of mobile applications development.

The context of the unit applies to development platform environments that provide tools to build and deploy applications into the target platform environment, such as Android, Symbian, Java ME, Compact Framework, iPhone, and a number of other mobile development platforms.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Work effectively on target platform	1.1 Review requirements 1.2 Establish ***platform*** 1.3 Install required ***development tools*** and environment 1.4 Use available debugging tools and techniques 1.5 Deploy completed applications on target device and for public download 1.6 Test application using an emulator
2. Develop an application for a multi-touch device	2.1 Design and code application responding to events 2.2 Design and code application responding to taps, touches and gestures 2.3 Use a model view controller design approach 2.4 Develop making effective use of auto-rotation and auto-resizing facilities
3. Develop code using the features of the mobile device	3.1 List the available features of the mobile device 3.2 Write code requiring web connectivity and using web services 3.3 Write code that communicates with another device using a ***communication protocol*** 3.4 Write code using application programming interface (API) related to at least one other advanced ***device feature***
4. Use available data persistence facilities	4.1 Write code to read and write to the devices file system 4.2 Use synchronisation techniques to synchronise data between the device and external data sources 4.3 Write code to make use of available database facilities on chosen device

© Commonwealth of Australia, 2025 Future Skills Organisation

5. Develop applications that are secure and stable	5.1 Determine and apply performance objectives 5.2 Ensure memory management, using tools and techniques effectively 5.3 Use tools and techniques to evaluate performance 5.4 Eliminate zombies using appropriate tools and techniques

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse designs for small devices
  - evaluate appropriate mobile-development environment
- communication skills to provide advice and guidance to others
- literacy skills to read and interpret technical and non-technical information
- numeracy skills to make basic calculations for specifying the layout of the mobile-user interface design
- problem-solving skills to:
  - address common problems in building and deploying mobile applications
  - perform basic program-debugging skills
- research skills to find and evaluate relevant technologies in mobile applications development
- technical skills to:
  - create eXtensible markup language (XML) documents
  - design user interface
  - test and debug applications
  - use an integrated development environment (IDE).

Required knowledge

- basic knowledge of:
  - hardware and networking
  - object-oriented programming
  - user interface design
  - web design

© Commonwealth of Australia, 2025 Future Skills Organisation

- detailed knowledge of:
  - XML programming and web services
  - techniques for developing software applications.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design applications for small devices that allow multi-touch user input and have advanced mobile features • build and test these applications • deploy these applications on mobile phones, pocket personal computers, PDAs and EDAs.
Context of and specific resources for assessment	Assessment must ensure access to: • hand-held devices and simulators • IDE • internet and web services • server system with sufficient privileges to deploy applications • specific tools and licences, depending on particular platform • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of mobile development environment • evaluation of candidate's mobile application, including its distribution to target devices.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking

© Commonwealth of Australia, 2025 Future Skills Organisation

	background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Platform may include:	• Android • BlackBerry • iPhone • Java ME • .NET Compact Framework • Symbian.

Development tools may include:	• cross-platform deployment
	• emulator availability
	• frameworks:
	  • Flash
	  • Java Platform, Micro Edition and Java Platform
	  • Net compact platform
	  • Qtopia for embedded Linux-based mobile devices
	  • Sprout Core (open-source JavaScript framework)
	  • Standard Edition
	• IDE:
	  • BlackBerry SDK
	  • Eclipse
	  • NetBeans
	  • Visual Studio
	  • XCode
	• languages:
	  • C#
	  • C/C++
	  • Java

© Commonwealth of Australia, 2025 Future Skills Organisation

	• JavaScript • Objective-C • PHP • WML • server and client tools, libraries and tools: • Core Data • JavaScript • SQL Lite • SQL Server Compact Edition.
Communication protocol may include:	• Bluetooth • general packet radio service (GPRS)/3G • radio frequency identification (RFID).
Device feature may include:	• accelerometer • address book • animation • audio • camera • compass • map • GPS • video.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG602A Manage the development of technical solutions from business specifications

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manage the process of compiling client business specifications to produce business solutions for consideration.

Application of the Unit

Project managers are responsible for the overall design and development process within any project and need to review, manage and approve the planned solutions.

Their job roles combine high-level management, business and technical skills necessary to manage complex technology projects within the information and communications technology (ICT) industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Obtain business requirements	1.1 Ensure that ***business requirements*** and ***business specifications*** have been obtained from the client or ***appropriate person***
	1.2 Manage the team's identification of the client's business model
	1.3 Ensure technical specifications for business ***problem*** have been determined
	1.4 Manage the confirmation of key ***stakeholder requirements*** with stakeholders
	1.5 Confirm the documentation of business objectives, technical requirements and problem
2. Evaluate the impact of the technical requirements	2.1 Review the business problems, opportunities and objectives
	2.2 Confirm that the ***technical requirements*** are complete
	2.3 Review ***hardware***, ***software*** and ***network*** requirements
	2.4 Coordinate investigation into the processes to be changed by the business solution
	2.5 Review an evaluation document on the ***impact*** of the technical requirements on the business
3. Produce technical business solutions	3.1 Confirm the ***technical solutions*** produced in response to problems and business requirements
	3.2 Review the costs involved to implement
	3.3 Review the recommendation from a range of supplier products to determine which one best meets technical requirements
	3.4 Review a report on the technical solutions addressing the business specifications and recommendations against business

© Commonwealth of Australia, 2025 Future Skills Organisation

	requirements
4. Document and validate the agreed solutions	4.1 Ensure report is forwarded to appropriate person for feedback 4.2 Manage the feedback and incorporate changes as required 4.3 Coordinate redistribution of adjusted reports to appropriate person 4.4 Obtain sign-off on final business solution

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business-related matters
- literacy skills to:
  - interpret technical documentation
  - write reports, design solutions, technical specifications and recommendations in required formats
- numeracy skills to:
  - interpret business requirements and specifications
  - evaluate possible technical design scenarios for optimum solution
- planning and organisational skills to plan, prioritise and monitor team members work
- problem-solving and contingency-management skills to adapt varied business procedures to requirements
- research skills to interrogate vendor databases and websites in order to implement different solutions that meet client business specifications
- technical skills to:
  - evaluate optimum solutions
  - produce technical solutions
  - review technical specifications.

Required knowledge

- business processes
- client business domain, including client organisation structure and business functionality
- compatibility issues and resolution procedures

© Commonwealth of Australia, 2025 Future Skills Organisation

- configuration of internet protocol (IP) networks
- customer and business liaison
- desktop applications and operating system (OS) as required
- procedures for linking processes
- project-management methodologies and processes
- security protocols, standards and data encryption
- technologies, such as:
  - access networks
  - core networks
  - ICT network topologies
  - mobile cellular networks
  - network protocols and OS
  - optical networks and principles
  - radio frequency (RF) networks and principles
  - radio frequency identification (RFID) hardware and software.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • adapt technologies to specified technical solutions • use site-design software and hardware • evaluate client specifications against accepted industry practices • produce technical solutions from business specifications • produce information that can be shared between businesses • apply design concepts to business solutions • produce technical reports • make recommendations and offer optimum design solutions.
Context of and specific resources for assessment	Assessment must ensure access to: • client functional requirements • business specifications • database and simulation software • organisational guidelines • network or computer layout • site-design software and hardware

© Commonwealth of Australia, 2025 Future Skills Organisation

	• information on a range of ICT business solutions • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate carrying out project work • verbal or written questioning to assess required knowledge and skills • review of reports and implementation plans prepared by the candidate for the project • review of a portfolio of the project work undertaken. Note: The preferred assessment method is through a workplace project or through a simulated medium to large enterprise workplace.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Business requirements may include:	• business application • business plan • existing system

© Commonwealth of Australia, 2025 Future Skills Organisation

	• mission statement • nature of the business • network or people in the organisation.
Business specifications may include:	• budget allocation • budget costs estimate • future plan • growth forecast • technical requirements • timeline.
Client may include:	• external organisation • finance company • health industry • ICT company • individuals • internal department • internal employee • manufacturing company • service industry.
Appropriate person may include:	• authorised business representative • client • ICT network administrator • ICT network manager • ICT support manager • small or medium enterprise (SME) customer • small office home office (SOHO) customer • supervisor.
Problem may refer to:	• application • business need or opportunity that needs to be addressed • network or people in the organisation • system.
Stakeholders may include:	• development team • project team • sponsor • user.
Requirements may refer to:	• application • business • database • network • people in the organisation • platform • system.

© Commonwealth of Australia, 2025 Future Skills Organisation

Technical requirements may refer to:	• bandwidth
	• hardware problems
	• input and output
	• interface
	• network:
	  • growth
	  • security
	  • traffic congestions
	• new technologies
	• power usage
	• process flow
	• quality requirements
	• software problems
	• transmission dropouts
	• upgrades.

Hardware may include:	• cabling networks
	• internet protocol TV (IPTV)
	• multimedia
	• network elements:
	  • gateways
	  • local area network (LAN) switches
	  • routers
	  • servers
	  • wireless networks
	• optical networks
	• radio networks
	• equipment:
	  • RFID
	  • switching
	  • transmission
	  • voice and data.

Software may include:	• commercial • customised software • in-house • packaged.
Network may include:	• broadband • data • ICT networks • internet • intranet

© Commonwealth of Australia, 2025 Future Skills Organisation

	• media • radio • RFID • security • switching • telecommunications • transmission.
Impact may refer to:	• fewer downtimes • improved efficiency • improved response times • increased return on investment (RoI) • lower operational costs • more user-friendly network.

Technical solutions may include:	• audit requirements
	• changes to:
	  • network infrastructure
	  • security or privacy provisions
	• ebusiness or e-commerce solution
	• hardware upgrades
	• implementing a new system
	• inventory management
	• new hardware
	• new software
	• OHS and quality requirements
	• software upgrades
	• user training.

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAPRG604A Create cloud computing services

Modification History

Release	Comments
Release 1	This version first released with ICA11 Information and Communications Technology Version 1.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design, build, test and deploy web services and cloud computing applications to specification.

Application of the Unit

This unit applies to those required to create and install web services and cloud computing applications in their job as a computer programmer.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENTS	PERFORMANCE CRITERIA
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Design web service or cloud computing application	1.1. ***Gather requirements*** for the web service or cloud computing application 1.2. Determine the ***development environment*** and tools to create web service or cloud computing application 1.3. Identify any possible ***big data*** applications 1.4. Define ***architecture, framework*** and ***protocols***
2. Build web service	2.1. Itemise required functionality 2.2. Build web service in the determined environment to meet required functionality
3. Build cloud computing application	3.1. Determine required functionality 3.2. Build cloud computing application in the determined environment to meet the required functionality
4. Test web service or cloud computing application	4.1. Test web service or cloud computing application for overall functionality according to requirements 4.2. Iterate design or build until test results meet requirements
5. Deploy web service or cloud computing application	5.1. Deploy web service or cloud computing application to the specified environment 5.2. Publish web service or cloud computing application to the specified environment

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills
analytical skills to: • examine and define system requirements • review requirements and determine appropriate solution

© Commonwealth of Australia, 2025 Future Skills Organisation

• communication skills to:
  • interact with developer to determine system requirements
  • interact with end user or client to determine system requirements
• literacy skills to read technical specifications
• planning and organisational skills to perform tasks according to the project plan
• problem-solving skills to:
  • address common problems in operating a web service or cloud computing application
  • perform basic debugging, such as defining simple problem, locating source of the problem, and providing solution to problem
• research skills to find and evaluate technologies to meet system requirements
• technical skills to:
  • access databases and manipulate data
  • create applications using basic programming techniques
  • create web pages using hypertext markup language (HTML) and cascading style sheet (CSS)
  • perform basic operations within a web environment
  • use an integrated development environment (IDE)

Required knowledge

• development tools to produce services deployable from the internet (cloud computing)
• internet infrastructure
• object-oriented programming
• overview knowledge of:
  • database access and manipulation
  • HTML
  • eXtensible markup language (XML)

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design, build, test and deploy a web service to specification that can be accessed and used from a separate web application • design, build, test and deploy a cloud computing application to specification that can be accessed from a variety of portals • document the completed development.

© Commonwealth of Australia, 2025 Future Skills Organisation

Context of and specific resources for assessment	Assessment must ensure access to: • specific requirements, including client and functionality requirements • IDE for the determined language • database server with tools to access data source and develop queries • web server for determined environment • internet and web browser • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of candidate's:
	  • web service code, test and deployment
	  • cloud computing application code, test and deployment
	• verbal or written questioning to assess candidate's knowledge of:
	  • web services
	  • coding standards
	  • cloud computing
	• review of candidate's completed documentation.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating *conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.*

Gathering requirements may include:	• interviews • observation • questionnaires • requirements already documented • reviewing existing documentation.
Development environment may include:	• AJAX • Eclipse incorporating Java • HTML, XHTML and CSS • JavaScript • JSP • Microsoft Visual Studio incorporating ASP, C#, Visual Basic • PHP • Python.
Big data may include:	• data access that incorporates high volume, high velocity and a high variety of information with fast in-depth processing • data managed by large information management specialist companies using big data technologies, such as Software AG, Oracle, IBM, Microsoft, SAP, EMC, and HP • data that is distributed within the cloud across a wide number of database servers.
Architecture may include:	• capacity considerations • network topology • operating system • public or private network • scalability • security model • web server, such as IIS or Apache.
Framework may include:	• .NET • Apache Axis • Apache CXF • Halcyon • Hessain • Web Services Interoperability Technology • WSO2 WSF/PHP.

© Commonwealth of Australia, 2025 Future Skills Organisation

Protocols may include:	• representational state transfer (REST) • simple object access protocol (SOAP) • universal description, discovery and integration (UDDI) • web processing service (WPS) • web services description language (WSDL).

Unit Sector(s)

Programming and software development

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAD401A Develop and present feasibility reports

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to research and present a range of feasible scenarios to the client.

Application of the Unit

This unit applies to individuals required to investigate solutions to an information and communications technology (ICT) project, such as in a systems analyst role.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Confirm client requirements	1.1 Analyse ***client requirements*** to determine ***project*** scope, and the problem or opportunity faced by the business 1.2 Document client requirements, project scope, ***related problems*** and ***sources of information*** 1.3 Confirm requirements and scope with the ***client***
2. Develop high-level alternative scenarios	2.1 Compare future client requirements with current requirements 2.2 Develop and document feasible solutions for client requirements 2.3 Explore and document the ***feasibility*** of each ***solution*** 2.4 Examine alternatives against project ***constraints***
3. Prepare and publish feasibility report	3.1 Develop a feasibility report that describes client requirements and project scope, analyses alternative scenarios, and provides recommendations 3.2 Submit feasibility report to ***appropriate person*** for project approval

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to identify, analyse and evaluate broad features of a particular business domain
- communication skills to:
  - liaise and negotiate with clients and colleagues
  - present information
- literacy skills to:
  - analyse and evaluate information and organisational requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

    - apply financial modelling skills for identifying, analysing and evaluating a range of budget and other solutions
    - write business reports
- planning and organisational skills to:
    - determine project scope, time, cost and quality
    - scope communications and risk management
- research skills to locate and evaluate solutions to business requirement
- technical skills to:
    - identify, analyse and evaluate best practice in system development
    - interpret technical documentation.

Required knowledge

- client business domain
- detailed knowledge of the system's current functionality
- role of stakeholders and the degree of stakeholder involvement
- two or more current industry systems development methodologies.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify services required • scope a project • develop solutions to client’s requirements that fit within the constraints • prepare a feasibility report.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • client requirements • report-writing template • client-expectations brief • information on a range of information technology (IT) business solutions

© Commonwealth of Australia, 2025 Future Skills Organisation

	• future organisational business processes • budgets for scenarios • outcomes of the business-analysis process.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of a candidate analysing client's requirements and presenting solutions • verbal and written questioning of candidate's knowledge of the client requirements and the business context • review of a feasibility report prepared by the candidate.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client requirements may include:	• applications • business opportunities • network • people in the organisation • problems with or opportunities for a business • system.
Project may include:	• business improvement process • systems-only change

© Commonwealth of Australia, 2025 Future Skills Organisation

	• ebusiness solution involving the total organisation or part of the organisation
	• projects involving a business undertaking a total organisational change
	• scope:
	  • budget
	  • feasibility
	  • features
	  • hardware
	  • legal constraints
	  • policy
	  • resource
	  • software
	  • time.

Related problems may relate to:	• routine or non-routine problems that may affect the immediate work environment or project outcome, particularly related to meeting client requirements.
Sources of information may include:	• business strategy change management • current systems design project-management.
Client may include:	• clubs • external organisations • individuals • internal departments • internal employees.
Feasibility may include:	• economic and schedule feasibility as well as the principal inputs and outputs • expected improvements or impacts • operational feasibility • physical requirements of each solution • revenue and cost-benefits • risks • technical feasibility.
Solution may include:	• hardware upgrades • implementing a new system • new hardware • new software • software upgrades • user training.
Constraints may include:	• budget • hardware • legal constraints

© Commonwealth of Australia, 2025 Future Skills Organisation

	• policy • resource • software • time.
Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

Systems analysis and design

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAD501A Model data objects

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to understand business operations, identify entities and data, diagrammatically represent their relationships and prepare a data model.

Application of the Unit

This unit applies to systems designers who are required to prepare data models.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify entities and relationships	1.1 Analyse business data to understand operations 1.2 Identify boundaries of the ***system*** 1.3 Identify ***entities***, attributes, ***data types*** and ***relationships*** of data 1.4 Review business rules to determine impact 1.5 Document relationships in an entity relationship diagram
2. Develop normalisation	2.1 Identify suitable business data 2.2 Undertake normalisation of business data and document results 2.3 Compare normalisation results with entity relationship diagram 2.4 Reconcile differences between data
3. Validate model	3.1 Validate data model with client 3.2 Resolve issues or recommendations 3.3 Document completed data model 3.4 Submit to client for final approval

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse business data
- communication skills to liaise with clients
- problem-solving skills to solve problems that arise with the entity relationships
- technical skills to:
  - develop entity-relationship models in tables
  - relate identifier selection to business domain
  - relate user specifications to data model

© Commonwealth of Australia, 2025 Future Skills Organisation

- transfer customer requirements into data model.

Required knowledge

- detailed knowledge of:
  - database identifiers and their impact on database usability
  - normalisation rules and processes
  - type hierarchies, including sub-types, super-types, root-types related to development of structured data types
  - validation procedures and processes
- function and features of:
  - an approach to data modelling, such as the entity-relationship model
  - keys, e.g. unique keys, composite keys, primary keys and primary index
  - time stamps related to the use of keys
  - user-defined types, structured types, reference types and user-defined functions
- particular business or domain.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • model valid data objects • normalise the model • validate the model.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • client business requirements • database software • computer-aided software engineering tools or other suitable software.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• observation of candidate's use of computer-aided software engineering (CASE) tool or other appropriate software
	• verbal or written questioning to assess candidate's knowledge of:
	  • data modelling techniques
	  • normalisation
	  • entity relationship diagrams
	• review of completed data model and associated documentation prepared by candidate.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

System may include:	• application service provider • applications • databases • gateways • internet service provider (ISP) • operating systems • servers.
Entities may include:	• concept • object • person.

© Commonwealth of Australia, 2025 Future Skills Organisation

Data types may include:	• character large object (CLOB), double-byte character large object (DBCLOB) • character string • date-time and binary string • double-byte (or graphic) character string • large object (LOB), binary large object (BLOB) • numeric • structured types and reference types • user-defined type (UDT).
Relationships may include:	• many-to-many • many-to-one • one-to-many • one-to-one.

Unit Sector(s)

Systems analysis and design

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAD502A Model data processes

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to gather process data and business information in order to model data processes within an organisation.

Application of the Unit

This unit applies to systems designers who are required to design new systems by modelling data processes.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Develop scope of model	1.1 Identify relevant data processes and sources of information 1.2 Identify ***information-gathering method*** and ***modelling*** methodology to be used 1.3 Document modelling information gathered 1.4 Validate modelling information with ***client***
2. Gather process data	2.1 Identify business functions and collect process data using chosen method 2.2 Identify external events, procedures and results 2.3 Identify processes and required decomposition
3. Develop and validate data model	3.1 Model process data according to modelling methodology 3.2 Validate process model with client to determine inaccuracies 3.3 Incorporate identified changes, as required 3.4 Review business rules to determine impact on process models and change as required 3.5 Validate completed process models with client

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to determine business requirements
- communication skills to liaise with users
- literacy skills to document the process model
- research skills to research current industry practice
- technical skills to implement process modelling using relevant methodologies, including object-oriented cooperative process modelling and OIKOS.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required knowledge

- detailed knowledge of modelling rules and conventions with reference to naming processes and events
- features and functions of process mappers, e.g. IEF, Isee, ProcessWise Workbench, ARIS, and PROTOS
- features of data analysis, particularly in determining process flows
- processes and techniques using logical design concepts related to designing process models.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify data processes that represent the client's business reality • model these processes according to industry and organisation standard • document the model.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • client business requirements • database software • computer-aided software engineering (CASE) tools or other modelling software.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate’s knowledge of:
	  • process modelling
	  • business rules
	• review of completed data model and associated documentation prepared by candidate.

© Commonwealth of Australia, 2025 Future Skills Organisation

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Information gathering method may include:	• interviews • observation • questionnaires • surveys.
Modelling may include:	• activity definition report (process definition) • activity dependency diagram • activity hierarchy diagrams (process diagrams) • data flow diagrams • use case diagrams.
Client may include:	• employees • external organisations • individuals • internal departments.

Unit Sector(s)

Systems analysis and design

© Commonwealth of Australia, 2025 Future Skills Organisation

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAD503A Minimise risk of new technologies to business solutions

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to identify and plan to minimise the financial and technological risks facing business solutions using new technologies.

Application of the Unit

This unit applies to individuals in senior information and communications technology (ICT) roles in a variety of areas who are required to assess potential implications of new technologies, both monetary and technical.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Establish the risk context	1.1 Review organisational and technical environment and proposed business solution 1.2 Identify scale, importance and complexity of project risks 1.3 Establish acceptable and unacceptable levels of risk and consequences for the ***solution*** 1.4 Identify the impact of risks against the business environment 1.5 Determine and document proposed actions to insure against identified generic risks
2. Conduct risk analysis	2.1 Conduct a risk analysis to determine the likelihood of risks identified 2.2 Rank risk factors according to the impact and likelihood of occurrence 2.3 Develop ***contingency plans*** to mitigate identified risks 2.4 Document risk analysis and contingencies in a ***risk-management plan*** 2.5 Implement risk management plans and undertake awareness training to inform ***stakeholders***
3. Monitor risks	3.1 Establish feedback channels to warn of unforeseen and identified risks 3.2 Conduct regular reviews to identify new risks and update established risks 3.3 Document changes to risk management plans as appropriate

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- analytical skills to review organisational and technical business solutions
- communication skills to liaise with stakeholders and provide training
- literacy skills to:
  - write and dissemination policy
  - write technical documents
- numeracy skills to assess financial risk
- planning and organisational skills to:
- develop mitigation strategies
  - manage a project
  - manage risk and implement contingency plans
- technical skills to:
  - maintain and administer a site
  - transfer files
  - use site design software and hardware.

Required knowledge

- business process design
- business supply chain
- copyright and intellectual property relating to new technologies
- how business sites fit into corporate strategy
- user analysis and the CRM.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop procedures that identify where risk occurs • identify measures to be taken to treat the risk.
Context of and specific resources for	Assessment must ensure access to:

© Commonwealth of Australia, 2025 Future Skills Organisation

assessment	• analysis software • business website • customer relationship model (CRM) • requirements documentation • site server • site server software • updated or new technology • user analysis • web servers • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of:
	  • risk management
	  • financial calculations of risk
	• review of candidate's documented risk management plan
	• evaluation of candidate's risk review procedures.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

Solution may include:	• implementing a new system • new hardware and hardware upgrades • new software and software upgrades • user training.
Contingency plans may include:	• identifying weaknesses and providing for the implementation of a disaster prevention program • minimising disruption to business operations • providing a coordinated approach to the disaster recovery process.
Risk-management plan may include:	• insuring against risk may include transferring risk to external technicians or ensuring that indemnity insurance is valid and appropriate to the situation • potential risk events, preferred and alternative risk management strategies and actions, formal arrangements, responsibility assignment, contingency plans and assigned risk responsibilities.
Stakeholders may include:	• development team • project team • sponsor • user.

Unit Sector(s)

Systems analysis and design

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAD504A Implement quality assurance processes for business solutions

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to define and implement quality assurance processes and procedures to ensure that business solutions achieve quality performance expectations.

Application of the Unit

This unit applies to senior information and communications technology (ICT) staff in a range of areas who are required to ensure quality in ICT systems.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Plan business quality assurance process	1.1 Determine business quality performance expectations and benchmark ***standards***
	1.2 Develop business standards and guidelines for achieving each benchmark
	1.3 Allocate strategic quality responsibilities for meeting business standards and guidelines according to business procedures
	1.4 Communicate quality policy and procedures to appropriate ***stakeholders***
	1.5 Document expectations, standards and benchmarks in a quality plan based on business ***documentation standards***
	1.6 Identify appropriate quality management systems guides, including ***quality management plan*** for complex activities
2. Implement quality policies and plans	2.1 Write quality policy for business directive
	2.2 Create quality management plan for business process
	2.3 Distribute quality management plan to key people for feedback
	2.4 Analyse feedback to determine if corrective action needs to be taken
	2.5 Make changes to quality management plan, if required, to incorporate corrective action
	2.6 Allocate key quality tasks and functions to ***appropriate person*** as per the quality management plan
	2.7 Establish and document a quality reporting and monitoring program
	2.8 Check and document skills of staff to ensure that they are able to meet the ***quality standards*** required
3. Control quality assurance processes	3.1 Implement quality performance guidelines, procedures and processes as per the quality management plan
	3.2 Obtain stakeholder feedback, including client satisfaction to monitor implementation of quality processes
	3.3 Monitor quality process performance as per the quality

© Commonwealth of Australia, 2025 Future Skills Organisation

	management plan 3.4 Report on monitoring of quality performance to key decision makers 3.5 Identify and record breakdowns in the ***system*** and create corrective action requests 3.6 Take immediate corrective action, where necessary
4. Improve quality	4.1 Collect, analyse and measure quality performance results against benchmarks to determine quality standards 4.2 Determine the frequency of quality breakdowns through corrective action requests in order to identify whether defects are isolated incidents or require a wider analysis and corrective action 4.3 Determine corrective actions to be taken and assign responsibility for taking the action where appropriate 4.4 Identify who will be responsible for quality improvement 4.5 Implement corrective action solutions and measure performance 4.6 Review and adjust benchmark standards periodically in order to improve quality performance 4.7 Document quality performance results and disseminate the information to stakeholders as appropriate 4.8 Review business procedures at predetermined schedules as part of a management-review process and quality-reporting function

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse current development environment with regard to implementing quality plan
  - analyse quality performance results
- communication skills to liaise with a variety of key stakeholders and customers
- literacy skills to:
  - compile a quality plan
  - interpret quality reports
- planning and organisational skills to schedule the implementation

© Commonwealth of Australia, 2025 Future Skills Organisation

- problem-solving skills to solve quality breakdown issues
- technical skills to:
  - audit website security
  - test evaluation data
  - test implementation data
  - test technical design development.

Required knowledge

- copyright and intellectual property relating to IT systems development
- features of business models
- International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards
- quality concepts applied to IT
- quality improvement processes
- techniques of technical performance measurement
- website architecture, including operating system
- website privacy, accessibility and equity legislation.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • plan and implement appropriate processes and procedures to ensure quality expectations are met • produce quality standards that are quantitative and applied universally • document quality assurance standards.
Context of and specific resources for assessment	Assessment must ensure access to: • related quality standards • data related to the business model • quality guidelines • appropriate learning and assessment support when required • modified equipment for people with special needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of quality assurance and appropriate processes • review of candidate's documented implementation plan.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Standards may include:	• ISO, IEC and AS standards • organisational standards • project standards.
Stakeholders may include:	• community groups • corporate body • end user • government body • internal or external client.
Documentation standards may include:	• ISO, IEC and AS standards • organisational standards • policy relating to: • distribution

© Commonwealth of Australia, 2025 Future Skills Organisation

	• revision • sign-off and storage • project standards • tools for documenting: • word-processing packages • desktop-publishing packages.
Quality management plan may include:	• audit • authorisations and responsibilities for quality control • communications and responsibilities • continuous improvement • critical success factors • measurement criteria and inspection • processes • quality assurance • report • review procedures.
Appropriate person may include:	• authorised business representative • client • supervisor.
Quality standards may be specific to:	• internal or customer-supplied standards • international standards • national standards • organisational standards.
Client may include:	• employees • external organisations • individuals • internal departments.
System may include:	• applications • application service provider (ASP) • databases • gateways • internet service provider (ISP) • operating systems • servers.

Unit Sector(s)

Systems analysis and design

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAD505A Develop technical requirements for business solutions

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop technical and related requirements that will enable business solutions to be implemented in an organisation.

Application of the Unit

This unit applies to system analysts in a range of information and communications technology (ICT) areas who are required to produce technical specifications.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Research business requirements	1.1 Define ***hardware*** and ***software*** requirements of the business solution 1.2 Determine model of business 1.3 Determine ***technical specifications*** for business 1.4 Establish ***interface requirements*** for end users and external parties 1.5 Document business solution ***requirements*** for approval from ***stakeholders*** 1.6 Determine IT security requirements
2. Analyse the impact of technical solutions	2.1 Identify hardware, software and ***network*** requirements 2.2 Identify software solutions to build business platform 2.3 Identify processes to be changed by the business solution 2.4 Determine the effect changes will have on the value or supply chain 2.5 Research a range of ***security protocols*** suitable for business solutions 2.6 Document impact of changes and submit to relevant stakeholders
3. Develop and test business solutions	3.1 Implement hardware and software solutions for testing purposes 3.2 Identify training needs to update personnel skills 3.3 Plan timelines and allocation of resources for business solution 3.4 Develop performance ***standards*** and benchmark results 3.5 Determine costs involved to implement business solution 3.6 Document the business solution
4. Secure sign-off of validated solution	4.1 Test, validate and document results of the business solution 4.2 Provide results to appropriate person for verification

© Commonwealth of Australia, 2025 Future Skills Organisation

	4.3 Obtain sign-off on business solution

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse business requirements
- communication skills to communicate with clients, stakeholders and technical staff
- literacy skills to:
  - produce technical requirements document
  - understand business requirements
- planning and organisational skills to plan timelines and resource allocation
- research skills to research appropriate hardware and software
- technical skills to:
  - implement hardware and software
  - produce technical architecture of business solutions.

Required knowledge

- business-process design
- copyright and intellectual property relating to IT systems development
- customer and business liaison
- implications of technology connectivity
- potential business solutions
- prevailing corporate strategies that may influence business solutions.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and	Evidence of the ability to: • identify the internal and external technical environments

© Commonwealth of Australia, 2025 Future Skills Organisation

evidence required to demonstrate competency in this unit	required to provide a business solution • develop a corresponding list of technical requirements • analyse the impact of the technical solution • ensure that the nominated hardware and software are functional.
Context of and specific resources for assessment	Assessment must ensure access to: • business model • business requirements documentation • customer relationship model • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• written or verbal questioning to identify candidate's knowledge of:
	  • process of producing technical requirements
	  • business processes
	• review of candidate's documentation, specifically:
	  • hardware, software and network requirements
	  • software solutions to build business platform
	  • processes to be changed by the business solution
	  • effect that changes will have on the value or supply chain
	  • security protocols suitable for business solutions
	  • training requirements
	  • timelines
	  • required resources.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Hardware may include:	• variety of hardware, such as:
	  • systems units
	  • monitors
	  • keyboards
	  • mice
	  • personal digital assistants (PDA)
	  • printers
	  • smart phones
	  • laptops
	• identifying key hardware characteristics of internally used hardware and external hardware that must be interfaced with.

Software may include:	• commercial • customised software • in-house • packaged.
Technical specifications may include:	• brochures • help references • online help • project specifications • reports • technical manuals • training materials and self-paced tutorials • user guides.

Interface requirements may include:	• command line
	• graphical user interface (GUI):
	  • application-based
	  • web-based
	• variety of communication options.

Requirements may relate to:	• application • business • network

© Commonwealth of Australia, 2025 Future Skills Organisation

	• people in the organisation • system.
Stakeholders may include:	• community groups • corporate body • end users • government body • internal or external clients.
Network may include:	• data • large and small local area networks (LANs) • private lines • the internet • use of the public switched telephone network (PSTN) for dial-up modems only • voice • virtual private network (VPN) • wide area networks (WANs).
Security protocols may include:	• data over cable-service interface specification • domain name system security extensions • IEEE 802.11 Protocol standard for secure wireless local area network products • IP security protocol • point-to-point network tunnelling protocol • secure electronic transactions • secure multi-purpose internet mail extensions • secure shell • secure socket layer (SSL) and transport layer security.
Standards may include:	• International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • organisational standards • project standards.

Unit Sector(s)

Systems analysis and design

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAD506A Produce a feasibility report

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to recommend the preferred scenario from a range of feasible options offered to the client.

Application of the Unit

This unit applies to individuals performing a senior systems analyst role who are required to investigate solutions to an information and communications technology (ICT) project.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Confirm client requirements	1.1 Confirm ***client requirements*** to determine ***project*** scope, and the problem context or opportunity faced by the business 1.2 Review documented client requirements, project scope, ***related problems*** and ***sources of information*** 1.3 Confirm requirements and scope with the ***client***
2. Examine and review alternatives	2.1 Ensure that future client requirements are addressed 2.2 Research and document feasible solutions for client requirements 2.3 Ensure that the ***feasibility*** of each ***solution*** has been assessed, including ***constraints***
3. Prepare and publish feasibility report	3.1 Ensure that the completed feasibility report covers client requirements, project scope and analysis of alternative scenarios 3.2 Confirm the recommendation of the preferred scenario 3.3 Present feasibility report to ***appropriate person*** for project approval

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse the results of feasibility tests applied to options
  - identify, analyse and evaluate details of a particular business domain
- communication skills to:
  - liaise and negotiate with clients and colleagues
  - present information
- literacy skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - analyse and evaluate information and organisational requirements
  - review documents prepared by others
  - write business reports
- numeracy skills to:
  - apply financial feasibility analysis to options
  - evaluate the results
- planning and organisational skills to:
  - determine project scope, time, cost and quality
  - plan communications and risk management
- research skills to locate and evaluate solutions to business requirement
- technical skills to:
  - identify, analyse and evaluate best practice in system development
  - interpret technical documentation.

Required knowledge

- client business domain
- role of stakeholders and the degree of stakeholder involvement
- system's current functionality
- two or more current industry systems development methodologies.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• manage and review work done by others in the:
	  • identification of required services
	  • scope of a project
	  • solutions to client’s requirements that fit within the constraints
	• review a prepared feasibility report.

Context of and specific resources for assessment	Assessment must ensure access to: • contributions to a feasibility report • client requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

	• report-writing template • client expectations brief • information on a range of IT business solutions • future organisational business processes • budgets for scenarios • outcomes of the business-analysis process • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of a candidate analysing client's requirements with their team
	• verbal and written questioning to assess candidate's knowledge of:
	  • client requirements
	  • business context
	  • factors required to present solutions
	  • feasibility
	  • financial modelling
	• review of an approved feasibility report with contributions from the candidate's team.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client requirements may refer to:	• applications • business opportunities • network • people in the organisation • problems with or opportunities for a business • system.
Project may include:	• business improvement process • ebusiness solution involving the total organisation or part of the organisation • projects involving a business undertaking a total organisational change • scope: • budget • feasibility • features • hardware • legal constraints • policy • resource • software • time • systems-only change.
Related problems may relate to:	• routine or non-routine problems that may affect the immediate work environment or project outcome, particularly relating to meeting client requirements.
Sources of information may include:	• business-strategic plans • change-management plans • current systems-design plans • project-management plans.
Client may include:	• external organisation • individual • internal department • internal employee.

© Commonwealth of Australia, 2025 Future Skills Organisation

Feasibility may include:	• economic and schedule feasibility as well as the principal inputs and outputs • expected improvements or impacts • operational feasibility • physical requirements of each solution • revenue and cost-benefits • risks • technical feasibility.
Solution may include:	• hardware upgrades • implementing a new system • new hardware • new software • software upgrades • user training.
Constraints may include:	• budget • hardware • legal constraints • policy • resource • software • time.
Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

Systems analysis and design

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAD601A Perform IT-focused enterprise analysis

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to provide an enterprise analysis and determine the possible IT solutions available for a given initiative or for long-term planning.

Enterprise analysis is often the starting point for initiating a new project and is continued as changes occur and more information becomes available.

Application of the Unit

This unit applies to senior business analysts in medium to large organisations who determine an IT business need, problem, or opportunity, to define the nature of a solution that meets that need, and to justify the investment necessary to deliver that solution.

The work roles combine high-level management, business and technical skills necessary to manage complex analysis efforts within the information and communications technology (ICT) industry, often as part of business critical IT projects.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Define business need	1.1 Analyse business goals and objectives and link to measures to allow objective assessment of achievement 1.2 ***Investigate issues*** to determine the business problem or opportunity 1.3 Identify possible IT solutions to the business problem 1.4 Determine ***desired outcomes*** to enable evaluation of proposed solutions
2. Assess capability gaps	2.1 Determine current ***capabilities*** of the enterprise and relate to the desired objectives 2.2 Identify new capabilities required to achieve the desired future state and assess gaps 2.3 Test assumptions to facilitate appropriate decision making
3. Determine solution approach	3.1 Generate potential IT options to meet the business objectives 3.2 Generate valid assumptions and recognise constraints that may affect the choice of solutions 3.3 Assess and rank ***solution approaches*** to facilitate selection
4. Define solution scope	4.1 Define solution scope in terms of the major features or functions to be included 4.2 Explain the implementation approach in terms of how the chosen solution will deliver the solution scope 4.3 Delineate major business and technical dependencies

© Commonwealth of Australia, 2025 Future Skills Organisation

5. Define business case	5.1 Identify benefits of the recommended solution in terms of both qualitative and quantitative gains to the enterprise 5.2 Estimate the total net cost of the solution 5.3 Perform initial risk assessment 5.4 Agree how identified costs and benefits will be assessed and evaluated

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to review organisational and technical business solutions
- communication skills to:
  - conduct research, interviews and liaise with stakeholders
  - conduct focus groups and requirements workshops
- numeracy skills to develop cost-benefit analyses
- problem-solving and analytical skills to undertake root cause analysis and feasibility studies
- technical writing skills to develop business case
- technical skills to develop models of systems, processes and solutions.

Required knowledge

- business-analysis processes, procedures and techniques
- market trends and best practices to assist in identifying business opportunities
- technology and technology solution patterns.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

© Commonwealth of Australia, 2025 Future Skills Organisation

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• analyse a business situation
	• develop a comprehensive business case for a proposed solution that addresses:
	  • business need
	  • required capabilities
	  • solution scope
	  • most feasible approach.

Context of and specific resources for assessment	Assessment must ensure access to: • documentation, including appropriate policies, current business analysis practices, tools and legislation • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of a simulated or workplace project in a medium to large enterprise • direct observation of the candidate carrying out business analysis work • verbal or written questioning to assess required knowledge and skills • review of reports and plans prepared for the projects • evaluation of a portfolio of the project work undertaken.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where a practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Investigating issues may include:	• adverse impacts the problem is causing • expected benefits from any potential solution • how quickly the problem could potentially be resolved • underlying sources of the problem.
Desired outcomes may include:	• creating a new capability, such as a new product or service, addressing a competitive disadvantage, or creating a new competitive advantage • complying with new regulations • improving revenue, by increasing sales or reducing cost • increasing customer satisfaction • increasing employee satisfaction • improving safety • reducing time to deliver a product or service.
Capabilities may include:	• business processes • events that a solution must be able to respond to • features of a software application • goals that a solution will allow stakeholders to accomplish • products that an organisation creates • services that an organisation delivers • tasks that an end user may perform.
Solution approaches may include:	• adding resources to the business or making organisational changes • changing the business procedures or processes • designing and developing custom software • purchasing or leasing software and hardware from a supplier • partnering with other organisations, or outsourcing work to suppliers • using additional capabilities of existing software or hardware within the organisation.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Systems analysis and design

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAD602A Conduct knowledge audits

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to implement a knowledge management audit.

Application of the Unit

This unit applies to senior managers responsible for knowledge management within an organisation.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Conduct a knowledge need analysis	1.1 Identify current and future directions of the business 1.2 Identify knowledge and skills required to support the current business activities 1.3 Identify knowledge and skills required to support future business directions
2. Analyse the knowledge inventory	2.1 Produce knowledge questionnaires to request information from staff about corporate knowledge 2.2 Identify ***explicit knowledge*** currently resident in data sources, such as policies, procedures, databases and libraries; and record its location 2.3 Identify the accessibility, aim and integrity of the knowledge 2.4 Identify the frequency of update of this knowledge, its previous versions, and its backup status 2.5 Identify ***implicit knowledge*** currently resident in informal sources and organisational knowledge
3. Chart the knowledge flow	3.1 Examine how knowledge flows from one data store to another within the organisation, and how this flow is facilitated or impeded by policies, such as access control or records management policies 3.2 Examine the procedures that facilitate the flow of knowledge within the organisation and their ease of use 3.3 Identify the corporate and individual attitudes to knowledge within the organisation
4. Produce a knowledge audit report	4.1 Analyse the results of the knowledge audit 4.2 Document findings and present to the appropriate person

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- analytical skills to analyse knowledge requirements and the results of questionnaires
- communication skills to:
  - facilitate groups
  - liaise and negotiate with team members and management
  - present, transfer and collect information and gain consensus
- initiative and enterprise skills to forecast future directions and anticipate knowledge requirements
- literacy skills to update knowledge of products, software systems and technology
- planning and organisational skills to create, distribute and collect knowledge surveys
- research skills to specify, analyse and evaluate broad features of a particular business domain and solutions to project problems
- technical skills to formulate milestones.

Required knowledge

- organisation's business, policies, procedures and structure
- concepts of risk management planning and processes
- design and development of questionnaires
- procedures for analysis of completed questionnaires
- reporting mechanisms
- tools and models of project management.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify and document explicit and implicit knowledge in an organisation • identify knowledge required to meet current needs • forecast knowledge required to meet future needs.
Context of and specific resources for assessment	Assessment must ensure access to: • an organisation and its data sources • staff from the organisation

© Commonwealth of Australia, 2025 Future Skills Organisation

	• appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate creating questionnaires • verbal or written questioning to assess candidate's knowledge of implicit and explicit knowledge • review of candidate's knowledge audit report.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Explicit knowledge may include information held in:	• database management system (DBMS) • intranets • libraries • policies • procedures.
Implicit knowledge may include:	• informal networks of employees • the 'go-to' employee • those with a long-standing organisational knowledge • corporate memory.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Systems analysis and design

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAD603A Plan and monitor business analysis activities in an IT environment

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to establish and manage IT business analysis activities in a medium to large organisation.

Application of the Unit

This unit applies to senior business analysts in medium to large organisations who ensure business analysis activities for a particular business analysis effort are properly initiated, planned and managed.

Their job roles combine high-level management, business and technical skills necessary to manage complex analysis efforts within the information and communications technology (ICT) industry, often as part of business critical IT projects.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Plan business analysis approach	1.1 Establish organisational process needs and objectives that apply to the ***initiative*** and if necessary define the requirements that the process must meet 1.2 Review existing organisational standards, including standards, guidelines and processes relating to the current initiative 1.3 Tailor ***approach*** to the needs of a specific business analysis initiative, according to organisational standards if required 1.4 Engage with the ***appropriate stakeholders*** to determine how the work will be completed 1.5 Plan the execution of ***business activities***
2. Conduct stakeholder analysis	2.1 Recognise stakeholders who may be affected by the business need or a new solution 2.2 Assess stakeholder attitudes toward and ***influence*** over the initiative 2.3 Decide which stakeholders will have ***authority*** over business analysis activities 2.4 Instigate regular reviews to identify new stakeholders or changed positions as clarity of business needs evolve
3. Plan business analysis activities	3.1 Decide the type of project or initiative and the business analysis deliverables 3.2 Determine the scope of work for business analysis activities 3.3 Approve which activities the business analyst will perform and when 3.4 Develop estimates for business analysis work
4. Plan business analysis communication	4.1 Determine how best to receive, distribute, access, update and escalate information from project stakeholders

© Commonwealth of Australia, 2025 Future Skills Organisation

	4.2 Decide how best to communicate with each stakeholder according to ***stakeholder needs and constraints to communication***
5. Plan requirements management process	5.1 Establish a ***requirements repository*** for storing requirements, including those under development, those under review, and approved requirements 5.2 Assess the need and process for requirements traceability based on ***relevant factors*** 5.3 Conclude which ***requirements attributes*** will be captured 5.4 Determine the process for requirements change management
6. Manage business analysis performance	6.1 Determine which metrics will be used to measure the work performed by the business analyst 6.2 Report performance in an ***appropriate format*** based on the needs of the project 6.3 Assess performance measures to determine where problems may be occurring in executing business analysis activities 6.4 Identify preventative or corrective actions as required

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to review organisational and technical business solutions
- communication skills to:
  - conduct focus groups and requirements workshops
  - conduct research, interviews and liaise with stakeholders
- planning and organisational skills to:
  - develop mitigation strategies
  - manage an analysis project
  - manage risk and implement contingency plans
- problem-solving and analytical skills to brainstorm requirements and approaches
- technical writing skills to develop requirements documents and specifications
- technical skills to develop models of systems, processes and solutions.

Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

- business-analysis process, procedures and techniques
- project management process, procedures and techniques
- risk management strategies
- technology and technology solution patterns.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • plan and monitor business analysis activities, including determining an approach and processes that are appropriate to the circumstances • determine business analysis deliverables, tasks and estimates • determine metrics that will be used for monitoring business analysis work.
Context of and specific resources for assessment	Assessment must ensure access to: • documentation, including appropriate policies, current business analysis practices, tools and legislation • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of a simulated or workplace project in a medium to large enterprise • direct observation of the candidate carrying out business analysis work • verbal or written questioning to assess required knowledge and skills • review of reports and plans prepared for the projects • evaluation of a portfolio of the project work undertaken.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally

© Commonwealth of Australia, 2025 Future Skills Organisation

	appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Initiative may include:	• feasibility studies • new software development (in-house) • organisational change • outsourced new software development • process improvement • software maintenance or enhancement • software package selection.
Approach defines:	• approach will also determine how the planning process is performed • deliverables • life cycle • templates and tasks that should be included.
Appropriate stakeholders may include:	• customer, domain SME, end user or supplier • implementation SME • regulator or other stakeholder with legal or governance authority over the solution or the process used to develop it • project manager • tester • sponsor.
Business activities may include:	• analysis techniques • frequency of stakeholder interactions • project deliverables • project risk

© Commonwealth of Australia, 2025 Future Skills Organisation

	• project timeframe • team roles • other elements of the business-analysis process.
Influence may include:	• influence on the project • influence in the organisation • influence needed to ensure success of the particular project • influence with other stakeholders.
Authority may relate to:	• approving the deliverables • approving the requirements process that will be used • inspecting and approving the requirements • requesting and approving changes • reviewing and approving the traceability structure • vetoing proposed requirements or solutions (individually or in a group).
Stakeholder needs and constraints to communication may include:	• communication approach for the stakeholder • how best to communicate requirements conclusions or packages, including authority level (sign-off authority, veto authority or review only) • physical location or time zone of the stakeholders • time and resource availability constraints • what types of communications will be required, such as status, anomalies, issues and their resolution, risks, meeting results and action items • what types of requirements will be elicited, such as business, stakeholder, solution, or transition; high level versus detailed and how best to elicit them.
Requirements repository may include:	• diagrams and models • requirements management tools and applications • whiteboards • word-processing documents • wikis • any other method of recording information that allows requirements to be single-sourced and available to stakeholders for as long as they are needed.
Relevant factors may include:	• complexity of the domain • number of views of requirements that will be produced • potential impacts from risk • costs and benefits involved.
Requirements attributes may include:	• absolute reference via a unique numeric (preferred) or textual identifier • author of the requirement • cost

© Commonwealth of Australia, 2025 Future Skills Organisation

	• complexity • ownership • priority • risks associated with meeting or not meeting the requirements • source of the requirement • stability • status • urgency • resource assignment • revision number • traced-from and traced-to.
Appropriate format may include:	• verbal • presentation • writing.

Unit Sector(s)

Systems analysis and design

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAD604A Manage and communicate IT solutions

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manage and communicate requirements for new IT systems to a broad and diverse audience.

Application of the Unit

This unit applies to senior business analysts in medium to large organisations who ensure that all stakeholders have a shared understanding of the nature of an IT solution; and to ensure that those stakeholders with approval authority agree on the requirements that the solution meets.

Their job roles combine high-level management, business and technical skills necessary to manage complex analysis efforts within the information and communications technology (ICT) industry, often as part of IT projects critical to the business.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Manage identified client IT requirements and scope of solution	1.1 Establish baseline client IT requirements and change control processes to track changes to requirements and solution scope 1.2 Resolve issues and conflicts that emerge during final stages of identifying and analysing requirements 1.3 Determine how requirements will be presented for review 1.4 Secure approval of requirements from those stakeholders who have the appropriate authority
2. Manage requirement relationships and dependencies	2.1 Examine and organise the set of requirements and record the dependencies and relationships for each 2.2 Perform impact analysis to assess or evaluate the impact of a change 2.3 Deploy ***requirements management tools*** as necessary
3. Maintain requirements for re-use	3.1 Identify requirements that the organisation will use in the long term 3.2 Name and define requirements available for future re-use
4. Prepare requirements package	4.1 Decide which formats are appropriate for a particular project and its stakeholders 4.2 Prepare ***requirements package*** according to organisational need
5. Communicate requirements	5.1 Communicate requirements iteratively and in conjunction with ***business analysis tasks*** 5.2 Develop and deliver ***presentations of requirements*** according to communication objectives

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to perform impact analysis of possible changes to solution scope
- communication skills to bring stakeholders from different backgrounds and business domains to a common understanding of the IT requirements
- organisational and management skills to manage the integrity of requirements to the business goals and actual solution through uncertainty and change over time
- strategic thinking skills to ensure that knowledge of the organisation gained during business analysis is available for future use
- technical skills to develop evaluation criteria.

Required knowledge

- conflict-resolution and issue-management techniques to handle possible changes to solution scope
- requirements management and requirements traceability processes
- techniques for managing version control and configuration.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • establish processes to trace requirements, and control and track changes to requirements and solution scope • package and communicate requirements according to what is appropriate for a project or stakeholder group.
Context of and specific resources for assessment	Assessment must ensure access to: • documentation, including appropriate policies, current business analysis practices, tools and legislation • appropriate learning and assessment support when required • modified equipment for people with special needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of a simulated or workplace project in a medium to large enterprise • direct observation of the candidate carrying out business analysis work • verbal or written questioning to assess required knowledge and skills • review of reports and plans prepared for the projects • evaluation of a portfolio of the project work undertaken.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Requirements management tools may include:	• Caliber-RM • MKS requirements • Requisite Pro • RTM Workshop • SoftREQ • Teamcenter • TestTrackRM.
Requirements package	• formal documentation, usually based on a template used by

© Commonwealth of Australia, 2025 Future Skills Organisation

may exist in the form of:	the organisation, such as a vision document or software requirements specification • models, where the requirements may be presented only in the form of a model, such as a process map, or captured on a whiteboard • presentation that delivers a high-level overview of the functionality delivered by the solution.
Business analysis tasks may include:	• enterprise analysis tasks • elicitation tasks • requirements analysis tasks • solution assessment and validation tasks.
Presentations of requirements may be used to:	• as a precursor to delivery, e.g. examining solution options with a delivery team • ensure cross-functional fit with other business process areas within the same project • ensure that internal project quality standards have been adhered to • make decisions regarding solution scope • obtain business acceptance and sign-off • obtain delivery team sign-off • obtain testing team sign-off • prioritise a set of requirements before proceeding to next project stage.

Unit Sector(s)

Systems analysis and design

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAD605A Elicit IT requirements

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to undertake and engage stakeholders in the key task of defining IT requirements.

Application of the Unit

This unit applies to senior business analysts in medium to large organisations who ensure that requirements elicited are complete, clear, correct and consistent, and can serve as a solid foundation for the solution to the business needs.

Their job roles combine high-level management, business and technical skills necessary to manage complex analysis efforts within the information and communications technology (ICT) industry, often as part of business critical IT projects.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Prepare for elicitation	1.1 Define the specific activities and the planned dates for a particular ***elicitation activity***
	1.2 Build a detailed schedule
	1.3 Communicate the plan to affected parties
2. Conduct elicitation activity	2.1 Conduct elicitation activity
	2.2 Monitor captured requirements against business objectives to prevent scope creep
	2.3 Capture and document ***requirements' attributes***
	2.4 Update process metrics as the basis for future planning
3. Document elicitation results	3.1 Record elicitation outcomes in the ***appropriate form***
	3.2 Present elicitation outcomes to stakeholders and obtain agreement
4. Confirm elicitation results	4.1 ***Review*** the documented outputs with the stakeholders
	4.2 Confirm that own understanding reflects stakeholder intentions and preferences

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - document and system interface
  - others' observations
  - impact of changes
- communication skills to:
  - conduct interviews, develop surveys and questionnaires
  - conduct focus groups, requirements workshops, walkthroughs and to present requirements
- planning and organisational skills to plan and conduct elicitation activities
- technical writing skills to develop requirements documents and specifications
- technical skills to develop solution concepts and prototypes.

Required knowledge

- conflict-resolution and issue-management techniques
- negotiation and consensus strategies
- techniques to elicit and manage the gathering of requirements
- risk management strategies with regard to requirements gathering, staff management and proposed systems
- scope management and change control processes
- version control and configuration management.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • plan and conduct requirements elicitation activities • select and apply techniques that are appropriate to the situation • document requirements and obtain stakeholder sign-off.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate policies • current business analysis practices • tools • legislation if applicable • other documentation

© Commonwealth of Australia, 2025 Future Skills Organisation

	• appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of a simulated or workplace project in a medium to large enterprise • direct observation of the candidate carrying out business analysis work • verbal or written questioning to assess required knowledge and skills • review of reports and plans prepared for the projects • evaluation of a portfolio of the project work undertaken.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Elicitation activity may include:	• brainstorming • document analysis • focus group • interview • interface analysis • observation

© Commonwealth of Australia, 2025 Future Skills Organisation

	• prototyping • workshop • survey or questionnaire.
Requirements' attributes to aid in managing each requirement throughout its life cycle may include:	• source • its value • its priority.
Appropriate form may include:	• visual or audio recordings • written documents describing the outcomes, such as meeting minutes • actual or virtual whiteboards where notes are retained until they are transferred to another medium.
Review may include:	• informal discussion or brainstorming • structured or facilitated workshop • use of formal review tools, such as survey or interview.

Unit Sector(s)

Systems analysis and design

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAD606A Analyse stakeholder requirements

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to analyse stated requirements, determine potential solutions, and define possible features available to meet stakeholder needs.

Application of the Unit

This unit applies to senior business analysts in medium to large organisations who define the IT requirements (both stakeholder and solution requirements) of one or more stakeholder groups in enough detail to allow solution components to be constructed.

Their job roles combine high-level management, business and technical skills necessary to manage complex analysis efforts within the information and communications technology (ICT) industry, often as part of business critical IT projects.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Prioritise requirements	1.1 Determine the ***basis for prioritisation*** of requirements 1.2 Resolve ***challenges*** in facilitating the prioritisation
2. Organise requirements	2.1 Articulate requirements at an ***appropriate level*** of abstraction 2.2 Devise ***appropriate models*** to describe the solution scope based on informational needs of stakeholders 2.3 Document dependencies and interrelationships among requirements
3. Specify and model requirements	3.1 Develop textual requirements 3.2 Generate matrices to convey or support identified requirements 3.3 Create models to document and communicate requirements and improvement opportunities
4. Define assumptions and constraints	4.1 Agree on assumptions to be defined and clarified as requirements are understood 4.2 Document and examine ***business constraints*** to identify options no longer available 4.3 Recognise and examine ***technical constraints*** that may restrict design or mandate standards to be followed
5. Verify requirements	5.1 Establish ***characteristics of requirements' quality*** 5.2 Undertake verification activities iteratively throughout the requirements analysis process
6. Validate requirements	6.1 Identify and define stakeholder requirement benefit assumptions so that associated risks can be managed 6.2 Generate measurable evaluation criteria to assess success of requirements benefit post-implementation 6.3 Assign business value of requirements to assist in identifying

© Commonwealth of Australia, 2025 Future Skills Organisation

	candidates for elimination 6.4 Determine requirement dependencies for benefits realisation 6.5 Evaluate alignment with business case and opportunity cost to assist validation and decision making

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to review organisational and technical business solutions
- communication skills to:
  - conduct focus groups and requirements workshops
  - conduct research and interviews
  - liaise with stakeholders
- analytical skills to prioritise requirements
- technical writing skills to develop requirements documents and specifications
- technical modelling skills to develop models of systems, processes and solutions.

Required knowledge

- business rules analysis
- data flow diagramming
- data modelling
- functional decomposition
- organisation modelling
- process modelling
- risk management strategies
- scenarios and use cases
- scope modelling
- user stories.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • define, specify and prioritise stakeholder and solution requirements to a standard that would allow construction of a business solution • verify and validate the requirements to ensure necessary quality and support for stakeholder needs.
Context of and specific resources for assessment	Assessment must ensure access to: • documentation, including appropriate policies, current business analysis practices, tools and legislation • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of a simulated or workplace project in a medium to large enterprise • direct observation of the candidate carrying out business analysis work • verbal or written questioning to assess required knowledge and skills • review of reports and plans prepared for the projects • evaluation of a portfolio of the project work undertaken.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Basis for prioritisation may include:	• difficulty of implementation • relative value • likelihood of success • risk • regulatory or policy compliance • relationship to other requirements • stakeholder agreement • urgency.
Challenges may include:	• non-negotiable demands, e.g. stakeholders wish to rank all requirements as high priority • unrealistic tradeoffs, e.g. difficulty or complexity of implementing certain requirements may be overstated.
Appropriate level is determined by:	• particular methodology being used • whatever level of abstraction is appropriate for the audience.
Appropriate models may include:	• data flow diagrams • data models • functional decomposition • organisation models • process models • scenarios and use cases • scope models • user stories.
Business constraints may include:	• organisational restrictions • budgetary restrictions • limits on the number of resources available • restrictions based on skills of the project team and stakeholders • scope restrictions • time restrictions.
Technical constraints may include:	• application software that must be used • architecture decisions that are made that may impact the design of the solution, such as: • development languages

© Commonwealth of Australia, 2025 Future Skills Organisation

	• hardware and software platforms • application software that must be used • restrictions, such as resource use • message size and timing • software size • maximum number of and size of files records and data elements • enterprise architecture standards that must be followed.
Characteristics of requirements' quality may include:	• cohesiveness • completeness • consistency • correctness • feasibility • modifiable • testable • unambiguous.

Unit Sector(s)

Systems analysis and design

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAD607A Manage assessment and validation of IT solutions

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to determine the best IT solution and facilitate its implementation.

Application of the Unit

This unit applies to senior business analysts in medium to large organisations who assess and validate business processes, organisational structures, outsourcing agreements, software applications, and any other component of the solution to ensure that the overall solution delivers maximum value to stakeholders.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Assess proposed solution	1.1 Rank solution options on business value and advantages and disadvantages of alternatives 1.2 Generate and consider solution options and additional capabilities
2. Allocate requirements	2.1 Allocate requirements to ***solution components*** to maximise business value 2.2 Facilitate allocation of requirements to a specific project release, phase or iteration
3. Assess organisational readiness	3.1 Conduct cultural assessment 3.2 Conduct operational or technical assessment 3.3 Perform ***stakeholder impact analysis***
4. Define transition requirements	4.1 Evaluate old system actual data and metadata 4.2 Develop options for managing ongoing work during transition to the new solution 4.3 Participate in organisational change-management recommendations or processes as required
5. Validate solution	5.1 Investigate ***defective solution outputs*** 5.2 Assess defects and issues
6. Evaluate solution performance	6.1 Realise value delivered by the solution 6.2 Validate solution metrics 6.3 Decide ***solution replacement or elimination***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- analytical and technical skills to conduct stakeholder impact analyses
- planning and organisational skills to plan and conduct solution assessment and validation activities
- analytical skills to rank solutions
- communication and facilitation skills to:
  - conduct interviews and workshops
  - participate in organisational change-management activities.

Required knowledge

- business environment with regard to proposed IT solutions
- techniques for assessing options and validating solutions
- organisational change management
- solution-performance metrics.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • categorise benefits and disadvantages of various solution options • assess cultural impact of different solutions • compare transition requirements between solutions • analyse output variances between solutions • remove inappropriate solutions from list • recommend remaining solutions in priority order.
Context of and specific resources for assessment	Assessment must ensure access to: • documentation, including appropriate policies, current business analysis practices, tools and legislation • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for

© Commonwealth of Australia, 2025 Future Skills Organisation

	this unit: • evaluation of a simulated or workplace project in a medium to large enterprise • direct observation of the candidate carrying out business analysis work • verbal or written questioning to assess required knowledge and skills • review of reports and plans prepared for the projects • evaluation of a portfolio of the project work undertaken.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Solution components may include:	• business policies and business rules • business processes to be performed and managed • people who operate and maintain the solution, including their job functions and responsibilities • software applications and application components used in the solution • structure of the organisation, including interactions between the organisation and its customers and suppliers.
Stakeholder impact analysis may include:	• changed costs • different interface

© Commonwealth of Australia, 2025 Future Skills Organisation

	• new workflow.
Defective solution outputs may include:	• inappropriate output • incorrect output • irrelevant output.
Solution replacement or elimination may include:	• adjustment of solution • necessity • ongoing cost versus initial investment • opportunity cost of pursuing alternative courses of action • removal of solution from option list • replacement of solution • sunk cost - the money and effort already committed to an initiative.

Unit Sector(s)

Systems analysis and design

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS201A Maintain inventories for equipment, software and documentation

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to record and store details of software, hardware and technical documentation.

Application of the Unit

This unit applies to frontline technical support personnel who maintain equipment and software in a small to large office environment. The technical documentation of the equipment and software within this role is a key component of any information and communications technology (ICT) environment.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Document and update inventory	1.1 Maintain ***hardware inventory*** that creates a profile or description of each piece of equipment 1.2 Maintain ***software inventory*** and update licences as required, particularly when upgrading software 1.3 Record and organise storage of user documentation or technical manuals
2. Store technical documentation	2.1 Store hardware, software and equipment that is not in use, according to technical manuals 2.2 Ensure ***technical documentation*** is stored securely 2.3 Access and disseminate technical documentation as required

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - liaise with users across a range of organisational levels
  - provide limited advice and guidance to users
  - seek assistance when required
- initiative and enterprise skills to identify potential improvements to inventories and technical documentation
- literacy skills to read, write and interpret workplace documentation
- problem-solving skills for a defined range of predictable problems
- technical skills to operate a personal computer.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required knowledge

- basic knowledge of:
  - technical documentation processes
  - software licensing requirements
  - inventory principles and procedures
- current industry practice related to storage of hardware, software and technical documentation.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • update and maintain software, equipment and technical documentation inventory, according to identified storage and retrieval policy and procedures • adhere to software licensing requirements, according to vendor specifications • access and regularly keep inventories up-to-date.
Context of and specific resources for assessment	Assessment must ensure access to: • personal computer and enterprise intranet • currently used inventory management software • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate accessing inventories of software and hardware • direct observation of candidate maintaining an inventory • review of completed inventory reports for different inventory types and scenarios • direct observation of candidate reviewing the status of software licences and reporting on their status

© Commonwealth of Australia, 2025 Future Skills Organisation

	• review of software inventory prepared by candidate outlining updates to licences when upgrading software.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, used if in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Hardware inventory may include:	• communications equipment • networking equipment • notebooks • peripherals • personal computers • personal digital assistants (PDAs) • test equipment.
Software inventory may include:	• antivirus applications • backup and recovery applications • client management suite • collaboration and learning • commercial applications • computer-aided design applications • customised software • drivers • in-house software • multimedia and graphics applications

© Commonwealth of Australia, 2025 Future Skills Organisation

	• office applications • open-source software • operating systems • packaged software • patch management • project management applications • remote troubleshooting and assistance.

Technical documentation may include:	• enterprise procedures:
	  • build documentation
	  • loading software
	  • upgrades
	  • virus removal
	• frequently asked questions (FAQ)
	• hardware documentation
	• information pertaining to specific operating systems and platforms
	• service level agreements (SLAs)
	• software documentation.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS202A Apply problem-solving techniques to routine IT malfunctions

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to apply problem-solving techniques to determine the origin of a routine malfunction and plan for its resolution.

Application of the Unit

This unit applies to frontline technical support personnel who are required to identify technical malfunctions, determine appropriate remedial action and recommend potential solutions. Communicating effectively, simplifying technical problems and determining potential solutions are key components of this support role.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Identify routine problems	1.1 Identify hardware, software, user or procedural problem areas to ***appropriate person*** in the organisation 1.2 Define and determine problem to be investigated 1.3 identify and document current conditions of the ***hardware***, ***software***, ***user*** or ***problem***
2. Research solutions to routine problems	2.1 Identify potential solutions to problem 2.2 Develop document, rank and present recommendations about possible ***solutions*** to the appropriate person for decision
3. Recommend solutions to problems	3.1 Plan implementation of solutions 3.2 Plan evaluation of implemented solutions 3.3 Document the recommended solution and submit to the appropriate person for confirmation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - provide clear and precise advice that varies according to audience
  - use questioning and active listening to clarify general information
- literacy skills to document:
  - initial problems
  - recommendations to solve problems
- customer-service skills to effectively deal with clients

© Commonwealth of Australia, 2025 Future Skills Organisation

- organisational skills to use time management and prioritise work requests
- research skills to source basic information from readily available sources
- technical skills to:
  - identify routine malfunctions
  - rank recommendations about possible solutions.

Required knowledge

- current industry hardware and software products and services
- current industry maintenance, service and help-desk practices, processes and procedures
- current operating systems
- current industry standard diagnostic tools.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • apply problem-solving techniques to determine the root cause of a routine malfunction • document recommended solutions to problems following established procedures and referring unresolved problems to support persons.
Context of and specific resources for assessment	Assessment must ensure access to: • a workstation • detailed information relating to organisational processes and procedures • information on a range of information technology (IT) business solutions • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate identifying and defining the

© Commonwealth of Australia, 2025 Future Skills Organisation

	problem • direct observation of candidate documenting the details of the problem • verbal or written questioning to assess candidate's knowledge of enterprise escalation procedures • review of documentation provided by candidate about possible problems, recommended solutions, and their implementation and evaluation.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Appropriate person may include:	• authorised business representative • client • help-desk person • subject matter expert • supervisor • system administrator.
Hardware may include:	• cabling • modems or other connectivity devices • networks • personal computers • remote sites

© Commonwealth of Australia, 2025 Future Skills Organisation

	• servers • workstations.

Software may include:	• application:
	  • database
	  • internet browser
	  • spreadsheet
	  • word-processing
	• commercial
	• customised
	• in-house
	• programming:
	  • assembler
	  • compiler
	  • development tools
	• system:
	  • computer security
	  • device drivers
	  • operating system.

User may include:	• contractor • department within the organisation • person within a department • support staff • third party.

Problem may include:	• routine malfunction that affects the work environment:
	  • cable fault
	  • complementary metal oxide semiconductor (CMOS) battery failure
	  • computer freeze
	  • faulty motherboard
	  • hard drive crash
	  • incompatible software
	  • insufficient memory
	  • loss of internet access
	  • malware
	  • virus.

Solutions may include:	• hardware:
	  • renew
	  • upgrade
	• software:
	  • reload

© Commonwealth of Australia, 2025 Future Skills Organisation

	• renew • upgrades • user training • implementing a new system.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS203A Connect hardware peripherals

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to connect hardware peripherals according to instructions.

Application of the Unit

This unit applies to workers who require the information and communications technology (ICT) skills to connect a variety of hardware peripherals to different configurations and types of ICT equipment. Communicating effectively, and simplifying and solving technical incompatibility conflicts and problems are key components of this ICT support role.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Confirm client requirements	1.1 Identify and confirm ***peripheral*** requirements of ***client*** according to ***organisational standards***
	1.2 Document client requirements and peripherals needed and report findings to the appropriate person according to organisational standards
	1.3 Verify client requirements with ***appropriate person*** according to organisational standards and reporting procedures
	1.4 Take action to ensure client support expectations are covered by vendor warranty and support services
2. Obtain required peripherals	2.1 Obtain peripherals under instruction from appropriate person
	2.2 Enter details of peripherals into ***equipment inventory*** according to organisational standards
	2.3 Validate that contents of delivered components and physical contents match the packing list and resolve discrepancies if necessary
	2.4 ***Store*** peripherals according to vendors guidelines
3. Connect hardware peripherals	3.1 Verify timeframe for installation schedule with client
	3.2 Remove old peripherals with minimal disruption to clients if they are to be replaced, taking into account ***environmental considerations*** and ***OHS standards***
	3.3 Connect new peripherals with minimum disruption to clients, taking into account ***operating system*** procedures
	3.4 Configure computer to accept new peripherals
	3.5 Test hardware peripherals and confirm client satisfaction, paying particular attention to possible effect on other systems and making adjustments as required

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- customer service and conflict-resolution skills to:
  - ensure proposed actions are consistent with client's expectations
  - transfer and collect information
- literacy skills to:
  - document client requirements
  - follow vendor guidelines
  - present information
  - update equipment inventory
- negotiation skills to interact with other team members and clients
- problem-solving skills to resolve routine installation and configuration issues
- technical skills and decision-making skills to:
  - ensure compatibility of peripherals with operating system
  - remove and install peripherals
  - undertake maintenance procedures.

Required knowledge

- broad general knowledge of:
  - computer operating systems
  - help desk and maintenance practices
  - peripheral devices
  - OHS procedures for electrical equipment
  - interconnectivity of technical system components
- current industry-accepted hardware and software products
- detailed knowledge of inventory procedures
- organisational guidelines relating to external suppliers and vendors.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • safely connect several different types of hardware peripherals to the system according to vendor instructions with a minimum of downtime using known routines and procedures • locate, interpret and use vendor documentation related to connection and storage of hardware peripherals • test operation of newly installed hardware peripherals and confirm client satisfaction • adhere to OHS regulations when working with electrical equipment.
Context of and specific resources for assessment	Assessment must ensure access to: • sites with a representative range of workstations, hardware peripherals, internet connections, cabling, and software to be installed, interconnected and configured • hardware and software currently used in industry • technical documentation, including organisational hardware blueprint • vendor support • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate installing, connecting and configuring hardware peripheral devices • review of reports that document client requirements and peripherals completed for different scenarios and situations • verbal or written questioning to assess candidate's ability to locate, use and interpret vendor documentation • direct observation of candidate testing hardware peripherals added to a system.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking

© Commonwealth of Australia, 2025 Future Skills Organisation

	background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Peripheral may include:	• Bluetooth device • firewire (IEEE 1394) device • hard drive • keyboard • laptop • mobile phone • modem • mouse • multimedia kit • pen • personal digital assistant (PDA), such as palmtop • printer • scanner • speaker • tape cartridge • touch pad • universal serial bus (USB) device • wireless fidelity (wi-fi) router.
Client may include:	• external organisations • individuals • internal departments.
Organisational standards may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms

© Commonwealth of Australia, 2025 Future Skills Organisation

	• opening mail with attachments • personal use of emails and internet access • virus risk.
Appropriate person may include:	• authorised business representative • client • help-desk person • subject matter expert • supervisor • system administrator.
Equipment inventory may include detailed lists of peripherals, including:	• hard drives • hubs • modems or other connectivity devices • monitors • other peripheral devices • personal computers • PDA • printers • switches.
Store may include:	• anti-static packaging • controlled humidity • controlled temperature • secure storage area • shock and vibration minimisation • silica gel desiccant • stacking limits.

Environmental considerations may include:	• recycling of packaging:
	  • cardboard
	  • paper
	  • polystyrene
	• recycling or disposal of ewaste:
	  • cathode ray tube (CRT) monitors
	  • printed circuit boards
	  • redundant hardware.

OHS standards may include:	• electrical safety • safe lifting methods • ventilation.
Operating system may include:	• GNUs Not Unix (GNU) • Linux • Mac OS X • Microsoft Windows

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Unix-like operating systems:
	  • HP-UX
	  • IBM AIX
	  • Silicon Graphics IRIX
	  • Sun Solaris.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS204A Record client support requirements

Modification History

Version	Comments
Release 1	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to record, prioritise and escalate client support requests.

Application of the Unit

This unit applies to frontline technical support personnel who provide information and communications technology (ICT) client support in a small or large office environment. Communicating effectively and simplifying technical problems are key components of client support roles.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

ELEMENT	PERFORMANCE CRITERIA
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Log requests for support	1.1 Record ***client*** support requests and requirements according to ***organisational standards*** 1.2 Review ***client*** support history and details 1.3 Check the information and request for accuracy and urgency according to ***organisational standards***
2. Prioritise support requests with appropriate personnel	2.1 Identify guidelines for prioritising or rating ***client*** requests 2.2 Prioritise ***client*** request based on its criticality or effect on business
3. Record support request	3.1 Document support request according to organisational requirements 3.2 Refer requests to ***appropriate person*** or department for assistance

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
- gather client information
- clarify client requirements
- conflict-resolution skills and customer-service skills to deal with requests for support
- literacy skills to interpret general workplace documentation
- planning and organisational skills to prioritise work requests

© Commonwealth of Australia, 2025 Future Skills Organisation

Required knowledge

- broad knowledge of:
- diagnostic tools
- escalation procedures
- maintenance procedures
- business scheduling requirements
- current business practices to prepare reports
- organisational procedures to rate and prioritise client requests
- roles and responsibilities of information technology (IT) division

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • log and record calls according to organisational policy and procedures • prioritise and escalate client support requests according to organisational policy and procedures.

Context of and specific resources for assessment	Assessment must ensure access to:
	• a site where logging and recording of client support may be recorded and prioritised
	• c***lient*** support history records
	• organisational policy and procedures related to:
	  • critical process
	  • escalation procedures
	  • logging procedures
	  • prioritising client requests
	• appropriate learning and assessment support when required.
	
	Where applicable, physical resources should include equipment

© Commonwealth of Australia, 2025 Future Skills Organisation

	modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate logging and recording calls • review of reports completed as part of client history • verbal or written questioning of candidate's ability to communicate with appropriate persons involved with ***client*** support.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• external organisations • individuals • internal departments.
Organisational standards may include:	• client liaison policy • escalation procedures • logged call procedures • preventative maintenance and diagnostic policy • roles and technical responsibilities in the IT department • security procedures • vendor and product service level support agreements.
Appropriate person may include:	• help-desk person • subject matter expert • supervisor • vendor business representative.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS205A Maintain IT system integrity

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to protect and secure stand-alone or client server environments.

Application of the Unit

This unit applies to technical support personnel who are required to protect and secure equipment and software in a small or large office environment. Maintaining system integrity through backup and recovery procedures, virus security and implementing licensing and copyright requirements are key components of any information and communications technology (ICT) environment.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Carry out system backup	1.1 Create and review organisational ***backup schedule***
	1.2 Determine ***storage media*** and ***hardware*** for backups
	1.3 Ensure backups are carried out according to the schedule
	1.4 Label and store backups according to ***organisational standards***
	1.5 Maintain records of backups
2. Restore system backup	2.1 Determine and test restoration procedures according to organisational standards
	2.2 Restore data under instruction from an ***appropriate person***
	2.3 Restore data according to organisational standards
	2.4 Document and report on backup results
3. Maintain virus protection	3.1 Maintain and update ***virus protection*** software according to ***operating system*** in use
	3.2 Carry out virus scanning and report detected viruses to appropriate person
	3.3 Remove viruses and update scanning software
4. Follow copyright procedures and record software licences where appropriate	4.1 Identify ***licensed software*** used by the organisation
	4.2 Maintain records of licence number and location
	4.3 Monitor operation and use of licensed software where applicable
	4.4 Check personal computers and networks to ensure software compliance
	4.5 Report licensing anomalies related to ***software*** to an appropriate person

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - clarify instructions
  - communicate with peers and supervisors
  - present information
  - seek assistance and expert advice
- literacy skills to:
  - interpret user manuals, technical documentation and help functions
  - read and write basic workplace documents
- problem-solving skills to address common operational problems when carrying out system backup and recovery
- technical skills to perform:
  - backup and recovery operations
  - basic diagnostic tests in system integrity.

Required knowledge

- broad knowledge of:
  - organisational standards regarding:
    - backup and recovery procedures and operations
    - label and store backups
  - current industry-accepted hardware and software products
  - current viruses and protection methods
  - diagnostic tools
  - inventory procedures
  - maintenance procedures
  - storage and retrieval guidelines
  - system performance
- software copyright and general public licence (GPL) or copyright responsibilities.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • protect and secure stand-alone or networked client-server environments and operating systems according to system maintenance procedures • undertake system and file backup, recovery delete and archive according to backup and recovery procedures • check computers to ensure software compliance.
Context of and specific resources for assessment	Assessment must ensure access to: • sites with a representative range of stand-alone and networked client-server environments and operating systems • antivirus software • technical records and documentation • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate undertaking file backup and recovery • direct observation of candidate performing virus scans and virus removal • review of documented reports on backup results • review organisational backup schedules • review software licence records • verbal or written questioning to assess candidate's knowledge of maintaining and updating virus protection software and checking computers for software copyright compliance.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined

© Commonwealth of Australia, 2025 Future Skills Organisation

	with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Backup schedule may occur:	• evenings • weekdays • weekends • monthly • yearly • or a combination.
Storage media may include:	• CD and DVD • external storage devices, such as universal serial bus (USB) flash drive • internal storage devices.
Hardware may include:	• networked systems • personal computers • tools to perform tape backups.
Organisational standards may include:	• backup procedures • GPL and copyright licences • reporting of non-compliant software • restore and security procedures • software licence documentation • virus scanning and removal procedures.
Appropriate person may include:	• authorised business representative • client • supervisor • system administrator.
Virus protection may include:	• freeware • online • open source • proprietary software: • BitDefender

© Commonwealth of Australia, 2025 Future Skills Organisation

	• CA Vet Antivirus • Kaspersky Antivirus • McAfee VirusScan • Panda Antivirus • Symantec Norton Antivirus.

Operating system may include:	• GNUs Not Unix (GNU)
	• Linux
	• Mac OS X
	• Microsoft Windows
	• Unix-like operating systems:
	  • HP-UX
	  • IBM AIX
	  • Silicon Graphics IRIX
	  • Sun Solaris.

Licensed software may include:	• corporate licences • educational licences • freeware • open source • shareware licences • single-user licences • user-restrictive licences.

Software may include:	• application:
	  • database
	  • internet browser
	  • spreadsheet
	  • word-processing
	• commercial
	• customised
	• in-house
	• programming:
	  • assembler
	  • compiler
	  • development tools
	• system:
	  • computer security
	  • device drivers
	  • operating system.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS206A Detect and protect from spam and destructive software

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to reduce the risk of a computer's operation being affected by spam or destructive software.

Application of the Unit

This unit applies to technical support personnel who are required to protect and secure equipment and software in a small or large office environment. Maintaining system integrity through virus security and implementing spam filtering are key components of information and communications technology (ICT) environments.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Detect and remove destructive software	1.1 Identify common types of ***destructive software***
	1.2 Select and install ***virus protection*** compatible with the ***operating system*** in use
	1.3 Investigate other ***advanced systems*** of protection for further options
	1.4 Install ***software updates*** on a regular basis
	1.5 Configure software ***security settings*** to prevent destructive software from infecting computer
	1.6 Run or schedule to run virus-protection software on a regular basis
	1.7 Report detected destructive software to ***appropriate person*** and remove the destructive software
2. Identify and take action to stop spam	2.1 Identify common types of ***spam***
	2.2 Take ***appropriate action*** in regard to spam
	2.3 Configure and use a ***spam filter***
	2.4 Report spam to ***appropriate organisation***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication and literacy skills to present reports
- problem-solving skills to anticipate and respond to a range of known virus and spam types
- technical skills to:
  - install and configure system filtering and security settings

© Commonwealth of Australia, 2025 Future Skills Organisation

- install software updates
- install virus protection
- operate a computer and software application
- select virus protection to suit operating system in a limited range of options.

Required knowledge

- spam and virus intrusions and appropriate remedial action
- types of protective applications used against viruses and spam
- operating systems supported by the organisation
- computer hardware
- Spam Act 2003 and associated guidelines.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • install virus protection software and updates • schedule virus protection software to run on a regular basis • identify and remove common destructive software • identify common spam types and take appropriate action.
Context of and specific resources for assessment	Assessment must ensure access to: • sites with a representative range of computer hardware, application software and operating systems • current antivirus and anti-spam software • technical records, vendor documentation and enterprise procedures and guidelines • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate undertaking installation of virus

© Commonwealth of Australia, 2025 Future Skills Organisation

	protection and anti-spam software • direct observation of candidate performing virus scan and virus removal • review configuration of virus protection software and creation of operating schedule created • configure and use a spam filter.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Destructive software may include:	• file viruses • keystroke loggers • logic bombs • macro viruses • remote access tools (RATs) • spyware • system sector viruses • trojans • viruses • worms.
Virus protection may include:	• CA Vet Antivirus • freeware • online • open source

© Commonwealth of Australia, 2025 Future Skills Organisation

	• proprietary software:
	  • BitDefender
	  • Kaspersky Antivirus
	  • McAfee VirusScan
	  • Panda Antivirus
	  • Symantec Norton Antivirus.

Operating system may include:	• GNUs Not Unix (GNU)
	• Linux
	• HP-UX
	• Mac OS X
	• Microsoft Windows
	• Unix-like operating systems:
	  • IBM AIX
	  • Silicon Graphics IRIX
	  • Sun Solaris.

Advanced systems may include:	• hardware firewall • software firewall.
Software updates may include:	• automatic online updates • security patches • service packs and service releases • virus definition updates • virus scanning engine updates.
Security settings may include:	• firewall • internet browser • operating system • virus protection.
Appropriate person may include:	• authorised business representative • client • supervisor • system administrator.

Spam may include:	• messages covered by the Spam Act 2003
	• unsolicited commercial electronic messaging:
	  • email
	  • instant messaging
	  • mobile phone messaging
	  • social networking
	  • wiki.

Appropriate action may include:	• deleting the spam • blocking the sender by configuring spam filter

© Commonwealth of Australia, 2025 Future Skills Organisation

	• unsubscribing from mailing list if company is not reputable.

Spam filter may include:	• email client filters or rules
	• email server filters
	• third-party filter programs:
	  • CA Anti-Spam
	  • MailWasher Pro
	  • Norton Internet Security
	  • SpamAssassin.

Appropriate organisation may include:	• relevant government and private media screening organisations, such as:
	  • Australian Communications and Media Authority
	  • Scamwatch company that originated the spam message.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS207A Protect and secure information assets

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to ensure information assets are protected from improper access and appropriate actions are taken to secure assets in the event that they are threatened.

Application of the Unit

This unit applies to technical support personnel who are required to protect and secure equipment in a small or large office environment. Maintaining asset security and implementing preventive security measures are key components of any information and communications technology (ICT) environment.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Identify assets and threats	1.1 Identify types of ***information assets*** in the ***organisation***
	1.2 Identify mechanisms by which information assets are accessed, transmitted and stored
	1.3 Establish nature of threats to information assets and determine ***effect*** that ***loss or damage*** may have to the organisation
2. Secure assets	2.1 Identify actions, mechanisms and strategies to protect information assets
	2.2 ***Secure*** assets within scope of authority
	2.3 Report issues to ***appropriate person*** and other issues where they are outside scope of authority
3. Mitigate or prevent damage to assets	3.1 Identify signs and evidence that information assets are threatened or undergoing loss or damage
	3.2 Provide ***first-level response*** to reduce affects, mitigate damage and protect evidence
	3.3 Report incident, effects and actions to appropriate person

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- literacy and communication skills to:
  - present information
  - report incidents where assets are threatened
- problem-solving skills to:
  - anticipate and respond to threats to information assets

© Commonwealth of Australia, 2025 Future Skills Organisation

  - solve known problems in routine procedures
- technical skills to:
  - install and activate system filtering and security settings
  - operate a computer and software application
  - protect and secure information assets
  - provide first-level response.

Required knowledge

- information assets and key sources of information assets
- types of security options available to secure assets
- assets supported by the organisation
- general ICT hardware
- organisation's security procedures.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • conduct an audit of information assets, the potential threats and effect on the organisation • identify threats to assets and take appropriate action to overcome them • communicate and discuss details of security threats and issues relating to information assets.
Context of and specific resources for assessment	Assessment must ensure access to: • sites with computer hardware and office environments representing a range of workplaces • a range of appropriate software systems • organisational information assets • technical records, documentation and enterprise procedures • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate conducting an audit of information assets • review of audit records prepared verbal or written questioning to assess candidate's knowledge of nature of threats and effect of threats • review of reports, including examples of different threats and associated actions.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Information assets may include:	• equipment • files • forms • online or printed data and information • passkeys or passwords • procedures • programs or information channels • reports.
Organisation may	• departments

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• entities outside the business • government • individuals inside and outside the business • the whole business.
Affect may include:	• confidentiality • financial • personal • privacy issues • reputation.
Loss or damage may include:	• alteration • damage or destruction • deletion • misuse • theft • unauthorised publication.
Secure may include:	• appropriate modification of procedures or processes • changing of passwords or work habits • physical exclusion or control • protective software installation or operation.
Appropriate person may include:	• business owner or authorised business representative • client • government • peers • police as appropriate • supervisor.
First-level response may include:	• changing passwords • excluding people from access • locking doors • locking down the workplace • logging off • powering down systems • updating software protection.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS208A Maintain IT equipment and consumables

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to maintain the operation of basic computer hardware and peripherals, including the replacement of consumables.

Application of the Unit

This unit applies to technical support personnel who are required to maintain basic hardware equipment and associated consumables in a small or large office environment. The effective operation and maintenance of computing and peripheral equipment are key components of any information and communications technology (ICT) environment. Personnel undertaking this unit may work under direct supervision or with limited responsibility.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Clean equipment	1.1 Access and verify cleaning supplies for usability on the selected ***equipment***
	1.2 Record maintenance actions undertaken according to organisational procedures
	1.3 Clean equipment according to manufacturer specifications and organisational manuals
	1.4 Ensure basic ***OHS principles*** and guidelines are followed
2. Replace and maintain consumables and supplies	2.1 Access ***consumables*** from storage points and record usage information according to organisational procedures
	2.2 Replace consumables when needed and log the action undertaken
	2.3 Dispose of consumables following ***environmental guidelines***
	2.4 Test equipment to ensure it is in working order at set time periods and according to organisational procedures
3. Maintain equipment	3.1 Establish which equipment requires maintenance
	3.2 Maintain equipment according to organisational guidelines and manufacturer specifications
	3.3 Document maintenance procedures performed according to organisational guidelines
	3.4 Exercise care to prevent interruption of business activities during maintenance procedures
	3.5 Store unused equipment devices according to manufacturer specifications and organisational guidelines

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - communicate with peers and supervisors
  - seek assistance and expert advice
- literacy skills to:
  - document maintenance procedures
  - interpret technical documentation, equipment manuals and specifications
- planning and organisational skills to:
  - organise and maintain equipment
  - schedule required maintenance
- problem-solving skills to solve equipment and logistics problems
- safety-awareness skills to:
  - apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
  - work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- technical skills to:
  - maintain equipment
  - test and evaluate equipment maintenance requirements.

Required knowledge

- basic knowledge of:
  - current industry-accepted hardware and software and manufacturer maintenance guides
  - organisational systems related to storage and retrieval of information and equipment
- OHS principles and responsibilities, including ergonomics, work periods and breaks, and conservation techniques
- chemical storage, control and disposal procedures
- features and operating requirements of equipment.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • clean equipment following manufacturer specifications and OHS policy and procedures • replace and dispose of consumables according to regulations and organisational policy • test and maintain equipment in working order following OHS procedures.
Context of and specific resources for assessment	Assessment must ensure access to: • a site on which equipment maintenance may be carried out • use of equipment currently used in industry • relevant equipment documentation that may affect maintenance activities • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of suitable cleaning materials • direct observation of candidate replacing consumables • direct observation of candidate maintaining and testing equipment • review of documents, including maintenance procedures performed.
Guidance information for assessment	• Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. • Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. • Indigenous people and other people from a non-English speaking background may need additional support.

© Commonwealth of Australia, 2025 Future Skills Organisation

	• In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Equipment may include:	• hard drives • hubs • modems and other connectivity devices, such as digital subscriber line (DSL) modems • monitors • other peripheral devices • personal computers • personal digital assistants (PDA) • printers • switches • workstations.

OHS principles may include:	• basic principles and responsibilities relating to ICT equipment:
	  • disposal
	  • environmental control
	  • storage.

Consumables may include:	• cartridges • cleaners • disks • paper • printer toners • ribbons • tapes.

Environmental guidelines may include:	• disposal through an authorised body of redundant hardware, such as:
	  • circuit boards
	  • hard drives
	  • motherboards

© Commonwealth of Australia, 2025 Future Skills Organisation

	• recycling
	• safe disposal of packaging, such as:
	  • cardboard
	  • paper
	  • plastic
	  • polystyrene.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS209A Connect and use a home-based local wireless network

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to install, configure and secure devices to a small home-based local network.

Application of the Unit

This unit applies to workers who determine the requirements for a small home-based wireless network and then install, configure and secure the network.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Confirm requirements for home-office wireless network	1.1 Document ***client*** requirements and confirm with ***appropriate person***
	1.2 Identify available documentation and technical support options
	1.3 Identify the ***digital devices*** to be connected to the network and confirm ***wireless network component*** requirements
	1.4 Take action to ensure client support expectations are covered by vendor warranty and support services
	1.5 Ensure required ***OHS standards*** are incorporated as part of the installation process
2. Prepare for installation	2.1 Obtain digital devices and wireless network components
	2.2 Validate that contents of delivered components and physical contents match the packing list and resolve discrepancies if necessary
	2.3 Determine internet service provider ***(ISP) connection properties***
3. Install and configure the wireless router and adapters	3.1 Install the ***wireless router***
	3.2 Configure the wireless router using the ***router configuration properties***
	3.3 Install the ***wireless adapters***
	3.4 Configure the ***wireless system (wi-fi)***
4. Secure the wireless system	4.1 Set the ***security components*** of the system
	4.2 Test the security components
	4.3 Review any updated documentation regarding security issues and the components used

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- customer interaction and conflict-resolution skills to ensure proposed actions are consistent with client's expectations
- literacy skills to:
  - document installation configuration and security codes
  - follow component documentation guidelines
  - present information
- negotiation skills to interact with other team members and clients
- problem-solving skills to resolve routine installation and configuration issues
- technical and decision-making skills to ensure components meet job requirements.

Required knowledge

- computer-component installation procedures
- current industry-accepted wireless network products
- detailed knowledge of wi-fi installation requirements
- general understanding of wi-fi systems and wi-fi security considerations
- ISP connection protocols
- OHS procedures for electrical equipment
- wireless network components.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • determine suitable wi-fi requirements for small home office style settings • safely connect and integrate wi-fi components into a small office system • install and configure wireless routers and adapters as part of a wi-fi system • secure components of a wi-fi system.

© Commonwealth of Australia, 2025 Future Skills Organisation

Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • wi-fi equipment currently used in industry • technical documentation and technical support to support the wi-fi installation • internet to enable configuration procedures.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate installing, connecting and configuring wi-fi network • review of reports that document client requirements compared to the work completed by the candidate for a variety of different scenarios and situations • verbal or written questioning to assess candidate's ability to install, configure and secure a wireless home network • direct observation of candidate installing, configuring and securing a device to a wireless network.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

Client may include:	• external organisations • individual home owners • internal departments • small businesses.
Appropriate person may include:	• authorised business representative • contract authoriser • project manager • supervisor • system administrator.
Digital devices may include:	• iPad or similar device • laptop • notebook • personal computer • personal digital assistant (PDA).
Wireless network component may include:	• PC, notebook or similar • wireless adapters • wireless router or gateway.

OHS standards may include:	• electrical safety
	• ergonomics in the workplace:
	  • correct posture
	  • style and adjustments of chair
	  • type of desk
	  • type of monitor
	  • working position
	• length of time in front of computer
	• lighting level
	• placement of light fittings
	• repetitive strain injury (RSI) prevention
	• safe lifting methods
	• ventilation.

ISP connection properties may include:	• default gateway • digital subscriber line (DSL) • transmission control protocol or internet protocol (TCP/IP) • IP address • MAC address • password • subnet mask • username.
Wireless router may include:	• G Plus Mimo Wireless Networking - greater range and faster speeds • G Plus Wireless Networking - improved speed and coverage

© Commonwealth of Australia, 2025 Future Skills Organisation

	• G Wireless Networking - shares internet connection wirelessly • N Wireless Networking - enhanced speed and coverage • N1 Wireless Networking - maximum wireless performance.
Router configuration properties may include:	• ISP • password • point-to-point protocol over ethernet (PPPoE) • router-configuration IP address • utility ID.
Wireless adapters may include:	• peripheral component interconnect (PCI) and mini PCI • Personal Computer Memory Card International Association (PCMCIA) • universal serial bus (USB) card • wireless compact flash • wireless wide area network (WWAN) PC card.
Wireless system (wi-fi) may include:	• DSL modem • internet connections • wi-fi network cards • wireless network components • wireless router.
Security components may include:	• 802.11b clients • 802.11g clients • 802.11g routers • enable encryption • MAC-address filtering • passphrase passwords • pre-shared keys • router's configuration utility • service set identifier (SSID) • wi-fi protected access (WPA) encryption • wired equivalent privacy (WEP) encryption.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS301A Run standard diagnostic tests

Modification History

Version	Comments
ICASAS301A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to troubleshoot problems and conduct diagnostic tests on a range of platforms.

Application of the Unit

This unit applies to workers who require the information and communications technology (ICT) skills to run diagnostics to determine the status of a computer.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify common symptoms and preventative maintenance techniques	1.1 Develop a ***troubleshooting process*** to help resolve problems 1.2 Determine the ***specific symptoms*** relevant to different types of hardware, operating system and printer problems 1.3 Identify ***common preventative maintenance*** techniques to support maintenance strategies
2. Operate system diagnostics	2.1 Run the system diagnostic program according to specification 2.2 Modify the system configuration as indicated by the diagnostic program 2.3 Carry out preventative maintenance in line with ***organisational guidelines***
3. Scan system for viruses	3.1 Scan the system to check and maintain virus protection 3.2 Report identified viruses to an ***appropriate person*** 3.3 Remove virus infections found by the scan using ***software*** tools and procedures, or by restoring backups 3.4 Document relevant symptom and removal information

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to interpret test results
- communication skills to present information
- literacy skills to interpret computer manuals
- numeracy skills to:
  - interpret results

© Commonwealth of Australia, 2025 Future Skills Organisation

  - take test measurements
- planning and organisational skills to plan, prioritise and monitor own work
- problem-solving skills for a defined range of predictable problems
- technical skills to use diagnostic tools.

Required knowledge

- client business domain, including client organisation structure and business functionality
- current industry-accepted hardware and software diagnostic tools, including products that manage:
  - backup procedures
  - configuration procedures
  - diagnostic software and hardware
  - hardware maintenance
  - organisational security procedures
- desktop applications and operating systems.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • troubleshoot hardware and OS problems • conduct diagnostic tests on a range of platforms according to preventative maintenance and diagnostic policy • identify the root causes of the problems • scan systems for computer viruses • remove viruses using software tools and procedures • remove viruses by restoring backups.
Context of and specific resources for assessment	Assessment must ensure access to: • security guidelines • backup procedures • diagnostic software • organisational guidelines • appropriate learning and assessment support when required • modified equipment for people with special needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of candidate:
	  • troubleshooting problems
	  • conducting diagnostic tests
	  • adhering to organisation's operational procedures
	• review of candidate's documented report of symptom and its removal
	• verbal or written questioning to assess candidate's knowledge of preventative maintenance within organisational guidelines.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Troubleshooting process may include:	• identifying the problem by questioning the user and identifying user changes to computer • performing backups before making changes • establishing a theory of probable cause • testing the theory to determine cause: • once theory is confirmed determine next steps to resolve

© Commonwealth of Australia, 2025 Future Skills Organisation

	problem • if theory is not confirmed re-establish new theory or escalate • establishing a plan of action to resolve the problem and implement the solution • verifying full system functionality and if applicable implementing preventative measures • documenting findings, actions and outcomes.

Specific symptoms may include:	• hardware-related symptoms:
	  • alerts
	  • excessive heat
	  • noise
	  • odours
	  • status light indicators
	  • visible damage to cable or plastic
	• laptop or mobile devices:
	  • issues:
	  • keyboard
	  • pointer
	  • power conditions
	  • stylus
	  • video
	  • wireless card issues
	  • methods:
	  • check LCD cut-off switch
	  • check switch for built-in wi-fi or external antennas
	  • plug in external monitor
	  • remove unneeded peripherals
	  • toggle Fn keys or hardware switches
	  • verify backlight functionality and pixilation
	  • verify power (e.g. LEDs, swap AC adapter)
	• operating system (OS) related symptoms:
	  • application install
	  • bluescreen
	  • incorrect or incompatible driver
	  • input or output device
	  • print spool stalled
	  • start or load
	  • system lock-up
	  • Windows-specific printing problems
	• printers:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• manage print jobs • failure to print a test page • print spooler • printer properties and settings • use documentation and resources: • internet or web-based • training materials • user or installation manuals.
Common preventative maintenance may include:	• backup procedures • ensuring proper environment • optimising hard drives • power devices appropriate source: • power strip • surge protector • UPS • physical inspection • scanning for viruses • scheduling fault-finding • scheduling preventative maintenance: • check disk • defrag • scandisk • start-up programs • updates: • driver • firmware • OS • security • use of appropriate repair tools and cleaning materials: • compressed air • computer vacuum and compressors • lint-free cloth.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access

© Commonwealth of Australia, 2025 Future Skills Organisation

	• virus risk.
Appropriate person may include:	• authorised business representative • client • supervisor.
Software may include:	• diagnostic tools • OS and modules for configuration • types of virus and impact • virus protection software.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS303A Care for computer hardware

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manage the maintenance and location of hardware.

Application of the Unit

This unit applies to frontline technical support personnel who are required to manage organisational hardware assets, maintaining both them and their records.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement.*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Establish safe work practices	1.1 Determine, record and apply relevant legal requirements and ***OHS standards*** to the installation and maintenance of computer ***hardware***
	1.2 Determine, record and apply requirements specified by hardware manufacturers
	1.3 Determine, record and apply ***safe work practices***, taking into account legal and manufacturer requirements
2. Establish location requirements for hardware and peripherals	2.1 Determine and apply suitable ***environmental conditions*** for hardware and peripherals
	2.2 Determine and apply ***system protection devices*** where appropriate
	2.3 Determine and apply requirements when moving hardware
	2.4 Determine and apply suitable storage principles for hardware and associated ***peripherals*** and media
3. Establish maintenance practices	3.1 Determine maintenance requirements specified by the ***equipment*** manufacturer
	3.2 Produce ***maintenance*** schedules
	3.3 Perform diagnostic functions, including replacing suspect ***components*** with other serviceable components and reloading associated ***software***
	3.4 Determine whether unserviceable components are replaceable through warranty, replacement or upgrade
	3.5 Perform diagnostic functions using the ***operating system*** (OS) and third-party diagnostic tools
4. Determine appropriate hardware quality standards	4.1 Consider and apply ***business requirements*** in respect of hardware matters
	4.2 Determine and apply quality standards to the selection of appropriate hardware and associated peripherals

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to provide advice and guidance to others
- literacy skills to:
  - comprehend basic workplace documents and technical information
  - determine whether unserviceable components are replaceable through warranty, replacement or upgrade
  - interpret user manuals and help functions
- problem-solving skills to address common operational problems with computer hardware
- safety-awareness skills to work safely in regard to the specific hardware
- technical skills to:
  - diagnose hardware problems
  - reload software
  - replace suspect components
  - reload associated software
  - select appropriate hardware for a given situation
  - set up and maintain hardware
  - undertake diagnostic procedures using OS and third-party diagnostic tools.

Required knowledge

- range of quality levels in current common hardware
- importance of maintenance
- OHS principles specific to mains-powered equipment
- potential environmental effects of common types of hardware
- security issues:
  - viruses
  - worms
- software related to hardware operations
- system hardware and associated peripherals' functions.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • perform diagnostic functions by replacing components, reloading software and by using operating system and other diagnostic tools • establish siting requirements for system hardware and associated peripheral devices • implement safe work practices • determine maintenance requirements and establish maintenance schedule • apply appropriate quality standards to computer hardware and peripherals.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware • software and diagnostic tools • warranty records and reports, maintenance schedules, vendor documentation and safe work practices • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of candidate performing a range of diagnostic tasks
	• review of maintenance schedule documentation completed by candidate
	• verbal or written questioning to assess candidate's knowledge of:
	  • quality standards applied to computer hardware and peripherals
	  • safe work practices.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking

© Commonwealth of Australia, 2025 Future Skills Organisation

	background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

OHS standards may include:	• electrical safety
	• ergonomics in the workplace:
	  • correct posture
	  • style and adjustments of chair
	  • type of desk
	  • type of monitor
	  • working position
	• length of time in front of computer
	• lighting level
	• placement of light fittings
	• repetitive strain injury (RSI) prevention
	• safe lifting methods
	• ventilation.

Hardware may include:	• communications equipment:
	  • modems or other connectivity devices, including digital subscriber line (DSL) modems
	  • wireless access points
	• network equipment:
	  • cables
	  • hubs
	  • racks
	  • routers
	  • servers
	  • switches
	• personal computers (PCs)

© Commonwealth of Australia, 2025 Future Skills Organisation

	• remote sites • servers • workstations.
Safe work practices may include:	• codes of practice • hazards and hazardous material • manual handling • physical separation of data cables and mains cables • reporting and following OHS procedures • testing and tagging electrical mains cables.
Environmental conditions may include:	• air circulation • dust • extreme cold • heat • moisture • temperature stability.
System protection devices may include:	• line conditioning • surge protection • uninterruptible power supplies (UPS).
Peripherals may include:	• Bluetooth device • Firewire (IEEE 1394) device • keyboard • laptop • mobile phone • modem • mouse • multimedia kit • pen • personal digital assistant (PDA), such as palmtop • printer • scanner • speaker • tape cartridge • touch pad • universal serial bus (USB) device • wi-fi router.
Equipment may include:	• DSL modems • hard drives • hubs • modems or other connectivity devices • monitors • other peripheral devices

© Commonwealth of Australia, 2025 Future Skills Organisation

	• PCs • PDA • printers • switches • workstations.

Maintenance may include:	• faulty components returned to depot
	• on-site response
	• planned maintenance:
	  • dust and grease removal from filters and components
	  • lubrication of fan and blower bearings
	• remote diagnostics.

Components may include:	• CD and DVD drives • central processing unit (CPU) • complementary metal oxide semiconductor (CMOS) battery • fax or modem cards • interface cards • motherboards • power supply • random access memory (RAM).

Software may include:	• application:
	  • database
	  • internet browser
	  • spreadsheet
	  • word-processing
	• commercial
	• customised
	• in-house
	• programming:
	  • assembler
	  • compiler
	  • development tools
	• system:
	  • computer security software
	  • device drivers
	  • OS.

Operating systems may include:	• GNU and Linux • Mac OS X • Microsoft Windows • Unix-like operating systems: • HP-UX

© Commonwealth of Australia, 2025 Future Skills Organisation

	• IBM AIX • Silicon Graphics IRIX • Sun Solaris.

Business requirements may include:	• capability for further system upgrades
	• cost and quality
	• existing facilities
	• industry standard components
	• installation:
	  • ease
	  • lead time
	  • licensing issues
	• reliability
	• robustness
	• service level agreements (SLAs)
	• technical support required:
	  • in-house
	  • vendor.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS304A Provide basic system administration

Modification History

Version	Comments
ICASAS304A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to implement components of systems backup, restore, security and licensing in a stand-alone or client server environment.

Application of the Unit

Frontline technical support personnel apply the skills and knowledge in this unit, and generally work under limited supervision with experienced IT support staff.

Support personnel at this level use known routines and procedures where some discretion and judgement are required, and provide technical advice and some leadership in resolution of specified problems. More complex or non-routine activities involving individual responsibility may be performed as part of a group or team and the role may involve some responsibility for others.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Record security access	1.1 Obtain ***client*** access requirements and clearance levels according to ***organisational requirements*** 1.2 Issue computer or network user account and password details to client 1.3 Provide security ***documentation*** and access to client 1.4 Record user account and security access details to maintain system integrity and assist later auditing
2. Record software licences	2.1 Determine what licensed ***software*** is used within the organisation 2.2 Maintain ***records*** of licence number and location 2.3 Check personal computers and network for illegal software 2.3 Report illegal software to ***appropriate person***
3. Carry out system backup	3.1 Create or review organisational backup schedule 3.2 Complete file backups according to schedule 3.3 Label and store backups according to organisational requirements 3.4 Maintain record of backups
4. Restore system backup	4.1 Determine and test restore procedures according to ***organisational guidelines*** 4.2 Complete a restore under supervision of an appropriate person 4.3 Record completed restore according to organisational guidelines
5. Apply security access	5.1 Document security access as per clearance guidelines set by

© Commonwealth of Australia, 2025 Future Skills Organisation

controls	management 5.2 Maintain a security access register in line with organisational guidelines to record which client or groups have access to which resources 5.3 Identify the security controls on the file system provided by the ***operating system*** 5.4 Apply effective access control on files and directories

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- literacy skills to:
  - interpret user manuals, technical documentation and help functions
  - maintain inventory records
  - record software licence records
- communication skills to:
  - communicate with peers and supervisors
  - present and explain information
  - seek assistance and expert advice
- planning and organisational skills to plan and develop a backup and restore strategy
- technical skills to:
  - configure user account and security access details
  - identify unlicensed software
  - record user account and security access details.

Required knowledge

- backup procedures
- operating systems used by the organisation
- organisational security procedures
- organisational standards to:
  - carry out backup and restore operations
  - label and store backups
- selection, functions and features of appropriate diagnostic tools
- software copyright responsibilities
- system's current functionality.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • perform systems backup, restore and maintain correct usage according to licensing agreements in a stand-alone or client server environment • maintain software licence records and check for copyright compliance within the system • maintain security access details in a register and apply access controls on (network) resources.
Context of and specific resources for assessment	Assessment must ensure access to: • sites with a representative range of stand-alone and networked client-server environments and operating systems • software licence records • technical records and documentation • organisational backup and restore procedures • organisational security guidelines • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate undertaking file backup and restoration • review of records on backup results and backup schedules • review of software licence records • review of the event viewer • verbal or written questioning to assess candidate's knowledge of software copyright compliance.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally

© Commonwealth of Australia, 2025 Future Skills Organisation

	appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• employee • external organisation • individual • internal department.
Organisational requirements may include:	• availability of system to be optimised • client-support documentation • complexity of technical manuals • information and communications technology (ICT) policy and procedures relating to service levels and installation • in-house or vendor ICT purchasing arrangements • register of licences • security procedures • storage of ICT documentation • system administration and backup procedures • type of product licences.
Documentation may follow:	• audit trails • client training • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • maintaining equipment inventory • naming standards

© Commonwealth of Australia, 2025 Future Skills Organisation

	• project-management templates and report writing • satisfaction reports • version control.

Software may include:	• application:
	  • database
	  • internet browser
	  • spreadsheet
	  • word-processing
	• commercial applications
	• customised
	• in-house
	• programming:
	  • assembler
	  • Java, VB, C++, Visual Fox Pro
	  • compiler
	  • development tools
	• system:
	  • computer security
	  • operating system.

Records may include:	• databases • spreadsheets • vendor tools to create, modify and document user accounts • access to computer or network resources.
Appropriate person may include:	• authorised business representative • client • supervisor • system administrator.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access • virus risk.
Operating systems may include:	• GNU and Linux • Mac OS X • Microsoft Windows

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Unix-like operating systems:
	  • HP-UX
	  • IBM AIX
	  • Silicon Graphics IRIX
	  • Sun Solaris.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS305A Provide IT advice to clients

Modification History

Version	Comments
ICASAS305A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to provide IT advice and support to clients, including the communication of comprehensive technical information.

Application of the Unit

This unit applies to frontline technical support personnel responsible for providing technical support explained in terms that a user can understand.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Review client support issues	1.1 Check for new problems logged by client 1.2 Check previous logs for similar problems or requests from client 1.3 Investigate and document the support issues affecting the client 1.4 Notify client of the results of ***investigation*** and provide ***advice and support*** on findings 1.5 Obtain client feedback and make changes
2. Provide advice on software, hardware or network	2.1 Confirm software, hardware or network requirements with client 2.2 Investigate and document a ***solution*** 2.3 Document additional requirements identified in the investigation and refer them to the client 2.4 Obtain approval from the client to implement the solution 2.5 Investigate and document the amount of technical support the client may require 2.6 Discuss and agree the level of technical support identified with the client 2.7 Arrange a time with the client when support will take place 2.8 Provide technical support as part of group or one-to-one instruction to the client 2.9 Provide manuals and help ***documentation*** to the client
3. Obtain client feedback	3.1 Create an appropriate evaluation or feedback form or other mechanism to gather feedback about the solution and support provided 3.2 Provide client with instructions on how to complete the form or use other means of providing feedback 3.3 Distribute the evaluation or feedback to the client 3.4 Review the feedback from the client to identify areas for improvement

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to review client requirements and provide advice and support on findings
- communication skills to:
  - convey and clarify complex information
  - investigate and assess client needs
  - provide one-to-one instruction to client
- customer-service skills to communicate with clients in a range of contexts at various levels
- literacy skills to:
  - develop reports
  - document:
    - additional requirements
    - amount of technical support the client may require
    - solutions
    - support issues affecting the client
  - interpret technical manuals
- technical communication skills to write macros and templates.

Required knowledge

- available in-house and vendor support
- contract and service agreements with vendors
- features of different types of hardware supported by the organisation
- information sources
- operating system (OS):
  - functions and basic features
  - supported by the organisation
- security and network guidelines and procedures
- software:
  - advanced features
  - functions
  - supported by the organisation.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • investigate client support requests and provide a documented solution after consultation with client • convey comprehensive technical information to clients in a clear, concise, jargon-free and coherent manner • access technical manuals and 'help' documentation.
Context of and specific resources for assessment	Assessment must ensure access to: • sites, peers and supervisors for obtaining information • software, hardware and networks • help-desk repository, technical records and documentation • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate investigating and providing advice and support on findings • review of candidate's documented investigation and solution • evaluation of client feedback.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• employee • external organisation • individual • internal department.
Investigation may include:	• active listening to clients and colleagues • contacting vendor or maintenance organisations • on-site examination • questions and answers • reviewing technical advice about the organisation.

Advice and support may include:	• hardware supported by the organisation:
	  • CD or DVD drives
	  • laptops
	  • notebooks
	  • printers
	  • reconfiguration of settings
	  • scanners
	  • screens
	• identification of training needs for referral to supervisor
	• manuals
	• one-to-one training
	• provision of client documentation
	• software supported by the organisation:
	  • creation of templates
	  • generation of a complex report on a database
	  • password and log-on procedure
	  • statistical functions of spreadsheets
	  • use of macros
	• vendor documentation.

Solution may include:	• hardware:
	  • new
	  • upgrade
	• implementing a new system

© Commonwealth of Australia, 2025 Future Skills Organisation

	• software:
	  • new
	  • upgrade
	• user training.

Documentation may include:	• additional support requirements • amount of technical support the client requires • client support solutions • collection of records for computer program, OS or hardware device • support issues affecting the client.

Unit Sector(s)

Systems administration and support

Custom Content Section

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS306A Maintain equipment and software

Modification History

Version	Comments
ICASAS306A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to carry out maintenance and fault repair according to organisational procedures, in order to keep equipment and software operating.

Application of the Unit

This unit applies to frontline technical support personnel who are required to apply preventative maintenance as well as repairing computer systems and equipment to keep them functioning.

Computer hardware and systems fall into disrepair often. This can be prevented by applying a system of preventative maintenance, which can include cleaning, applying service packs, and running malware detection and removal software.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine and undertake required equipment maintenance	1.1 Examine and review specified ***equipment*** and ***maintenance*** procedures, in order to determine those procedures that can be handled internally 1.2 Organise and undertake internal maintenance, as specified in the maintenance procedures 1.3 Report problems promptly to ***appropriate person***
2. Diagnose and repair faults	2.1 Assess an existing problem situation and identify the main problem area 2.2 Test the suspected faulty equipment or ***software*** for possible failures or performance degradation, using available technology 2.3 Analyse the test results 2.4 Review historical fault data for information of relevance to existing faults 2.5 Develop plans, with prioritised tasks and contingency arrangements, for the repair or replacement of faulty equipment or software, with minimum disruption to ***client*** 2.6 Liaise with appropriate person to obtain approval for the plans 2.7 Obtain necessary ***components*** and repair the equipment or software in a timely, organised manner, following ***OHS standards***
3. Update documentation and make recommendations for future maintenance	3.1 Record maintenance and fault data and equipment modifications, according to organisational standards 3.2 Identify and report instances where preventative measures are needed

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.3 Review and update maintenance and fault data and report outcomes periodically to appropriate person

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- basic analytical skills to:
  - analyse historical fault data for information of relevance to existing faults
  - analyse test results
  - assess an existing problem and identify the main problem area
  - determine which equipment and maintenance procedures can be handled internally
- communication skills to:
  - follow up with client
  - liaise with technical team members
  - provide assistance according to organisational guidelines
  - provide clear and precise advice when logging calls from help-desk support staff
- literacy skills to:
  - document initial problem and recommendations to solve problem
  - prepare maintenance report in line with organisational guidelines and support agreements
  - read and interpret technical manuals
  - record maintenance and fault data and equipment modifications, according to organisational standards
- planning and organisational skills to:
  - balance competing and complex demands
  - make contingency arrangements
  - minimise disruption to client
  - organise maintenance
- problem-solving skills to:
  - determine problems based on diagnostic tests
  - solve unknown problems in a range of contexts
- technical skills to:
  - repair equipment or software in a timely, organised manner
  - test suspected faulty equipment or software
  - undertake diagnostic and maintenance tasks
  - use current industry-accepted hardware and software testing and diagnostic tools.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required knowledge

- equipment and software maintenance practices
- help-desk response level escalation procedures
- operation and purpose of specified equipment
- operation of technical diagnostic tools
- quality assurance practices
- relevant service level agreements (SLAs) to determine the conditions of the SLA cover
- client warranty claims, repair or replacement procedures
- system's current functionality.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • undertake maintenance according to maintenance procedures • resolve a defined range of equipment and software problems • maintain accurate records according to organisational guidelines.
Context of and specific resources for assessment	Assessment must ensure access to: • maintenance procedures • technical environment with a variety of operational equipment, software and tools • technical manuals, records and documentation • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate testing suspected faulty equipment or software for possible failures or performance degradation and then analysing the test results • review of candidate’s plans for the repair or replacement of faulty equipment or software developed • review of maintenance records and fault data maintained and updated.

© Commonwealth of Australia, 2025 Future Skills Organisation

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Equipment may include:	• hard drives • hubs or switches • modems or other connectivity devices • monitors • other peripheral devices • personal computers (PCs) • personal digital assistants (PDAs) • printers • switches • tablet PC • workstations.
Maintenance may include:	• on-site response • remote diagnostics • return to depot.
Appropriate person may include:	• authorised business representative • client • supervisor • system administrator.
Software may include:	• application: • database

© Commonwealth of Australia, 2025 Future Skills Organisation

	• internet browser • spreadsheet • word-processing • commercial • customised • in-house • programming software: • assembler • C++, VB, Visual Fox Pro • compiler • development tools • system: • computer security • device drivers • operating system.
Client may include:	• employee • external organisation • individual • internal department.
Components may include:	• CD and DVD drives • central processing unit (CPU) • complementary metal oxide semiconductor (CMOS) battery • fax or modem cards • interface cards • motherboards • power supply • random access memory (RAM).
OHS standards may include:	• correct posture • electrical safety • safe lifting methods.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS307A Install, configure and secure a small office home office network

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to identify available network components relevant to client requirements and to install, configure and secure those components as part of a small office or home office (SOHO) network.

Application of the Unit

This unit applies to individuals required to network a small or home office. The unit covers the development of a suitable network design, the identification of relevant network components to meet the design brief and the installation, configuration and securing of the network to meet client requirements.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Confirm client requirements and identify relevant network equipment	1.1 Identify and clarify the ***client requirement*** for the ***small office home office network***
	1.2 Identify the most suitable ***network design*** to meet the client requirement
	1.3 Develop and document the network design
	1.4 Identify the most suitable ***network technologies, devices and protocols*** and ***network cables and connectors*** to meet the network design
	1.5 Review the available network technologies, devices and protocols and determine the most appropriate to meet the client requirements
	1.6 Source vendors and service suppliers to obtain specifications, availability and cost of identified components
	1.7 Ensure client sign-off for proposed network design and associated components
2. Install and configure hardware and software	2.1 Develop installation plans, with prioritised tasks and contingency arrangements, for installation of components with minimum disruption to client
	2.2 Liaise with ***appropriate person*** to obtain approval for the plans, including security clearance and timing
	2.3 Confirm and review supplier documentation that network cables and connectors have been installed according to ***industry standards***, client requirements and building requirements
	2.4 Install and configure ***computer*** and other hardware according to the network design and industry standards using knowledge of relevant ***installation and configuration tools***
	2.5 Install and configure network software according to network design and industry standards
	2.6 Install and configure other software according to network

© Commonwealth of Australia, 2025 Future Skills Organisation

	design and industry standards
3. Configure and test network	3.1 Troubleshoot client-side connectivity using appropriate ***networking settings*** to review relevant network tools 3.2 Test the installed software and hardware, using available ***networking tools*** to ensure that components are functioning as expected 3.3 Test the network settings to ensure the network is functioning according to specification 3.4 Resolve problems identified through the testing process
4. Secure network	4.1 Identify possible ***security concepts and technologies*** relevant to securing the network 4.2 Apply specific protection using identified ***security features*** to protect against possible network attacks 4.3 Troubleshoot different types of ***security intrusion symptoms and issues***
5. Document completed work, hand over to client and obtain client approval	5.1 Document final network design and associated hardware, software and security features 5.2 Document installation, bootup and configuration procedures as per client requirements 5.3 Complete handover and secure sign-off from client

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to evaluate hardware, software and network specifications against client requirements
- communication skills to deal with clients and vendors
- literacy skills to:
  - review technical documentation
  - write detailed technical notes
- planning and organisational skills to:
  - set benchmarks and identify scope
  - develop plans, prioritise tasks and apply contingency strategy
- problem-solving skills to predict the range of network problems

© Commonwealth of Australia, 2025 Future Skills Organisation

- research skills to identify, analyse and evaluate technical information
- technical skills to:
  - identify and install components of hardware, software, cabling and wireless equipment
  - use network system software.

Required knowledge

- current industry-accepted hardware and software products
- current industry-accepted network hardware and software products
- data and voice transmission technologies and protocols
- hardware and software installation procedures
- local area network (LAN) capabilities and characteristics, including network type, such as ethernet, Appletalk IP addressing, switch or hub operation
- network connections, both wired and wireless
- networking technologies, incorporating substantial depth in areas relating to network operating systems and cabling standards
- operating system, such as Mac, Linux, Novell, Windows, to enable basic installation
- set-up and configuration procedures
- small business and home office networking requirements
- software packages supported by the organisation.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify the most relevant network hardware and software equipment to meet client requirements • install, configure and test the network according to client requirements, and produce appropriate documentation • identify possible security threats and secure the network.
Context of and specific resources for assessment	Assessment must ensure access to: • current industry standard software, hardware, and networking technologies • server and workstation hardware and software • internet connection

© Commonwealth of Australia, 2025 Future Skills Organisation

	• live network • network components, hardware and software • networked computers • technical documentation and installation manuals • vendor hardware and software components • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of:
	  • current industry-accepted network hardware and software products
	  • hardware and software installation procedures
	• direct observation of candidate:
	  • configuring LAN equipment in a variety of scenarios
	  • troubleshooting security issues
	• review of candidate's:
	  • documented installation process
	  • documented security settings.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

Client requirements may relate to networking a:	• small business • small club • small home office • small network.

Small office home office network may refer to:	• a single or small number of rooms
	• linking a small number of personal computers (PCs) or laptops and associated peripherals
	• having or not having a server
	• sharing peripherals, files and other information
	• using single type or combination of wired or wireless connections:
	  • category 5 (or similar) cabling
	  • ethernet network hub
	  • ethernet network switch
	  • wi-fi wireless network.

Network design may include:	• Bluetooth
	• broadband:
	  • cable
	  • digital subscriber line (DSL)
	  • fibre
	  • satellite
	• cellular
	• dial-up
	• wireless:
	  • all 802.11 types
	  • dynamic host configuration protocol (DHCP) settings
	  • MAC filtering
	  • service set identifier (SSID)
	  • wi-fi protected access (WPA)
	  • wired equivalent privacy (WEP).

Networking technologies, devices and protocols may include:	• bandwidth and latency
	• basics class identification
	• basics of configuring IP addressing and transmission control protocol or internet protocol (TCP/IP) properties (DHCP, DNS)
	• basics of workgroups and domains
	• common ports:
	  • file transfer protocol (FTP)
	  • hypertext transfer protocol (HTTP)

© Commonwealth of Australia, 2025 Future Skills Organisation

	• hypertext transfer protocol secure (HTTPS) • post office protocol (POP) • simple mail transfer protocol (SMTP) • Telnet • full-duplex and half-duplex • hub, switch and router • identify virtual private networks (VPN) • internet protocol version 6 (IPv6) versus internet protocol version 4 (IPv4): • address conventions • address length differences • local area network (LAN) or wide area network (WAN) • protocols, such as: • TCP/IP • network basic input/output system (NETBIOS) • status indicators.
Network cables and connectors may include:	• cables: • plenum or polyvinyl chloride (PVC) • shielded twisted-pair (STP) • fibre • coaxial cable • unshielded twisted-pair (UTP), such as CAT3, CAT5, 5e, and CAT6 • connectors: • RJ11 • RJ45.
Appropriate person may include:	• authorised business representative • client • supervisor.
Industry standards may include:	• Australian Standards (AS) • Institute of Electrical and Electronics Engineers (IEEE) • International Electrotechnical Commission (IEC) • International Organization for Standardization (ISO) • International Telecommunications Union (ITU) • Internet Engineering Task Force (IETF) • organisational standards • project standards.
Computer may include:	• iPAD (or similar) • laptop • notebook

© Commonwealth of Australia, 2025 Future Skills Organisation

	• personal digital assistant (PDA) • Mac or PC • server • thin client • workstation.

Installation and configuration tools may include:	• basics of hardware and software firewall configuration:
	  • port assignment or setting up rules (exceptions)
	  • port forwarding or port triggering
	• connection types:
	  • basic VoIP (consumer applications)
	  • Bluetooth (1.0 versus 2.0)
	  • broadband:
	  • cable
	  • DSL
	  • ISDN
	  • satellite
	  • cellular
	  • dial-up
	  • LAN (10, 100, 1000BaseT, Speeds)
	  • routers or access points:
	  • change default username and password
	  • change SSID from default
	  • disable DHCP
	  • disable SSID broadcast
	  • firewall
	  • MAC filtering
	  • update firmware
	  • use static IP
	  • wireless:
	  • all 802.11
	  • DHCP settings
	  • MAC filtering
	  • service set identifier (SSID)
	  • wired equivalent privacy (WEP)
	  • wi-fi protected access (WPA)
	• physical installation:
	  • cable length
	  • wireless router placement.

Network settings may	• characteristics of TCP/IP:

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• automatic IP addressing • loopback addresses • firewall settings: • open and closed ports • program filters • FTP settings: • exceptions • IP addresses • ports • programs • mail protocol settings: • internet message access protocol (IMAP) • POP • SMTP • proxy settings: • exceptions • IP addresses • ports • programs • TCP/IP settings: • DHCP (dynamic versus static) • DNS • gateway • NAT (private and public) • subnet mask.
Networking tools may include:	• secure connection protocols: • HTTPS • secure shell (SSH) • tools to use and interpret results: • ipconfig • Net use • Netstat • Nslookup • Ping • Telnet • Tracert.
Security concepts and technologies may include:	• authentication technologies: • biometrics • password

© Commonwealth of Australia, 2025 Future Skills Organisation

	• smart cards • user name • basics of data sensitivity and data security: • classifications • compliance • social engineering • data wiping or hard drive destruction or hard drive recycling • encryption technologies • software firewall: • exceptions • port security.
Security features may include:	• biometrics: • fingerprint scanner • bios security: • drive lock • intrusion detection • passwords • TPM • locking workstation: • hardware • operating system • malicious software protection: • adware • grayware • spam • spyware • trojans • viruses • worms • password management or password complexity • wireless encryption: • client configuration, such as service set identifier (SSID) • WEPx and WPAx.
Common security intrusion symptoms and issues may relate to:	• operating systems: • encryption (Bitlocker, EFS) • local users and groups: administrator, power users, guest, users • new technology file system (NTFS) versus share permissions: • allow versus deny

© Commonwealth of Australia, 2025 Future Skills Organisation

	• difference between moving and copying folders and files • file attributes • shared files and folders: • administrative shares versus local shares • inheritance • permission propagation • system files and folders • user authentication • Vista or Windows 7 User Account Control (UAC) • system: • network basic input/output system (BIOS) security: • drive lock • passwords • intrusion detection • TPM • virus and malware tools: • educate end user • identify malware symptoms • quarantine infected systems • remediate infected systems • repair boot blocks • research malware types, symptoms and solutions (virus encyclopaedia) • scan and removal techniques: • boot environment • safe mode • schedule scans • update antivirus software: • automatic versus manual • signature and engine updates • use antivirus software.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS401A Perform unit test for a class

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to ensure that the system is proved adequate, before handover to the client or user, by unit testing functionality and reliability of individual components.

Application of the Unit

This unit applies to programmers or testers who are required to test classes.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Prepare for test	1.1 Determine ***test criteria***
	1.2 Prepare the ***test environment***
	1.3 Perform static tests using appropriate test tools to verify correct behaviour of modules
	1.4 Use a test harness program to exercise module behaviour
	1.5 Test objects containing lower level class instances separately
	1.6 Prepare data to facilitate path testing
	1.7 Prepare data to facilitate member function testing
2. Conduct test	2.1 Ensure clean test environment
	2.2 Initialise test environment
	2.3 Run test harness and document results in line with test and acceptance processes
	2.4 Finalise test environment
3. Analyse and classify results	3.1 Review and classify test results to highlight areas of concern
	3.2 Compare test results against requirements and design specifications in line with ***quality benchmarks***
	3.3 Forward test results to ***appropriate person***
	3.4 Review feedback
	3.5 Ensure compliance with documentation and reporting standards

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- communication skills to present and actively question and listen
- literacy skills to analyse and evaluate information when details and comments are logged and signatures are gained
- problem-solving skills for a defined range of unpredictable problems, such as memory leakage, global name space pollution, and static variables
- technical skills to use testing tools and methodologies.

Required knowledge

- object-oriented programming language
- automated test tools, with detailed knowledge of features and processes in some areas
- client business domain relating to class to be tested
- input and output requirements
- organisational requirements relating to class to be tested
- system testing
- underlying test data.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• prepare a test environment
	• conduct unit test, covering:
	  • member function test
	  • path test
	  • static test
	• analyse test results.

Context of and specific resources for assessment	Assessment must ensure access to: • suitable test plan • specific requirements • design documents used in the analysis of the test • suitable class to test • appropriate learning and assessment support when required • modified equipment for people with special needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of a test for a particular class • direct observation of candidate conducting test • evaluation of candidate's documented analysis of test results and feedback.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Test criteria may include:	• object-oriented language criteria that may encompass:
	  • inheritance between classes
	  • interaction between methods of the classes
	  • procedural language criteria
	  • proper instantiation of classes
	• procedural language criteria that may encompass:
	  • behaviour that affects the attributes of the program
	  • parameters
	  • procedures
	  • return values.

Test environment may	• data

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• network or communications and other equipment • operating system • other support software • program libraries.
Quality benchmarks may relate to:	• organisational standards • products, such as Protocol and Service Multiplexor (PSM).
Appropriate person may include:	• project leader or programmer responsible for code • supervisor.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS402A Implement configuration management strategies

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to implement administrative and technical procedures throughout the software development and documentation life cycle.

Application of the Unit

This unit applies to senior information and communications technology (ICT) staff in a range of areas who are required to ensure that appropriate administrative standards support development environments.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Identify and clarify configuration management requirements	1.1 Develop and assemble identification standards for the naming and version control of ***software*** and ***documentation***, and provide to ***stakeholders***
	1.2 Identify the ***software configuration tools*** and procedures for the required level of integration into the programming environment
	1.3 Identify responsibilities for configuration management within the project and for ongoing support, including approval of changes
	1.4 Take action to ensure that stakeholders are aware of their roles
	1.5 Identify the point at which items are subjected to configuration control with stakeholders
2. Employ appropriate control mechanisms	2.1 Identify and document the method for identification and recording of change requests in line with ***organisational requirements*** and ensure this is maintained during development process
	2.2 Take action to ensure that the evaluation criteria and process for approval of change requests are employed according to organisational requirements
	2.3 Take action to ensure that other management, security and access control criteria are employed according to organisational requirements
	2.4 Implement controls to ensure that necessary audit trials and alerts for variations or non-conformance are continuously maintained during development
3. Implement monitoring mechanisms	3.1 Implement controls to ensure that mechanisms to identify the status of software throughout the software development life cycle are continuously maintained
	3.2 Document the development and maintenance of records and status reports required to show the history of baselines and their links to backups
	3.3 Take action to ensure that the level of detail required in the status reports, and identification of target audiences, meets the

© Commonwealth of Australia, 2025 Future Skills Organisation

	configuration management procedures, International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) and organisational requirements 3.4 Integrate configuration management into general project management processes for monitoring and control purposes and document
4. Manage release of product	4.1 Take action to ensure the physical and functional completeness of items for the purpose of release to all stakeholders 4.2 Identify and implement the ***requirements*** for formal control of software products 4.3 Determine and document policies for retention of baseline or master copies, taking into account safety and security, legislative requirements and ***organisational guidelines***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - gain consensus on concepts
  - liaise with stakeholders
  - transfer and collect information
- literacy skills to develop technical and business reports
- numeracy skills to manage a budget
- planning and organisational skills to estimate use across a range of predictable project contexts related to either varied or highly specific functions
- problem-solving skills to:
  - identify configuration control with developers and team members
  - scope and prepare time lines, budget and risk manage process
- research skills to analyse and evaluate:
  - broad features of a particular business domain
  - best practice in software development methodologies
- technical skills to use a range of software configuration tools and software applications.

Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

- project-planning methodologies and tools
- benchmarking methodologies when implementing monitoring mechanisms
- how to formulate software size models and size estimates when employing control mechanisms
- quality assurance and quality processes when implementing monitoring mechanisms
- software development methodologies when identifying and clarifying configuration management requirements.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • use quality processes, audit trails and version control to implement administrative and technical procedures throughout the software development and documentation life cycle • implement and maintain reliable and valid configuration management procedures for technical and administrative procedures for use during the software life cycle.
Context of and specific resources for assessment	Assessment must ensure access to: • configuration tools • evaluation criteria • process for approval of change requests • templates for status reports • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of:
	  • software development
	  • benchmarking methodologies
	  • audit requirements
	  • parallel development
	• review of candidate's documentation, with particular reference

© Commonwealth of Australia, 2025 Future Skills Organisation

	to: • code identification in line with organisational requirements • change control • backup management • version control • release mechanisms • direct observation of candidate briefing stakeholders.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Software may include:	• commercial applications • in-house or customised • organisation-specific • packaged.
Documentation may follow:	• audit trails • ISO, IEC and AS standards • naming standards • project management templates • report writing principles • version control.
Stakeholders may include:	• development team • management

© Commonwealth of Australia, 2025 Future Skills Organisation

	• project team • sponsor • testers • user.
Software configuration tools may include:	• Baseline +Plus • ClearCase • Continuus/CM • CVS • PVCS Configuration Builder • PVCS Version Manager • PVCS Version Manager PLUS • RCS • SCCS • Source Integrity • TeamWare • Version +Plus • Version Stamper.
Organisational requirements may include:	• how and what the organisation wants in regard to work environment • preventative maintenance and diagnostic policy, roles and technical responsibilities in the IT department • problem-solution processes • vendor and product service level support agreements.
Requirements may relate to:	• application • business • network • people in the organisation • system.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access • virus risk.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS403A Review site environmental factors prior to IT system implementation

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to review, identify and assess the impact of site environmental factors prior to commencing IT system installation.

Site environmental factors could include legislation, site history, environmental matters and OHS guidelines.

Application of the Unit

This unit applies to senior individuals in information and communications technology (ICT) areas who are responsible for assessing a physical site to determine its suitability for system installation.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Plan work area	1.1 Obtain technical and environmental system requirements for equipment to be installed and document site requirements, including OHS site-specific requirements 1.2 Consider and take action on requirements associated with ***equipment*** against installation requirements 1.3 Conduct on-site inspection and audit against site specifications 1.4 Formulate preliminary recommendations for site and assess impact on system installation schedule 1.5 Create a preliminary report specifying recommended changes to the site to meet requirements and submit the report to ***appropriate person*** for approval
2. Evaluate environment	2.1 Organise appropriate support staff to facilitate a successful installation 2.2 Install cabling and other environmental equipment to required technical and industry standards 2.3 Manage ***hardware*** installation to ensure OHS standards for hardware installation are adhered to 2.4 Review and test hardware and ***software*** to ensure that the system meets ***client*** business requirements and system objectives
3. Document recommendations	3.1 Prepare a final report documenting findings and issues relating to site requirements and preparation 3.2 Submit final recommendations to appropriate person for approval

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to conduct on-site inspection and audit against site specifications
- communication skills to liaise with clients and other team members
- literacy skills to:
  - document findings related to site requirements
  - read complex technical and non-technical information
- planning and organisational skills to:
  - contribute to solutions and goals of a non-routine or contingency nature
  - transfer and collect information to gain consensus on concepts
- problem-solving skills to develop strategic initiatives
- technical skills to:
  - install cabling and other environmental equipment
  - manage and test hardware and software installation.

Required knowledge

- current industry-accepted hardware and software products
- current system's functionality
- general features and capabilities of network devices
- physical prerequisites needed for system installation
- possible legislative requirements relating to cabling and building preservation
- quality assurance practices
- role of stakeholders and the degree of stakeholder involvement
- vendor equipment specifications and installation requirements.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and	Evidence of the ability to: • prepare a site in relation to impact on the installation schedule

© Commonwealth of Australia, 2025 Future Skills Organisation

evidence required to demonstrate competency in this unit	and identify environmental prerequisites prior to commencement of installation • sequence the preparatory steps, taking into account time and budget constraints.
Context of and specific resources for assessment	Assessment must ensure access to: • staff resources and technical equipment • live network • server and workstation hardware and software • several different device types to be installed • number of scenarios, such as LANs incorporating hubs, routers and peripherals • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of the technologies and associated protocols associated with system installation • direct observation of candidate installing cables and other environmental equipment • evaluation of candidate's site installation report.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Equipment may include:	• asymmetric digital subscriber line (ADSL) or cable modems • external or internal storage devices • hubs • monitors • other peripheral devices • personal computers • personal digital assistant (PDA) • printers • switches • workstations.
Appropriate person may include:	• authorised business representative • client • supervisor.
Hardware may include:	• modems and other connectivity devices • networks • personal computers • remote sites • servers • workstations.
Software may include:	• commercial applications • customised • in-house • organisation-specific • packaged.
Client may include:	• external organisations • individuals • internal departments • internal employees.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS404A Acquire IT system components

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to identify IT system components and use organisational procedures to purchase identified components.

Application of the Unit

This unit applies to individuals in a variety of information and communications technology (ICT) areas who are required to procure required components of a system, following organisational guidelines.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Confirm system components for acquisition	1.1 Confirm ***client requirements***, including ***software*** and ***operating system*** requirements 1.2 Review technical papers and recommendations that identify required ***hardware*** and software components 1.3 Review and clearly identify ***system components*** 1.4 Assess and determine the fit with existing technology by consulting with system developer 1.5 Identify and determine the best and current technology fit for each purpose by consulting with system developer 1.6 Develop a list of required system components with ***specifications*** and possible suppliers
2. Agree on methods of component acquisition	2.1 Identify and assess the client organisation's preferred ***acquisition methods*** and policies 2.2 Evaluate acquisition methods and alternatives for required hardware and software components against required service levels, cost constraints, geographic constraints and user preferences 2.3 Discuss and agree acquisition method with client 2.4 Inform users and other stakeholders of acquisition method

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - determine software and operating system requirements
  - evaluate acquisition methods
- communication skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - liaise with client users and system developer
  - liaise with stakeholders and service or product suppliers
  - negotiate with systems developers the relative merits of two or more competing devices for a purchase agreement
- literacy skills to read complex technical papers
- planning and organisational skills to manage project
- problem-solving skills to assess the fit with existing technology and system developers.

Required knowledge

- change-management systems
- current industry-accepted hardware and software products
- financial management options, including leasing arrangement
- information-gathering techniques
- risk management in relation to IT component use and items procured
- quality assurance practices in relation to identifying and acquiring IT system components
- client business domain
- vendor product directions
- organisational purchasing procedures.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify correct system components • follow procurement procedures to purchase those components • fulfil technical and business requirements.
Context of and specific resources for assessment	Assessment must ensure access to: • current system architectures • current business and IT strategic plans • data models • functional process descriptions • service levels • user requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

	• appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of:
	  • software and operating system requirements
	  • organisation's purchasing procedures
	• evaluation of candidate's acquisition methods
	• review of candidate's obtained quotes.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• external organisations • individuals • internal departments • internal employees.
Requirements may relate to:	• application • business • database • network

© Commonwealth of Australia, 2025 Future Skills Organisation

	• people in the organisation • platform • system.
Software may include:	• commercial applications • customised • in-house • organisation-specific • packaged.
Operating system may include:	• Linux • Mac • Windows.
Hardware may include:	• CD and DVD drives • central processing unit (CPU) and CPU upgrades • complementary metal oxide semiconductor (CMOS) battery • fax or modem cards • interface cards • internal and external storage devices • modems and other connectivity devices, such as asymmetric digital subscriber line (ADSL) modems • motherboards • networks • personal computers • random access memory (RAM) upgrades • remote sites • servers • workstations.
System components may include:	• facilities management • hardware, such as internal expansion devices and external peripheral devices • integration and implementation services • personal computers, networks and printers • software, such as applications, utilities and operating systems.
Specifications may include:	• current system functionality • technical requirements • user problem statement.
Acquisition methods may include:	• lease • new or refurbished • outsourced • purchase • rental.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS405A Identify and evaluate IT industry vendor technologies

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to research, evaluate and recommend an industry vendor to supply IT components and to negotiate with the vendor for supply of identified components.

This unit of competency provides for several approaches, with an emphasis on researching and analysing alternative options in dealing with vendors when acquiring IT components. It covers testing, comparisons and evaluations based on the abovementioned elements, as well as consideration of such other factors as after-sales service and reliability.

Application of the Unit

This unit applies to individuals in the support area who are required to select the most appropriate vendors for the organisation.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Select method to be used for identifying suitable vendor	1.1 Evaluate organisational purchasing policy as a means of identifying vendors and document outcomes 1.2 Consider and undertake other means of identifying suitable vendors and document outcomes 1.3 Recommend preferred ***method of vendor selection*** to ***client*** 1.4 Plan and document selection process
2. Review vendor offerings	2.1 Notify vendors of organisation's requirements 2.2 Undertake evaluation process by comparing offers against organisational requirements 2.3 Organise vendor demonstrations and performance benchmark tests 2.4 Select vendor based on specific technical criteria, servicing, warranty and after-sales service
3. Prepare contracts and delivery requirements	3.1 Prepare contracts for review by ***appropriate person*** 3.2 Identify and document delivery arrangements with suppliers 3.3 Clarify installation responsibilities with suppliers 3.4 Review warranty and support requirements with suppliers and service level agreement 3.5 Confirm details with client

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- analytical skills to compare offers against organisational requirements
- communication skills to:
  - liaise with clients and vendors on technical and operational matters
  - transfer and collect information and gain consensus on concepts
- literacy skills to:
  - evaluate technical documents
  - prepare contracts and service agreements
  - prepare technical documents
- numeracy skills to:
  - compare prices between vendors
  - evaluate organisational purchasing policy
- planning and organisational skills to:
  - plan and document selection process
  - organise vendor demonstrations
  - provide warranty and after sales service.

Required knowledge

- benchmarking methodologies
- change-management systems
- contracts in relation to supply and support
- current industry-accepted hardware and software products
- financial management and leasing arrangements
- information-gathering techniques
- quality assurance practices in relation to evaluating and recommending IT vendors
- risk management in relation to evaluating and recommending IT vendors
- client business domain
- vendor product trends.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

© Commonwealth of Australia, 2025 Future Skills Organisation

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify an appropriate vendor to supply components according to organisational requirements • demonstrate consistency in the acquisition of technical and business requirements.
Context of and specific resources for assessment	Assessment must ensure access to: • current business and IT strategic plans • service levels • user requirements • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of:
	  • organisational purchasing policy
	  • tenders
	  • service level agreements
	• review of candidate's documented selection process
	• direct observation of candidate obtaining requirements from user.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Method of vendor selection may include:	• by tender or invitation • registration of interest • request for information (RFI) • request for proposal (RFP).
Client may include:	• external organisations • individuals • internal departments • internal employees.
Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS406A Implement and hand over system components

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to ensure that the system is operational prior to hand over for client use.

Application of the Unit

This unit applies to project managers who supervise their project team in conducting formal testing and trials to determine whether the system satisfies its acceptance criteria. Conducting formal testing and trials is a critical aspect of hand over.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Confirm system integrity	1.1 Check the functioning of ***system components*** in both a stand-alone and integrated environment 1.2 Specify shortcomings or problems and create an action plan 1.3 Review action plan with ***client*** 1.4 Document system components according to standards and procedures
2. Provide operation and maintenance guidance	2.1 Identify and document operational issues and procedures 2.2 Discuss maintenance issues with technical support and document outcomes 2.3 Compare maintenance, operational and warranty considerations with ***service level agreements*** (SLAs) and document discrepancies 2.4 Clarify outstanding issues with client
3. Hand over system to client	3.1 Demonstrate installed system to client 3.2 Obtain client sign-off to confirm satisfaction and acceptance of the installed system 3.3 Discuss and confirm short-term implementation support with client 3.4 Discuss and confirm further training needs with client 3.5 Document needs and submit to ***appropriate person*** for action

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - evaluate a range of complex test data
  - rigorously assess every probable event
- communication skills to liaise with team members and contractors
- literacy skills to:
  - analyse test data
  - interpret test results
  - technical skills to perform system testing.

Required knowledge

- current business practices related to preparing reports, such as confirming system integrity and handing over system
- current industry-accepted hardware and software products to enable the candidate to optimise the value of a supply contract
- change-management systems
- client-business domain
- information-gathering techniques
- OHS requirements related to work safety, environmental factors and ergonomic considerations
- operational procedures for IT systems
- project plan, including constraints, guidelines and deadlines
- quality assurance practices
- role of stakeholders and the degree of stakeholder involvement so that levels of responsibility in a project can be clearly defined
- vendor product directions.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • confirm system integrity • confirm operational and maintenance procedures are in place and viable.
Context of and specific resources for	Assessment must ensure access to: • customer computer site and system or suitable simulated

© Commonwealth of Australia, 2025 Future Skills Organisation

assessment	system and environment • implementation plan • people involved in hand-over • project plan • SLAs • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of operational procedures for IT systems • review of maintenance guidance documentation for the installed system • evaluation of the report prepared by the officer conducting the system testing procedures and assessing test results.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

System may include:	• application service provider • applications • databases • gateways

© Commonwealth of Australia, 2025 Future Skills Organisation

	• internet service provider (ISP) • operating system • servers.
Components may include:	• CD and DVD drives • central processing unit (CPU) • complementary metal oxide semiconductor (CMOS) battery • CPU upgrades • drives • fax or modem cards • interface cards • motherboards • random access memory (RAM) upgrades.
Client may include:	• external organisation • individual • internal department • internal employee.
Service level agreements:	• clearly specify and quantify service levels • identify evaluation or audit of service levels • relate to communications carriers, internet service providers (ISPs), application service providers (ASPs) and SLAs for vendor products • should consider business processes and requirements.
Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS407A Conduct pre-installation audit for software installation

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to identify and appraise critical pre-existing systems or components prior to the installation of software. Establishing compatibility and interoperability is a key success factor to purchasing software.

Application of the Unit

This unit applies to individuals in the software development area who are required to confirm the suitability of software for installation.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Assess compatibility of existing software	1.1 Confirm details of ***software*** loaded on ***client system*** from actual system and from existing system documentation 1.2 Identify software prerequisites needed for new software 1.3 Confirm customer requirements with technical specifications 1.4 Confirm and assess compatibility issues against installation plan and cost ***constraints*** 1.5 Document recommendations on variances, level and software consistency for consideration by ***appropriate person***
2. Confirm interoperability of software with environment	2.1 Confirm that there are no conflicts between the new software and previously installed software and ***hardware*** 2.2 Measure degree of interoperability between software 2.3 Confirm interoperable functioning of all software involved
3. Assess system capacity to install ordered software	3.1 Obtain details of current system memory, disk, available disk storage, and other specific hardware requirements from investigation of system and system documentation 3.2 Confirm that the hardware prerequisites needed for new software are met, implications noted and minimum requirements identified 3.3 Confirm and assess capacity issues against installation plan and cost constraints 3.4 Document recommendations on variances in capacity for consideration by appropriate person
4. Prepare and distribute audit report	4.1 Document findings, recommendations and impact on project in a manner appropriate for target audience 4.2 Present and distribute the audit analysis report according to organisational standards and procedures

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with clients
- initiative and enterprise skills to develop strategic initiatives
- literacy skills to write technical reports and audit or analysis reports
- numeracy skills to calculate hardware prerequisites
- planning and organisational skills to:
  - prepare a risk management and contingency plan
  - scope, prepare time lines and cost out a project
- technical skills to use system diagnostics and utilities.

Required knowledge

- current industry-accepted hardware and software product
- detailed knowledge of system's current functionality
- overview knowledge of:
  - quality assurance practices
  - risk-management practices
  - client business domain
  - role of stakeholders and the degree of stakeholder involvement.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • establish capability of hardware on which new system is to be installed • ensure that the nominated hardware has the capacity to run the installed system • ensure that new systems will operate cooperatively with existing systems

© Commonwealth of Australia, 2025 Future Skills Organisation

	• document variations from the above.
Context of and specific resources for assessment	Assessment must ensure access to: • documentation tools • operational system and system specifications • technical specifications of software to be installed • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of:
	  • system current functionality
	  • system hardware and software requirements
	• review of audit analysis report.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Software may include:	• commercial applications • customised • in-house • organisation-specific

© Commonwealth of Australia, 2025 Future Skills Organisation

	• packaged.
Client may be:	• department within the organisation • third party.
System may include:	• application service provider • applications • databases • gateways • internet service providers • networks • operating systems • servers • websites.
Constraints may include:	• budget • hardware • legal constraints • policy • resource • software • time.
Appropriate person may include:	• authorised business representative • client • supervisor.
Hardware may include:	• modems and other connectivity devices, such as digital subscriber line (DSL) modems • networks • personal computers • remote sites • servers • workstations.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS408A Complete data transition in data migration process

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to undertake manipulation, migration and conversion of data between systems or databases while maintaining data integrity.

Application of the Unit

This unit applies to individuals involved in the implementation of new systems who are required to ensure that existing data is migrated to the new system.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Perform data transition	1.1 Identify and document the data that is to be migrated, transferred or archived 1.2 Collect required data, target ***database*** requirements and implementation details 1.3 Clean up data to match new data structures and rules 1.4 Write and test conversion programs if required by the implementation plan, or use ***conversion tools*** 1.5 Ensure clean data take-on by re-keying or converting according to database requirements and conversion plan 1.6 Migrate data to target environment 1.7 Archive data according to requirements
2. Check data transition	2.1 Run reports and other tests on old and new data to verify the quantity and quality of data transition 2.2 Run production or specialised programs against data to confirm control totals 2.3 Check referential integrity and data constraints and requirements against database requirements and conversion plan 2.4 Verify that data transition has been completed according to requirements and plans

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse new data structures and their match to existing data
- literacy skills to interpret and produce technical documentation
- technical skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

- archive data
- undertake low-level programming
- use conversion tools.

Required knowledge

- detailed knowledge of:
  - current industry-accepted hardware and software products, including their general features and capabilities
  - new and existing systems' current functionality
- overview knowledge of:
  - change-management systems when performing data transition and checking data integrity
  - database structures
  - quality assurance practices when checking data integrity
  - software tools
  - system data requirements
  - client business domain when checking data transition
  - client's data management and data security policy and procedures.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • transfer data from one system to another • produce consistency in results, database verification, and integrity and security of data • use organisation's record-keeping arrangements and security and access level procedures • demonstrate knowledge of data structures.
Context of and specific resources for assessment	Assessment must ensure access to: • conversion program, if necessary • data conversion plan • databases to store data • implementation plan

© Commonwealth of Australia, 2025 Future Skills Organisation

	• appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of:
	  • data structures
	  • transition tools
	  • quality assurance
	  • system backup and restore procedures
	  • change management
	• direct observation of candidate:
	  • archiving data
	  • adjusting data to match new data structures
	• review of reports generated by candidate that verify the data transition.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Database may include:	• commercial off-the-shelf (COTS) database packages • object-relational databases

© Commonwealth of Australia, 2025 Future Skills Organisation

	• proprietary databases • relational databases.
Conversion tools may include:	• data mart management tools • tools for cleansing data, e.g. integrity, enterprise and integrator • tools for extraction and transformation, e.g. ETI Extract, Passport, Warehouse Manager, InfoPump, InfoHub, InfoRefiner and InfoSuite • tools that analyse data quality, e.g. QDB/Analyze, WizRule, and Unitech Systems Inc.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS409A Manage risks involving ICT systems and technology

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to implement procedures that identify, analyse, evaluate and monitor risks involving information and communications technology (ICT) systems and technology. This includes the development and management of contingency plans.

Application of the Unit

This unit applies to individuals in senior roles in various ICT areas who are required to manage risk in ICT systems.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Establish risk context	1.1 Review and document organisational and technical environment 1.2 Establish and document risk boundaries according to the business operating and strategic environment
2. Identify risk factors	2.1 Develop or acquire a measurement scale for project risk which includes importance, complexity, time and resources required 2.2 Identify project risks based on the measurement scale developed and document according to ***business requirements*** 2.3 Identify the business impact of changes and document according to current and future business directions
3. Implement contingency plans	3.1 Classify each risk and create ***contingency plans*** that address how the risk will be monitored and overcome, if possible 3.2 Identify measurable benchmarks to track the treatment of risks to the new ***system*** 3.3 Identify risk-management intervention points according to benchmarked performance tolerances 3.4 Demonstrate use of phased implementation and piloting to reduce risk factors
4. Monitor, update and report risk profile	4.1 Conduct regular risk updates to add new risks and remove old risks 4.2 Update contingency plans when appropriate to incorporate new information 4.3 Conduct risk reviews at major project milestones and document outcomes 4.4 Establish feedback processes to provide warning of potential new risks according to business requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse the risk associated with ICT systems and technologies
- communication skills to work with project teams on risk reviews
- literacy skills to:
  - disseminate and document technical specifications
  - write policy
- numeracy skills to scale risks
- planning and organisational skills to:
  - manage risk
  - plan for contingencies.

Required knowledge

- detailed knowledge of risk management
- overview knowledge of:
  - Australian Computer Society Code of Ethics
  - business process design
  - how business sites fit into corporate strategy
  - copyright and intellectual property in relation to IT systems and technology
  - privacy legislation relating to IT systems and technology
  - technology updating guidelines
  - business supply chain
  - user analysis and the CRM.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to	Evidence of the ability to: • identify where risk occurs

© Commonwealth of Australia, 2025 Future Skills Organisation

demonstrate competency in this unit	• highlight the measures that will mitigate or obviate risk • set up procedures for regular risk reviews.
Context of and specific resources for assessment	Assessment must ensure access to: • analysis software • business website • networks • requirements documentation • risk management plan • site server • site server software • software applications • updated or new technology • user analysis • web servers • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of:
	  • risk management
	  • business process design
	• review of candidate's documented outcomes of risk assessment process
	• evaluation of candidate's documented contingency plans
	• direct observation of candidate conducting risk reviews at project milestones.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Business requirements may relate to:	• application • business • network • people in the organisation • system.
Contingency plans may include:	• identifying weaknesses and providing for the implementation of a disaster prevention program • minimising disruption to business operations • providing a coordinated approach to the disaster recovery process.
System may include:	• application service provider • applications • databases • gateways • internet service provider (ISP) • operating systems • servers.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS410A Identify and resolve client IT problems

Modification History

Version	Comments
ICASAS410A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit defines the competency required to record and prioritise client support activities, determine the required resources, solve client IT problems or escalate as necessary.

Application of the Unit

This unit applies to experienced technical support personnel, such as help-desk supervisors, IT support technicians, and user support specialists responsible for supporting end users.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Determine client problems	1.1 Determine ***client problem*** by using questioning or other techniques 1.2 Document responses of client for follow-up action 1.3 Examine logged requests to determine specific ***requirements*** 1.4 Take action where required to gain further information 1.5 Refer to a database of known problems to identify possible resolution options
2. Prioritise client problems	2.1 Determine the scale of the problem based on information gathered 2.2 Establish and record relevant ***constraints*** 2.3 Undertake an impact analysis of the problem to determine severity and risks 2.4 Prioritise the problem according to the organisation's escalation procedures 2.5 Provide ***advice and support*** to the client from database of known problems, where appropriate
3. Refer problems where required	3.1 Investigate and apply the appropriate process to follow when referring problems to third parties 3.2 Provide third party with client and problem details as required 3.3 Document the advice and support provided by third party according to ***organisational guidelines***, where appropriate
4. Carry out maintenance	4.1 Obtain appropriate components for resolution in line with organisational guidelines 4.2 Complete ***maintenance*** in line with organisational guidelines 4.3 Store or dispose of used ***components*** following organisational ***environmental guidelines***
5. Prepare maintenance report	5.1 Prepare a maintenance report, including information about problems and resolution action 5.2 Forward maintenance report to client for feedback

© Commonwealth of Australia, 2025 Future Skills Organisation

6. Confirm problem resolution	6.1 Obtain feedback from the client to ensure requirements have been met 6.2 Forward client feedback to ***appropriate person*** for sign-off and record in known problems database as appropriate

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - determine client problem by questioning
  - follow up with client
  - liaise with technical team members
  - provide assistance according to organisational guidelines
  - provide clear and precise advice when logging calls from help-desk support staff
  - refer problems to third parties
- literacy skills to:
  - document initial problem and recommendations to solve problem
  - prepare maintenance report
  - read and interpret technical manuals
  - record maintenance and fault data
- planning and organisational skills to:
  - develop plans with prioritised tasks
  - minimise disruption to client
  - organise maintenance
- problem-solving skills to:
  - determine client problems based on logged requests
  - identify possible resolution options using a database of known problems
  - solve unknown problems in a range of contexts
- technical skills to undertake diagnostic and maintenance tasks.

Required knowledge

- hardware and software products:
  - currently in use
  - supported by the organisation
- help-desk or service desk structure and escalation procedures

© Commonwealth of Australia, 2025 Future Skills Organisation

- functions and basic features of operating system
- organisational structure
- principles of equal employment opportunity and anti-discrimination relating to client IT problem
- principles of OHS relating to client IT problem
- security and network guidelines and procedures.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • record and prioritise client support activities • determine the required resources • solve the client problem or escalate according to organisational guidelines or practices.
Context of and specific resources for assessment	Assessment must ensure access to: • sites with a representative range of current industry-standard hardware • sites with a representative range of current industry-standard software and diagnostic tools • technical records • organisational guidelines • vendor documentation • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of candidate:
	  • undertaking maintenance and preparing a maintenance report
	  • using database of known problems
	• review of maintenance report prepared by candidate
	• verbal or written questioning to assess candidate's knowledge of maintaining and solving client computer problems.

© Commonwealth of Australia, 2025 Future Skills Organisation

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• employee • external organisation • individual • internal department.

Problem may be in reference to:	• failure to:
	  • print
	  • load
	  • perform a feature correctly
	  • save
	  • login
	  • connect
	  • boot
	  • recognise peripheral devices
	• failures in a range of IT areas, including:
	  • application programs
	  • business programs
	  • networks
	  • systems.

© Commonwealth of Australia, 2025 Future Skills Organisation

Requirements may be in reference to:	• application • business • employees • network • system.
Constraints may include:	• budget • hardware • legal constraints • policy • resource • software • time.

Advice and support may include:	• advice on hardware supported by the organisation:
	  • configuration of printers and scanners
	  • formatting of disks
	  • operation of printers
	  • setting of screen resolution
	• advice on software used by the organisation:
	  • creating graphs
	  • formatting spreadsheets
	  • setting up email system
	  • setting up of word-processing documents for printing
	• client documentation
	• manuals
	• vendor documentation.

Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • use of emails and internet access • virus risk.
Maintenance may include:	• 24 hours a day, 7 days a week support • business hours only support • on-site response • real-time online support • remote diagnostics • return to depot • second-level support

© Commonwealth of Australia, 2025 Future Skills Organisation

	• telephone support.
Components may include:	• CD and DVD drives • central processing unit (CPU) • complementary metal oxide semiconductor (CMOS) battery • fax or modem cards • interface cards • motherboards • random access memory (RAM).

Environmental guidelines may include:	• recycling of packaging:
	  • cardboard
	  • paper
	  • polystyrene
	• recycling or disposal of e-waste:
	  • cathode ray tube (CRT) monitors
	  • printed circuit boards
	  • redundant hardware.

Appropriate person may include:	• authorised business representative • client • help-desk person • subject matter expert • supervisor • system administrator.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS411A Assist with policy development for client support procedures

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to contribute to the formulation of client support procedures to be included within organisational policy.

Application of the Unit

This unit applies to experienced technical support personnel, such as help-desk supervisors, IT support technicians, and user support specialists.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine support issues	1.1 Review current ***client*** support procedures followed by the organisation if appropriate 1.2 Gather feedback from client detailing positive and negative aspects of their contact with the organisation 1.3 Gather feedback from ***user*** who executes client support procedures, detailing problems with current methods
2. Develop client support procedures	2.1 Create or update client support procedures using information gathered from the client and the user 2.2 Forward new client support procedures to ***appropriate person*** for review
3. Provide recommended changes for client support policy	3.1 Evaluate feedback on client support policy 3.2 Incorporate changes to client support policy 3.3 Determine the impact the new policy will have on ***organisational guidelines*** and client interactions 3.4 Prepare a report detailing changes in policy and the impact on the client and the user in a clear and concise manner 3.5 Forward the report and the updated policy to appropriate person for approval
4. Update documented client support policy	4.1 Amend policies to include new client support procedures 4.2 Issue new policies to clients and users in line with organisational guidelines 4.3 Maintain policy updates in line with organisational guidelines

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- analytical skills to:
  - determine the impact of policy changes
  - evaluate feedback on client support policy
- communication skills to:
  - effectively use questioning and active listening techniques
  - gather feedback from users
  - liaise with technical team members
- initiative and enterprise skills to identify potential improvements to client support policies
- literacy skills to:
  - evaluate reports
  - prepare reports and update or amend support policies
  - read and interpret technical manuals and technical workplace documentation
  - review current support procedures and update accordingly based on feedback
- problem-solving skills to determine issues around current methods of supporting users.

Required knowledge

- current trends and issues in IT
- organisational guidelines for client maintenance and administration
- organisational policy for access and security
- review process and its stages.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • evaluate and analyse existing client support policy and procedures • develop new criteria and procedures for performing current practices that cater for emerging client needs.
Context of and specific resources for assessment	Assessment must ensure access to: • sites, peers and supervisors to identify the extent and quality of the contribution required

© Commonwealth of Australia, 2025 Future Skills Organisation

	• information about systems or networks to be supported • technical manuals, tools and organisational guidelines • current business requirements and documentation standards • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of client feedback and resulting amendments to client support procedures and policies • review of a report prepared detailing changes in policy and the impact on the client and the user • verbal or written questioning to assess candidate's knowledge of organisational guidelines.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• employee • external organisation • individual • internal department.
User may include:	• department within the organisation • person within a department

© Commonwealth of Australia, 2025 Future Skills Organisation

	• third party.
Appropriate person may include:	• authorised business representative • client • IT manager • project manager • supervisor • team leader • user support specialist.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access • virus risk.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS412A Action change requests

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to receive, review and carry out change requests, while using a change-management system according to client requirements.

Application of the Unit

This unit applies to frontline experienced personnel, such as help-desk supervisors, IT support technicians, user support specialists, network specialists, web developers and software developers responsible for system changes.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Review change requests	1.1 Receive and document requests for ***hardware*** and ***software*** changes from client, using a change-management system and according to organisational ***help-desk procedures***
	1.2 Gather and organise ***system*** data relevant to the change requests, using available diagnostic tools
	1.3 Review the proposed changes against current and future business ***requirements*** and examine the system data, with work team, in order to select appropriate changes to be carried out
	1.4 Discuss and clarify the selected changes with ***client***
2. Modify system according to requested changes	2.1 Develop a plan, with prioritised tasks and contingency arrangements, for modification of the system
	2.2 Undertake the selected system changes according to ***organisational guidelines*** and procedures and according to manufacturer recommendations
	2.3 Test the system changes for performance and identify problems
	2.4 Resolve identified problems
	2.5 Revise relevant client and ***technical documentation*** to reflect system changes according to organisational ***standards***
	2.6 Notify client of status of change and update change-management system, as per organisational help-desk procedures
3. Prepare and deliver training on use of modified system	3.1 Prepare training to meet the needs of client in using the changed system
	3.2 Deliver prepared training appropriate to the client

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- analytical skills to:
  - examine system data to select appropriate changes to be carried out
  - review proposed changes against current and future business requirements
- communication skills to:
  - deliver training on use of the modified system
  - discuss and clarify changes with clients
  - interact with clients and team members
  - maintain a client focus
  - notify clients of status of change
- literacy skills to:
  - carry out change requests
  - conform to manufacturer’s recommendations
  - perform recordkeeping for requests and actions
  - revise technical documentation according to organisational standards
  - update change-management system
- planning and organisational skills to:
  - action change requests in a timely manner
  - develop plans with prioritised tasks and contingency arrangements
  - manage and prioritise own work
  - prepare training to meet the needs of the client.

Required knowledge

- change-management tools
- client-business domain
- features and capabilities of current industry-accepted hardware and software products
- help-desk practices
- currentservice level agreements (SLAs) within or between organisations
- quality assurance practices
- role of stakeholders and the degree of stakeholder involvement
- system testing
- system's current functionality.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • evaluate and analyse current practices • develop new criteria and procedures for performing current practices • use and update a change-management system • review and assess change requirements • plan and implement change procedures according to organisational guidelines and client requirements • prepare and deliver training appropriate to the client.
Context of and specific resources for assessment	Assessment must ensure access to: • change request documentation • physical system or network • technical manuals and appropriate diagnostic tools • current business requirements • documentation standards • change-management system • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of candidate's plan for modification of the system • direct observation of the candidate testing system changes for performance, and identifying and resolving problems • review of candidate's technical documentation • direct observation of the candidate delivering training.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Hardware may include:	• cabling • modems or other connectivity devices • networks • personal computers • remote sites • servers • workstations.

Software may include:	• application software:
	  • database
	  • internet browser
	  • spreadsheet
	  • word-processing
	• commercial software
	• customised software
	• in-house software
	• programming software:
	  • assembler
	  • compiler
	  • development tools
	• system software:
	  • operating system
	  • device drivers
	  • computer security software.

Help-desk procedures may include:	• customer contact centre or general contact point that then consults with a supplier or other technician • customer contact centre staffed by technicians capable of solving problems • real-time online support • web-based support.
System may include:	• hardware components within a computer • interconnected computers and peripherals

© Commonwealth of Australia, 2025 Future Skills Organisation

	• software components that run a computer.
Requirements may be in reference to:	• application • business • network • people in the organisation • system.
Client may include:	• employee • external organisation • individual • internal department.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access • virus risk.
Technical documentation may include:	• brochures • help references • online help • project specifications • reports • technical manuals • training materials and self-paced tutorials • user guides.
Standards may include:	• International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS)standards • organisational standards • project standards.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS413A Manage resolution of system faults on a live system

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manage reactive errors and failures on a live system.

Application of the Unit

This unit applies to experienced technical support personnel, such as help-desk supervisors, IT support technicians, and user support specialists who are required to perform maintenance on systems that are currently operating.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Determine maintenance methodologies and repositories	1.1 Identify the nature of ***modification*** to the ***system*** 1.2 Confirm the existence and currency of ***repositories*** 1.3 Review repositories for changes and develop new backup procedures 1.4 Prepare or check modification request forms and levels of authority for sign-off 1.5 Develop a hierarchy of modifications and the response for each 1.6 Determine the backup and blackout strategies in place
2. Implement change-management system	2.1 Follow ***standards*** and procedures for logging the change request 2.2 Document the expected impact to the ***user*** base during implementation 2.3 Identify levels of possible failure and the related ***reporting procedures*** 2.4 Document the expected outcomes of the modification 2.5 Inform user of modification implications 2.6 Assign the modification to ***appropriate person*** for actioning
3. Report review of results	3.1 Complete aspects of the change system and ensure the modification is tested and operational 3.2 Prepare the report and deliver to the appropriate person indicating the results of modification 3.3 Update and amend ***documentation*** and repositories

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- communication skills to liaise with customers and present information to users
- initiative and enterprise skills to:
  - maintain the continuity of information and communications technology (ICT) operations and business functions
  - resolve conflict while undertaking change procedures
  - review change procedures
- literacy skills to:
  - document the expected impact to the user base
  - document the expected outcomes of modifications
  - prepare modification request forms
  - prepare reports
  - report review of results
  - update and amend documentation and repositories
- planning and organisational skills to contribute to solutions and goals of a non-routine or contingency nature
- problem-solving skills to develop new backup procedures
- technical skills to undertake low-level programming.

Required knowledge

- change control procedures
- client business domain
- current industry-accepted hardware and software products, including their general features and capabilities
- help desk and maintenance practices
- quality assurance practices
- role of stakeholders and the degree of stakeholder involvement
- system testing
- features and functions of the system under modification
- system's current functionality.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify the required modification • itemise the expected outcomes of the modification • demonstrate the steps involved in the implementation of the modification • document the modification.
Context of and specific resources for assessment	Assessment must ensure access to: • live system • benchmarking and testing tools • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of:
	  • candidate undertaking implementation of change-management system
	  • candidate determining the backup and blackout strategies
	• verbal or written questioning to assess candidate's knowledge of:
	  • managing resolution of system faults on a live system
	  • implications of success and failure of proposed modifications
	  • required steps or procedures.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Modification may include:	• assistance • enhancement • error correction • system recovery.
System may include:	• hardware components that run a computer • software components that run a computer.
Repositories may include:	• central repository • databases • program library.
Standards may include:	• International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • organisational standards • project standards.
User may include:	• department within the organisation • person within a department • third party.
Reporting procedures may include:	• customer contact centre or general contact point that then consults with a supplier or other technician • customer contact centre staffed by technicians capable of solving the problem • real-time online support • web-based support.
Appropriate person may include:	• authorised business representative • client • project manager • supervisor.
Documentation may include:	• collection of records that describe the structure • hardware device • maintenance and data requirements for a computer program • operating system • operation • purpose.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS414A Evaluate system status

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to evaluate the status of a running system, covering both hardware and software aspects to determine system performance and reliability.

Application of the Unit

This unit applies to experienced technical support personnel, such as help-desk supervisors, IT support technicians, and user support specialists responsible for assessing the current condition of the system as a first step before problem resolution or upgrades.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine scope and evaluation parameters	1.1 Determine ***scope*** of the ***system*** evaluation 1.2 Comply with ***organisational requirements*** when planning a 'change of status' test 1.3 Review the reason for the evaluation, its objectives, deliverables and key performance indicators, using appropriate capacity tools 1.4 Plan and document status evaluation and factor in time, environment, internal and external issues 1.5 Alert affected ***users*** if evaluation is likely to impact their operations 1.6 Develop a plan for the evaluation and identify the resources and methods to be used
2. Carry out evaluation	2.1 Organise the required resources as outlined in the plan, and put in place manual or computerised evaluation methods 2.2 Run the evaluation process according to the agreed scope and evaluation parameters 2.3 Record the status as per procedural parameters and plan 2.4 Observe and document during evaluation the effects of changes to system status that are made according to effect being evaluated 2.5 Observe and record effects that are not listed and that may require further investigation
3. Report on evaluation	3.1 Prepare a report to the ***appropriate person*** indicating the results of the status check in the ***documentation*** 3.2 Highlight anomalies observed in the status check that are outside the expected results 3.3 Make recommendations for changes to improve the system

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to evaluate feedback on client support
- communication skills to:
  - effectively use questioning and active listening techniques
  - gather feedback from users
  - liaise with technical team members
- initiative and enterprise skills to identify potential improvements to client support
- literacy skills to:
  - evaluate reports
  - prepare reports and update or amend system issues
  - read and interpret technical manuals and technical workplace documentation
  - review current support procedures and update accordingly based on feedback
  - problem-solving skills to determine issues around current methods of supporting users.

Required knowledge

- capacity planning
- change-control procedures
- client-business domain
- current industry-accepted hardware and software products, including their general features and capabilities
- help desk and maintenance practices
- one or more change-management tools
- quality assurance practices
- role and level of stakeholder involvement
- system testing
- features and functions of the system under evaluation
- system's current functionality.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • test a system • identify comprehensive performance indicators to determine system performance and reliability related to both hardware and software • document the results.
Context of and specific resources for assessment	Assessment must ensure access to: • documentation standards • backup and recovery policies • database package with data • server and networked personal computer on which to conduct backup and recovery procedure • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of candidate:
	  • undertaking evaluation of system status
	  • determining the system performance and reliability
	• verbal or written questioning to assess candidate's knowledge of:
	  • current functionality of the system
	  • implications of success and failure of proposed modifications and the required steps or procedures
	• review of candidate's documentation of results of system test.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Scope may include:	• data • hardware • maintenance • networks • personnel • processes • software • support • warranty.
System may include:	• application • business • computers • financial system • information system • management system • network • network operating system • software.
Organisational requirements may include:	• preventative maintenance and diagnostic policy • problem-solution processes • roles and technical responsibilities in the IT department • vendor and product service level agreements (SLAs) • work environment.
Users may include:	• department within the organisation • person within a department • third party.
Appropriate person may include:	• authorised business representative • client • project manager • supervisor.
Documentation may include:	• audit trails • client training • International Organization for Standardization (ISO),

© Commonwealth of Australia, 2025 Future Skills Organisation

	International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • maintaining equipment inventory • naming standards • project-management templates and report writing • satisfaction reports • version control.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS415A Optimise IT system performance

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to identify, improve and monitor IT system performance.

The optimisation of system performance can be assisted by careful management of existing installed resources.

Application of the Unit

This unit applies to experienced technical support personnel, such as help-desk supervisors, IT support technicians, and user support specialists responsible for maintaining top performance from computer systems.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Identify areas of poor performance	1.1 Collect system performance data, during various usage conditions and times, using available technical ***tools***
	1.2 Evaluate the collected ***system performance*** data related to organisational benchmarks and ***client*** feedback to identify areas of poor performance
2. Investigate methods to improve system performance	2.1 Identify options to ***improve performance*** through discussing the system performance findings with ***appropriate person*** and accessing technical resources
	2.2 Create a report for appropriate person, including cost analysis and identified options for alternative courses of action designed to measurably improve performance
	2.3 Present report to appropriate person for decision as to preferred course of action
3. Develop an implementation plan for system optimisation	3.1 Develop a plan for implementing the approved optimisation, with prioritised tasks and minimum disruption to clients
	3.2 Factor project budget and staff availability into the implementation plan
	3.3 Submit the implementation plan to the appropriate person for approval and revision, if necessary
4. Modify system to optimise performance	4.1 Install or configure system ***components*** according to installation procedures and ***organisational guidelines***, following the implementation plan
	4.2 Measure and record the change in performance resulting from the system modification, in order to assess that the required level of optimisation has been achieved
	4.3 Update appropriate ***documentation*** according to organisational guidelines, to reflect the system optimisation
5. Monitor ongoing	5.1 Implement and maintain a performance register

© Commonwealth of Australia, 2025 Future Skills Organisation

system performance	5.2 Review and assess benchmarks and performance regularly with the work team to enable timely optimisation and updates

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- basic analytical skills to:
  - evaluate the collected system performance data
  - review and assess benchmarks and performance
- communication skills to:
  - evaluate system performance data related to organisational benchmarks
  - follow up on client feedback
  - liaise with technical team members
- literacy skills to:
  - document initial problem and make recommendations to solve problem
  - implement and maintain a performance register
  - read technical manuals, organisational guidelines and support agreements
  - write reports that include cost analysis details
- planning and organisational skills to:
  - develop an implementation plan for system optimisation
  - develop plans with prioritised tasks
  - make contingency arrangements
  - minimise disruption to client
  - organise maintenance
- problem-solving skills to:
  - determine problems based on diagnostic tests
  - identify options to improve performance
  - solve unknown problems in a range of contexts
- teamwork skills to review and assess benchmarks and performance with the work team
- technical skills to:

collect system performance data using available diagnostic and technical tools

  - install and configure system components
  - measure and record changes in performance resulting from system modifications
  - measure system performance against predefined benchmarks.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required knowledge

- business scheduling requirements
- current industry-standard hardware and software monitoring tools and how to interpret information produced from monitoring
- system performance, change control procedures and theoretical concepts
- one or more change-management tools
- quality assurance practices with regard to proposed changes to IT systems
- role of stakeholders and the degree of stakeholder involvement
- features and functions of the system under modification
- current system functionality.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify inadequacies in system performance • analyse system performance • tune the system to keep the system balanced and performing well.
Context of and specific resources for assessment	Assessment must ensure access to: • system components and software for performance tuning • technical manuals and resources • fault logs • diagnostic tools • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate performing system tests • verbal or written questioning to assess candidate's knowledge • review of documentation recording system optimisation process.

© Commonwealth of Australia, 2025 Future Skills Organisation

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Tools may include:	• electronic test equipment:
	  • data analyser
	  • oscilloscope
	  • voltmeter
	• software.

System performance may be related to:	• allocation of files across disk space • disk speed • I/O channel availability • imbalances in disk use and available space • memory availability and use • number of concurrent users • physical limitations of system • poor design in a programs • processor use • queue depth • seek time • work load.
Client may include:	• employee • external organisation

© Commonwealth of Australia, 2025 Future Skills Organisation

	• individual • internal department.
Improving performance may include:	• load balancing between servers or other network devices using switches or routers • reducing total load by tuning the operating system • tuning applications to reduce the load they impose • tuning the disk sub-system • using various system tools to adjust system parameters, including hardware or software upgrade.
Appropriate person may include:	• authorised business representative • client • project manager • supervisor.
Components may include:	• CD and DVD drives • central processing unit (CPU) • complementary metal oxide semiconductor (CMOS) battery • fax or modem cards • interface cards • motherboards • random access memory (RAM).
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access • virus risk.
Documentation may follow:	• audit trails • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) • naming standards • project management templates • report writing principles • version control.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS416A Implement maintenance procedures

Modification History

Version	Comments
ICASAS416A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to set up maintenance procedures to keep equipment and software operating effectively.

Application of the Unit

This unit applies to frontline technical support personnel, such as IT support technicians, and user support specialists responsible for maintaining computer equipment in an organisation.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Determine best practices for equipment and software maintenance	1.1 Identify equipment and ***software*** that are to be maintained and implement processes to ensure future acquisitions of ***equipment*** and software are identified 1.2 Identify vendor ***documentation***, peer organisations or research information detailing best practices in equipment and software maintenance to improve system performance and reliability 1.3 Develop recommended maintenance and operations guidelines for equipment and software maintenance based on the above research 1.4 Obtain ***requirements*** from ***user*** in the area of equipment maintenance and reliability 1.5 Document procedures for maintenance based on best practices
2. Identify resources to provide equipment and software maintenance	2.1 Identify and record the level of support that can be provided by in-house resources 2.2 Identify and record the support to be supplied by external or third-party organisations 2.3 Develop or update ***service level agreement*** (SLA) with internal user and third-party suppliers
3. Revise practices, where appropriate	3.1 Monitor and review maintenance operation 3.2 Identify problem areas, including failures to meet SLAs, and consider changes to maintenance procedures 3.3 Assess changes in consultation with user, support staff and third-party suppliers 3.4 Design and implement improvements to maintenance procedures

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with customers in the provision of customer services, including basic training
- initiative and enterprise skills to work as a team member in the development of solutions and goals of a non-routine or contingency nature
- literacy skills to:
  - evaluate and present information
  - write technical reports
- planning and organisational skills to contribute to maintenance and continuity of IT operations and business functions
- problem-solving skills to participate in development of strategic initiatives
- technical skills to undertake low level programming and use a range of computer equipment.

Required knowledge

- business scheduling requirements
- client business domain
- current industry-standard hardware and software products, including their general features and capabilities
- diagnostic tools
- help desk and maintenance practices
- steps of maintenance procedures
- one or more change-management tools
- quality assurance practices
- role of stakeholders and the degree of stakeholder involvement
- current performance level of the system
- system's current functionality.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and	Evidence of the ability to:

© Commonwealth of Australia, 2025 Future Skills Organisation

evidence required to demonstrate competency in this unit	• set up maintenance procedures to keep equipment and software operating.
Context of and specific resources for assessment	Assessment must ensure access to: • technical environment with a variety of operational equipment • technical manuals and tools • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of candidate setting up maintenance procures
	• review of candidate's documented procedures
	• verbal or written questioning to assess candidate's knowledge of:
	  • preventative maintenance
	  • SLAs.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Software may include:	• commercial • customised • in-house • packaged.
Equipment may include:	• hard drives • hubs • modems and other connectivity devices, including digital subscriber line (DSL) modems • monitors • other peripheral devices • personal computers • personal digital assistants • printers • switches • workstations.
Documentation may follow:	• audit trails • client training • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • maintaining equipment inventory • naming standards • project management templates and report writing • satisfaction reports • version control.
Requirements may be in reference to:	• application • business • network • people in the organisation • system.
User may include:	• person within a department • department within the organisation • third party.

© Commonwealth of Australia, 2025 Future Skills Organisation

Service level agreement may exist for:	• many different infrastructure services:
	  • application service providers (ASPs)
	  • communications carriers
	  • expectations regarding:
	  • charge back to business units
	  • penalties
	  • servicing
	  • internet service providers (ISPs)
	  • SLAs for vendor products
	  • workload and performance considerations.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS417A Undertake IT system capacity planning

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to monitor and assess the current and future capacity requirements of an IT system, plan future enhancements and install the identified enhancements.

This unit also establishes the general concepts and methodology involved in performing capacity planning, so that one can adapt the testing to a business.

Application of the Unit

This unit applies to experienced technical support personnel, such as planners, IT support technicians, and user support specialists responsible for monitoring computing capacity to ensure continuity of service. They generally work under little supervision.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Analyse existing system capacity	1.1 Review the existing ***system*** configuration information, both ***hardware*** and ***software***, to determine capacity issues 1.2 Investigate the current workload of the system and analyse its effect on the capacity to perform 1.3 Examine the current ***service level agreement*** to determine agreed-upon capacity standards 1.4 Examine and analyse the fault logs for those caused by capacity ***problems*** 1.5 Discuss and review capacity issues with ***users*** 1.6 Document the information gathered about the existing system workload and capacity according to ***organisational guidelines***
2. Determine future capacity requirements	2.1 Interview the user in order to gather data about future capacity ***requirements*** of the system 2.2 Organise and analyse the future requirements data and then evaluate to obtain a ***forecast workload*** for the system 2.3 Using the data and information gathered, compare the existing workload with the forecast workload and evaluate, to determine capacity problem areas 2.4 Estimate the resources and ***equipment*** required to resolve predicted capacity problems 2.5 Undertake a financial analysis of the estimated capacity requirements 2.6 Organise and document information according to organisational guidelines 2.7 Evaluate ***documentation*** in order to create a report, detailing recommendations for capacity enhancements, for presentation to ***appropriate person***

© Commonwealth of Australia, 2025 Future Skills Organisation

3. Develop plan for capacity enhancements	3.1 Develop a plan for implementing the recommended enhancements, with prioritised tasks and minimum disruption to users 3.2 Factor into the implementation plan the availability of finances, staff and other requirements 3.3 Submit the implementation plan to appropriate person for approval and revision
4. Install capacity enhancements	4.1 Install the capacity enhancements according to installation procedures, organisational guidelines and implementation plan 4.2 Measure the increase in capacity and performance resulting from installed equipment in order to assess that capacity requirements have been met 4.3 Update documentation according to organisational guidelines to reflect the capacity enhancements
5. Monitor ongoing capacity requirements	5.1 Monitor and assess the impact of new technology and application development on capacity and performance 5.2 Implement and maintain a performance ***database*** 5.3 Review and assess benchmarks and performance regularly with work team to enable timely capacity enhancements and updates of benchmarks

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - evaluate current practices
  - evaluate documentation to create a report, detailing recommendations for capacity enhancements
  - examine and analyse the fault logs for those caused by capacity problems
  - investigate the current workload of the system and its effect on the capacity to perform
  - review the existing system configuration information to determine capacity issues
- communication skills to deal with other team members, clients and vendors
- literacy skills to:
  - interpret technical manuals and forecasting data

© Commonwealth of Australia, 2025 Future Skills Organisation

    - process and present written and verbal information
- planning and organisational skills to:
    - allow for scheduled maintenance, budgeting and costing, and communications
    - develop new criteria and procedures for performing current practices
    - develop plans with prioritised tasks
    - make contingency arrangements
    - minimise disruption to client
    - prepare time lines
    - ensure quality assurance and risk management
- problem-solving skills to resolve problems through developing capacity planning initiatives
- technical skills to:
    - modify current system to incorporate the planned changes
    - oversee installation of hardware and software elements.

Required knowledge

- detailed knowledge of system's current functionality
- overview knowledge of:
    - component performance management
    - current industry-accepted hardware and software products, including their general features and capabilities
    - key features of financial analysis
    - client business domain
    - performance monitoring tools
    - quality assurance practices with regard to proposed IT capability enhancements
    - service level agreements relating to proposed IT capability enhancements
    - role of stakeholders and the degree of stakeholder involvement.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to	Evidence of the ability to: • monitor and accurately assess current and future capacity requirements of a system

© Commonwealth of Australia, 2025 Future Skills Organisation

demonstrate competency in this unit	• predict capacity requirements resulting from business growth, with forecasts being realistic and achievable • plan and install capacity enhancements • create and maintain required documentation.
Context of and specific resources for assessment	Assessment must ensure access to: • live system • service level agreements • fault logs • users • hardware components for installation • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• review of:
	  • report detailing recommendations for capacity enhancements based on a financial analysis and resources and equipment required
	  • implementation plan for recommended enhancements, with prioritised tasks and minimum disruption to users
	• direct observation of:
	  • installing the capacity enhancements following installation procedures, organisational guidelines and implementation plan
	  • measuring the improved capacity and performance resulting from capacity enhancements
	• evaluation of performance database implemented and maintained
	• verbal or written questioning to assess knowledge of:
	  • industry products, services and practices
	  • techniques of capacity planning.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined

© Commonwealth of Australia, 2025 Future Skills Organisation

	with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

System may include:	• hardware components that run a computer • software components that run a computer.
Hardware may include:	• modems or other connectivity devices • networks • personal computers • remote sites • servers • workstations.

Software may include:	• application software:
	  • database
	  • internet browser
	  • spreadsheet
	  • word-processing
	• commercial
	• customised software
	• in-house
	• programming software:
	  • assembler
	  • compiler
	  • development tools
	• system software:
	  • computer security software
	  • device drivers
	  • operating system.

© Commonwealth of Australia, 2025 Future Skills Organisation

Service level agreement may include:	• application service providers (ASPs)
	• business processes and requirements
	• charge back to business units
	• communications carriers
	• expectations regarding:
	  • audit of service levels
	  • service levels
	• penalties
	• infrastructure services
	• internet service providers (ISPs)
	• vendor products
	• workload and performance considerations.

Problems may relate to:	• application • business • business need or opportunity that must be addressed • network • people in the organisation • system.
Users may include:	• departments within the organisation • persons within a department • third parties.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access • virus risk.
Requirements may relate to:	• application • business • network • people in the organisation • system.
Forecast workload may be determined from:	• application development personnel • competitive pressures • corporate business plans • economic trends • outside influences, such as legal requirements • trends in existing workload

© Commonwealth of Australia, 2025 Future Skills Organisation

	• user interviews • user questionnaires.
Equipment may include:	• hard drives • hubs • modems or other connectivity devices • monitors • other peripheral devices • personal computers • personal digital assistant (PDA) • printers • switches • workstations.
Documentation may follow:	• audit trails • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • naming standards • project management templates • report writing principles • version control.
Appropriate person may include:	• authorised business representative • client • project manager • supervisor.
Database may include:	• DB2 • Informix • Ingres • Microsoft Structured Query Language (MS SQL) server • Mini SQL (mSQL) • MySQL • Oracle • Sybase.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS418A Monitor and administer security of an IT system

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to monitor and administer security functions of an IT system.

Application of the Unit

This unit applies to experienced technical support personnel, such as help-desk supervisors, IT support technicians, and user support specialists responsible for maintaining the security of a system.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Ensure user accounts are controlled	1.1 Modify default ***user*** settings to ensure that they conform to ***security policy***
	1.2 Modify previously created user settings to ensure they conform to updated security policy
	1.3 Ensure legal notices displayed at logon are appropriate
	1.4 Check strength of passwords using the appropriate utilities and consider tightening rules for password complexity
	1.5 Take action to ensure password procedures are reviewed with appropriate other internal departments
	1.6 Monitor email to uncover breaches in compliance with ***legislation***
	1.7 Access information services to identify security gaps and take appropriate action using ***hardware*** and ***software*** or patches
2. Secure file and resource access	2.1 Review inbuilt security and access features of the ***operating system*** and consider need for further action
	2.2 Develop or review the file security categorisation scheme, and develop an understanding of the role of users in setting security
	2.3 Monitor and record ***security threats*** to the system
	2.4 Implement a virus checking process and schedule for the ***server***, ***computer*** and other system components
	2.5 Investigate and implement inbuilt or additional ***encryption*** facilities
3. Monitor threats to the network	3.1 Use third-party software or utilities to evaluate and report on system security
	3.2 Review logs and audit reports to identify security threats
	3.3 Carry out spot checks and other ***security strategies*** to ensure that procedures are being followed
	3.4 Prepare and present an audit report and recommendations to ***appropriate person***
	3.5 Obtain approval for recommended changes to be made

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - liaise with technical team members
  - present information
  - provide assistance with organisational guidelines
  - review logs and audit reports to identify security threats
- problem-solving skills to:
  - identify security threats
  - use third-party software or utilities to evaluate system security
- project planning skills to:
  - identify scope
  - implement a virus checking process and schedule
  - set benchmarks
- report writing skills to:
  - present audit reports and recommendations
  - report on system security
- research skills to identify, analyse and evaluate broad features of a particular business domain and best practice in system security methodologies and technologies
- technical skills to:
  - check strength of passwords
  - implement virus checking processes and schedules
  - modify user settings
  - monitor and record security threats to the system.

Required knowledge

- current industry-accepted hardware and software products
- privacy issues and legislation with regard to IT security
- key components of risk analysis process for system security
- specific security technology
- systems technologies
- client business domain, including client organisation structure and business functionality.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • monitor and administer security functions on the system, which may include use of third-party diagnostic tools • confirm knowledge of security features available in the operating environment.
Context of and specific resources for assessment	Assessment must ensure access to: • security policy • industry and organisational standards • live system • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation:
	  • ensuring security policy compliance
	  • using security strategies to evaluate and report on system security and threats
	• review of:
	  • audit report and recommendations prepared
	  • virus checking process and schedule implemented
	• verbal or written questioning to assess candidate's knowledge of security features within the operating environment.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined

© Commonwealth of Australia, 2025 Future Skills Organisation

	with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

User may include:	• department within the organisation • person within a department • third party.

Security policy may relate to:	• audits and alerts
	• file access levels
	• privacy
	• security objectives of the organisation
	• standards:
	  • archival
	  • backup
	  • network
	• theft
	• viruses.

Legislation may include:	• copyright • liability statements • privacy legislation.
Hardware may include:	• modems or other connectivity devices • networks • personal computers • remote sites • servers • workstations.

Software may include:	• application:
	  • spreadsheet
	  • database
	  • word-processing
	  • internet browser
	• commercial

© Commonwealth of Australia, 2025 Future Skills Organisation

	• customised
	• in-house
	• programming:
	  • assembler
	  • compiler
	  • development tools
	• system:
	  • computer security software
	  • device drivers
	  • operating system.

Operating system may include:	• Linux
	• GNU and Linux
	• Mac OS X
	• Microsoft Windows
	• Unix-like operating systems:
	  • HP-UX
	  • IBM AIX
	  • Silicon Graphics IRIX
	• Sun Solaris.

Security threats may include:	• by-pass • denial of service • eavesdropping • hacking • impersonation • manipulation • penetration • viruses.
Server may include:	• application or web servers • BEA Weblogic servers • email servers • file and print servers • firewall servers • FTP servers • IBM VisualAge and WebSphere • Novell Directory Services (NDS) servers • proxy or cache servers • voice servers.
Computer may include:	• laptops • other devices: • hand-held and mobile devices

© Commonwealth of Australia, 2025 Future Skills Organisation

	• personal digital assistant (PDA) • servers • workstations.
Encryption may include:	• asymmetric public-key ciphers • Deslogin • digital signatures • public key infrastructure (PKI) • PKZIP • pretty good privacy (PGP) • RSA public key • secure socket layer (SSL) • sniffers • SSH • symmetric ciphers.
Security strategies may include:	• authentication • authorisation and integrity • privacy • security objectives of the organisation.
Appropriate person may include:	• authorised business representative • client • project manager • security consultant • supervisor.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS419A Support system software

Modification History

Version	Comments
ICASAS419A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to operate and support system software.

Application of the Unit

This unit applies to individuals working in the support area who are required to provide technical assistance to users with operating system problems.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Maintain system software	1.1 Evaluate system effectiveness against ***organisational requirements*** and benchmarks to determine if maintenance activities should be commenced 1.2 Use system utilisation, file and ***disk*** structure, performance reports and files to identify peak periods and possible performance problems 1.3 Monitor ***system*** data levels to determine whether system performance is consistent with predetermined standards 1.4 Troubleshoot the system, if required, with appropriate system tools 1.5 Monitor and retune the system to improve performance
2. Set up and manage the system files	2.1 Evaluate ***system requirements*** and monitor the appropriateness of file and folder structures 2.2 Use the appropriate administration and tools to create file and folder structures 2.3 Set security, access and sharing of file system to meet requirements 2.4 Identify the virus protection requirements of the network in line with ***policies*** and organisational requirements 2.5 Scan system for viruses and remove detected viruses 2.6 Test file system to ensure that appropriate access is available to the ***user*** groups 2.7 Ensure log-on scripts and custom written utilities and programs conform to ***organisational guidelines*** for simple programming constructs 2.8 Document the file system created according to organisational guidelines
3. Monitor and manage system usage and security	3.1 Monitor user access against user access levels 3.2 Review ***security requirements*** for user and data to be stored on ***network***

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.3 Determine risks that data is exposed to, and formulate appropriate prevention and recovery processes 3.4 Implement a system to provide backup and to restore services in the event of a disaster 3.5 Document disaster recovery procedures
4. Carry out system backup	4.1 Confirm backup schedule meets organisational requirements 4.2 Ensure system backups are completed according to organisational, scheduling and system requirements 4.3 Ensure that a secure off-site location for the storage of backup media is provided and used 4.4 Ensure system backups are recorded according to organisational requirements
5. Restore system backup	5.1 Ensure system restores are completed when required for system recovery or testing according to organisational guidelines 5.2 Optimise the restored system according to organisational requirements 5.3 Ensure system restores are documented according to organisational requirements

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse routine and non-routine work processes
- communications skills to liaise with users and peers
- literacy skills to write business reports
- problem-solving skills to address a range of unpredictable operating system problems
- technical skills to update operating systems.

Required knowledge

- detailed knowledge of system software and system tools
- overview knowledge of:
  - change-management systems
  - client business domain

© Commonwealth of Australia, 2025 Future Skills Organisation

- OHS requirements related to work safety, environmental factors and ergonomic considerations
- quality assurance practices with regard to supporting system software
- vendor products and trends in product development.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • monitor system software performance according to vendor and organisational benchmarks • maintain system performance to these benchmarks • use a wide range of features and system tools.
Context of and specific resources for assessment	Assessment must ensure access to: • organisational performance benchmarks • live system • client user requirements • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess knowledge of:
	  • system software
	  • benchmark performance
	  • system software tools
	• direct observation of candidate:
	  • liaising with client
	  • upgrading system software
	• review of candidate's call documentation
	• evaluation of client feedback from candidate's communications.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and

© Commonwealth of Australia, 2025 Future Skills Organisation

	numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Organisational requirements may relate to:	• preventative maintenance and diagnostic policy • problem solution processes • roles and technical responsibilities in the IT department • vendor and product service level support agreements • work environment.
Disk may include:	• CD • CD-RW • diskettes (floppy disks) • DVD RW • solid state hard drive • zip disk.
System may include:	• application service provider • applications • databases • gateways • hardware and software components that run a computer • ISP • operating systems • servers.
System requirements may include:	• client or user • cost constraints • environment • geography • system functionality.

© Commonwealth of Australia, 2025 Future Skills Organisation

Policies may include:	• awareness raising strategies • forensic procedures • incident response procedures • network intrusion detection systems • training.
User may include:	• department within the organisation • person within a department • third party.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access • virus risk.
Security requirements may include:	• encryption • privacy • security levels • secure socket layer (SSL) • trusted sites.
Network may include:	• data • large and small LANs • private lines • internet • use of the public switched telephone network (PSTN) for dial-up modems only • voice • virtual private networks (VPNs) • wide area networks (WANs).

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS420A Provide first-level remote help-desk support

Modification History

Version	Comments
ICASAS420A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to resolve first-level user support difficulties or change requests remotely.

Application of the Unit

This unit applies to experienced technical support personnel, such as help-desk supervisors, IT support technicians, and user support specialists who provide remote help-desk support to clients.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine the user support issue	1.1 Determine the eligibility status of the individual experiencing the ***user support*** difficulty against ***organisational guidelines*** for user support services 1.2 Clarify the user support difficulty or change request with ***client***, using active listening and questioning techniques where possible 1.3 Confirm the nature of the user support difficulty or change request with client, using technical language that is understandable by the client
2. Identify the hardware or software being used by the customer or client	2.1 Identify the ***software***, ***hardware***, network connection or ***application***, being used by the client 2.2 Identify the outcome the client is trying to achieve and the stage of the process they have reached, using active listening and questioning techniques 2.3 Step the client back to the beginning of the process using plain English 2.4 Walk the client through the process in a clear and logical manner
3. Confirm resolution of user support issue	3.1 Determine, describe and eliminate factors that may have created the user support issue or permit it to recur 3.2 Explain and guide the client through a complete recovery and resolution process for the issue or change request 3.3 Provide sufficient instruction to the client to enable effective handling and resolution of the issue, if it recurs 3.4 Offer next-level escalation or lodgement of change request, explaining cost involved, if user request not possible to resolve under current circumstances 3.5 Document changes where appropriate
4. Maintain	4.1 Confirm resolution of difficulty with client according to

© Commonwealth of Australia, 2025 Future Skills Organisation

communication link	client service policy 4.2 Confirm client satisfaction with the current service according to client service policy 4.3 Inform client of additional support or services available, according to the organisation's client service policy 4.4 Provide the client with additional information related to products and services offered by the organisation, as required by the organisation's sales promotion requirements 4.5 Complete the client contact records according to the client service requirements

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to review client requirements and provide advice and support on findings
- communication skills to:
  - convey and clarify complex information
  - discuss product and service matters with potential customers
  - investigate and assess client needs
  - provide one-to-one instruction to client
  - provide service related to communicating about using systems for recording and accessing information
- literacy skills to:
  - document:
    - additional requirements
    - amount of technical support the client may require
    - solutions
    - support issues affecting the client
  - interpret user manuals, for the purpose of resolving client problems and guiding clients through manuals
  - develop reports
- technical skills to write macros and templates.

Required knowledge

- customer service policies
- escalation procedures in a clearly defined range of contexts

© Commonwealth of Australia, 2025 Future Skills Organisation

- OHS procedures related to the work environment and organisational requirements
- user support policies of limited complexity related to known or commonly-used options.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • resolve first-level user support difficulties remotely • demonstrate customer-service skills • document problem resolution.
Context of and specific resources for assessment	Assessment must ensure access to: • customer-service policies • user support policies • escalation procedures • communications hardware • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of candidate providing advice and support to clients
	• evaluation of candidate's resolved call documentation
	• verbal or written questioning to determine candidate's knowledge of:
	  • client support procedures
	  • help or service desk operation.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

User support may include:	• customer contact centre by phone • email • other real-time support structures • real-time website support.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • mobile equipment • opening mail with attachments • personal use of emails and internet access • virus risk.
Client may include:	• employee • external organisation • individual • internal department.
Software may include:	• commercial • customised • in-house • packaged.
Hardware may include:	• modems or other connectivity devices, including digital subscriber line (DSL) modems

© Commonwealth of Australia, 2025 Future Skills Organisation

	• networks • personal computers • remote sites • servers • wireless connections • workstations.
Application may include:	• data and voice integration • database programs • email programs • internet browsers • spreadsheets • system browsers • word-processing.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS421A Support users and troubleshoot desktop applications

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to sustain users who run operating systems (OS) in a corporate or home environment.

Application of the Unit

This work requires the application of a combination of complex technical and problem-solving skills and is relevant to frontline service personnel who may resolve operating system issues by telephone, by connecting to an end user's system remotely, or by visiting an end user's desktop.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Install, configure and troubleshoot applications	1.1 Install ***application*** 1.2 Configure and customise application within user environment 1.3 Resolve application problems
2. Resolve issues related to usability, customisation and connectivity	2.1 Determine ***problems*** 2.2 Research solutions 2.3 Recommend solutions to client 2.4 Resolve issues
3. Configure application security	3.1 Identify and troubleshoot problems related to security permissions 3.2 Identify and respond to ***security incidents*** 3.3 Manage application security settings

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with people working across different OS and levels of operation
- literacy skills to read and interpret complex technical and non-technical information from a range of sources
- planning and organisational skills to balance competing and complex demands
- problem-solving skills to anticipate and respond to a range of security incidents.

Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

- OS and office applications
- sources of OS patches
- specific features of security incidents
- typical systems and procedures of user support.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • install, configure and troubleshoot computer applications • customise computer applications • anticipate and respond to a range of security incidents.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate OS installation CD or recovery boot discs • computers with application errors • samples of operating system patches • stand-alone or networked personal computer • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods will be used to assess practical skills and knowledge for example: • evaluation of a security breach and a non-functional mail box • direct observation of the candidate troubleshooting and repairing corrupted data • verbal or written questioning of typical systems and procedures of user support.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking

© Commonwealth of Australia, 2025 Future Skills Organisation

	background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Application may include:	• in-house applications • network applications • office applications • programming applications • terminal emulation applications.
Problems may include:	• access to devices • access to network resources • keyboard emulation • keyboard shortcuts • screen resolution.
Security Incidents may include:	• application of critical updates • identification of virus attacks • resetting forgotten password.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS422A Scope implementation requirements

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to define boundaries and deliverables of a system installation project in the context of an overall implementation plan.

The unit relates to implementation at one location although may involve building-wide implementation. It is not intended that this unit include implementation of multiple sites across cities, states or countries.

Application of the Unit

This unit applies to systems designers who are required to plan future development projects.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine scope	1.1 Review ***project plan*** and other documentation 1.2 Determine installation requirements 1.3 Identify other implementation issues
2. Confirm scope with parties	2.1 Develop and document preliminary ***project scope*** and submit to ***appropriate person*** 2.2 Review requests for revision to scope 2.3 Identify areas for further development 2.4 Prepare implementation plan and forward to appropriate person
3. Update plans to account for scope	3.1 Review implementation plan, taking into account scope of system 3.2 Review key dates and events to determine if conflicts exist 3.3 Confirm revised plans and documents with appropriate person for final approval and sign-off

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to determine installation requirements and other implementation issues
- communication skills to liaise with client users
- literacy skills to prepare technical documentation to determine installation requirements
- planning and organisational skills to:
  - deal with contingencies

© Commonwealth of Australia, 2025 Future Skills Organisation

  - review and confirm implementation
  - scope and plan the project
- problem-solving skills to participate in the development of strategic initiatives, such as when implementation areas to be developed further are identified with project team
- technical skills to use project-management software.

Required knowledge

- broad knowledge of:
  - client business domain
  - information technology (IT) related services and issues
  - possible legislative requirements relating to cabling and building preservation
  - role of stakeholders and degree of stakeholder involvement
  - vendor product directions
- detailed knowledge of:
  - current industry-accepted hardware and software product
  - prerequisites needed for system installation
  - vendor specifications and requirements for installation.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify and convey a clear understanding of project deliverables, boundaries and roles • plan and document an implementation approach, having regard to implementation drivers, measures of success, implementation by functional area and coordination.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • project documentation • staff, resources and technical equipment.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for

© Commonwealth of Australia, 2025 Future Skills Organisation

	this unit:
	• analysis of candidate's organisational documents that relate to:
	  • implementation approach
	  • implementation drivers
	  • measures of success
	  • implementation by functional area
	  • implementation coordination
	• review of project plan and client expectations brief prepared by candidate
	• verbal or written questions to determine candidate's knowledge of scope.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Project plan may include a number of project variables, including:	• parties and their responsibilities • budget • objectives • schedule • scope.
Project scope may include:	• customer acceptance criteria • description of outcomes (deliverables) • equipment and software to be installed

© Commonwealth of Australia, 2025 Future Skills Organisation

	• financials • milestones and timeline • project constraints • project objectives • resources required • roles of involved parties.
Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS424A Support different operating systems

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to repair bootup procedures in a variety of operating systems (OS).

Application of the Unit

This unit applies to frontline technical support personnel in a medium to large organisation responsible for end user support.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Determine organisation's help-desk procedures	1.1 Review organisation's technical support procedures 1.2 Interrogate help-desk system 1.3 Liaise with client
2. Identify OS	2.1 Examine ***operating system*** file and root structure 2.2 Identify profile information 2.3 Explore the help structure 2.4 Observe boot process
3. Differentiate OS	3.1 Compare and contrast ***features*** of OS 3.2 Examine kernel file structures 3.3 Determine currency of operating system
4. Analyse OS boot processes	4.1 Analyse boot procedures 4.2 Evaluate associated boot files 4.3 Itemise boot procedures for different operating procedures

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to interpret technical manuals
- learning skills to maintain knowledge of current industry-accepted hardware and software products
- planning and organisational skills to plan the upgrade or installation of OS, taking into account time, environment, and internal and external issues
- problem-solving skills to solve client OS problems
- technical skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

- select, source and use appropriate software and tools based on analysis of technical needs
- solve OS boot problems.

Required knowledge

- boot processes in use
- files required for operation
- range of OS.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • evaluate a non-functional OS • diagnose cause of system faults • rectify the fault.
Context of and specific resources for assessment	Assessment must ensure access to: • stand-alone or networked PC • appropriate OS installation CD or recovery boot discs • drivers for connected devices • help-desk system • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate rectifying a boot process problem • review of candidate's completed call documentation • verbal or written questioning to assess candidate's knowledge of boot procedures of different OS.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Operating system may include:	• Mac:
	  • Mac OS 9
	  • Mac OS X
	• current Windows:
	  • Windows 2000
	  • Windows 7
	  • Windows Vista
	  • Windows XP
	• legacy Windows:
	  • DOS
	  • Windows 95
	  • Windows 98
	  • Windows ME
	  • Windows NT 4.0
	• Unix-like:
	  • BSD and derivations:
	  • FreeBSD
	  • NetBSD
	  • OpenBSD
	  • GNU and Linux
	  • NextStep

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Suse Linux • available open source OS.
Features may include:	• configuration • file handling • internet network access • log-on procedures • printing • user interface.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS425A Configure and troubleshoot operating system software

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit defines the performance outcomes, skills and knowledge required to configure, maintain and troubleshoot operating system (OS) software to ensure organisational requirements and client needs are met.

Application of the Unit

This unit applies to individuals in a technical support role who are required to configure and troubleshoot OS software to meet organisational requirements. The unit develops the ability to install, configure, optimise and test the OS to identified vendor specifications. The ability to troubleshoot and rectify faults is also a key component of this unit.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Identify available OS	1.1 Compare and contrast different ***OS***
	1.2 Identify and demonstrate knowledge of basic ***OS features***
	1.3 Research OS vendor sites to obtain technical specifications and system requirements
	1.4 Install and configure the OS using features such as Internet Information Services (IIS)
	1.5 Determine licensing, hardware and security requirements and provide recommendations to ***appropriate person***
2. Install, configure and optimise OS	2.1 Install, configure and test the OS using the installation components and ***boot utility options***
	2.2 Use the ***OS user interface*** to correctly configure the installation
	2.3 Identify different ***directory structures*** and demonstrate management of virtual memory
	2.4 Optimise system to meet ***organisational requirements***
	2.5 Document system according to organisational requirements
3. Resolve problems using tools	3.1 Identify ***command line options*** and ***system tools*** available to troubleshoot problems
	3.2 Identify specific problems and implement strategies for resolution
	3.3 Use options and tools to resolve ***common operating system issues***
4. Provide instruction for new OS implementation	4.1 Provide one-to-one instruction about changes to the ***client*** or users as required
	4.2 Obtain client evaluation about new system to ensure requirements are met, using appropriate ***feedback mechanism***

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - install and configure OS software
  - interpret technical computer installation manuals
  - liaise with people working across different levels and in different contexts
- literacy skills to:
  - obtain written and verbal feedback from clients
  - present information, such as the use of diagnostic tools
  - provide verbal instructions to client
- problem-solving skills to troubleshoot OS
- research skills to search for solutions to common problems
- technical skills to:
  - work with OS
  - write instructions for clients.

Required knowledge

- architecture of current technical systems
- current industry-accepted hardware and software products
- functions and features of OS used by the organisation
- installation and configuration of systems software
- organisational requirements for OS software
- prerequisites for system software installation
- set-up and configuration procedures
- software packages supported by the organisation
- system’s current functionality
- system’s diagnostic software
- vendor specifications and requirements for installation.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify requirements of different OS • install, configure and test an OS to improve system performance with minimum disruption to clients • identify faults and rectify with utilities and tools.
Context of and specific resources for assessment	Assessment must ensure access to: • PC where installation may be performed • OS software and technical documentation are available • organisational documentation • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	direct observation of candidate:
	  • questioning team members, supervisors and clients
	  • installing and testing an OS
	  • identifying and rectifying OS faults
	• evaluation of candidate's reports demonstrating applicants ability to use and optimise an OS
	• verbal or written questioning to assess candidate's knowledge of OS installation and troubleshooting.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

OS may include:	• Mac OS X
	• Linux:
	  • Debian
	  • Fedora
	  • Google Chrome OS
	  • Kubuntu
	  • Linux Mint
	  • Red Hat
	  • Ubuntu
	• Microsoft Windows:
	  • Windows 2000
	  • Windows 7 (32 bit versus 64 bit)
	  • Windows Vista (32 bit versus 64 bit)
	  • Windows XP (32 bit versus 64 bit)
	• mobile OS:
	  • Android
	  • Blackberry
	  • iPhone
	  • Palm
	  • Symbian
	  • Windows Phone 7 series.

OS features may include:	• configure power management:
	  • hibernate
	  • sleep timers
	  • standby
	  • suspend
	  • wake on local area network (LAN)
	• device manager:
	  • driver signing
	  • install and update device drivers
	  • verify

© Commonwealth of Australia, 2025 Future Skills Organisation

	• demonstrate safe removal of peripherals
	• directory structures:
	  • create folders
	  • navigation of directory structures
	• disk preparation order:
	  • format drive
	  • partition
	  • start installation
	• files:
	  • attributes
	  • creation
	  • extensions
	  • permissions
	• file systems:
	  • FAT32 versus new technology file system (NTFS)
	• installation methods:
	  • boot media, such as DVD, CD, floppy or universal serial bus (USB)
	  • factory recovery partition
	  • install from image
	  • network installation
	  • recover CD
	• operating system installation options:
	  • file system type
	  • network configuration
	  • repair install
	• user data migration, such as user state migration tool (USMT)
	• verification of hardware compatibility and minimum requirements
	• virtual memory.

Appropriate person may include:	• authorised business representative • client • supervisor.

Boot utility options may include:	• boot options:
	  • boot to restore point
	  • recovery options
	  • safe mode:
	  • automated system recovery (ASR)
	  • emergency repair disk (ERD)
	  • recovery console

© Commonwealth of Australia, 2025 Future Skills Organisation

	• disk boot order or device priority: • types of boot devices, such as disk, network and USB.

OS user interface may include:	• based on Windows (adopt interface to undertake similar tasks with chosen operating system):
	  • administrative tools:
	  • performance monitor, event viewer, services, and computer management
	  • command prompt utilities:
	  • ipconfig
	  • Ping
	  • Telnet
	  • control panel
	  • location of basic network settings between OS versions
	  • my computer
	  • my network places or home group
	  • MMC
	  • run line utilities:
	  • cmd
	  • direct diagnostics (DXdiag)
	  • msconfig
	  • MSINFO32
	  • REGEDIT
	  • start menu
	  • task bar or systray
	  • task manager
	  • Windows Explorer, such as libraries in Windows 7.

Directory structures may include:	• fonts • offline files and folders • program files • system file locations • temporary files • user file locations • user profile and program files • virtual directories.
Organisational requirements may include:	• availability of system to be optimised • client support documentation • in-house or vendor; contracting arrangements relating to IT purchasing • IT policy and procedures relating to service levels and installation

© Commonwealth of Australia, 2025 Future Skills Organisation

	• level of complexity of technical manuals.
Command line options may include:	• CHKDSK (/f /r) • COPY (/a /v /y) • DIR • EDIT • FORMAT • GREP • IPCONFIG (/all /release /renew) • LS • MD / CD / RD • MKDIR • MSCONFIG • NET • NSLOOKUP • PING (-t -l) • RMDIR • SFC • Tracert • XCOPY.

System tools may include:	• administrative tools:
	  • computer management
	  • event viewer
	  • performance monitor
	  • services
	• device manager
	• disk management tools:
	  • Check Disk
	  • DEFRAG
	  • NTBACKUP
	• disk manager:
	  • active unallocated
	  • active, primary, extended and logical partitions
	  • drive status
	  • dynamic
	  • external hard drives
	  • failed
	  • FAT32, NTFS, FAT64 (exFAT)
	  • flash drives
	  • foreign drive
	  • formatting

© Commonwealth of Australia, 2025 Future Skills Organisation

	• healthy • mount points • mounting a drive • offline • online • enable: • disable • indicators • warnings • regional settings and language settings • remote desktop protocol (remote desktop or remote assistance) • system information • system monitor • system restore • task manager: • process list • process priority • resource usage • termination • task scheduler.
Common operating system issues based on Windows (adopt interface to undertake similar tasks with chosen operating system):	• error messages and conditions: • aero settings: • background processes • indexing settings • side bar settings • start-up file maintenance • UAC • boot: • inaccessible boot drive • invalid boot disk • missing NTLDR • event viewer (errors in the event log) • start-up: • device or program in registry not found • device or service failed to start • system performance and optimisation • operational problems: • application install, start or load failure • auto-restart errors • bluescreen error

© Commonwealth of Australia, 2025 Future Skills Organisation

	• devices drivers failure (input and output devices)
	• service fails to start
	• system lock-up
	• Windows-specific printing problems:
	  • incorrect or incompatible driver or form printing
	  • print spool stalled.

Client may include:	• department within the organisation • person with special needs • person within a department • third party.
Feedback mechanism may include:	• interview • meeting • questionnaire • survey.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS426A Locate and troubleshoot IT equipment, system and software faults

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to troubleshoot problems and apply systematic processes to fault finding across a wide range of information and communications technology (ICT) disciplines.

Application of the Unit

This unit applies to any IT practitioner who needs to apply a systematic approach to finding faults, troubleshooting problems and solving issues in a wide range of ICT-related areas.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Choose the most appropriate fault-finding method	1.1 Develop a ***troubleshooting process*** to help resolve problems 1.2 Analyse and document the ***system*** that requires troubleshooting 1.3 Identify available ***fault-finding tools*** and determine the most appropriate for the identified problem 1.4 Obtain the required fault-finding tools 1.5 Identify ***legislation, OHS requirements, codes, regulations and standards*** related to the problem area
2. Analyse the problem to be solved	2.1 Collect data relevant to the system 2.2 Analyse the data to determine if there is a problem and the nature of the problem 2.3 Determine ***specific symptoms*** of hardware, operating system and printer ***problem***
3. Identify a solution and rectify the problem	3.1 Formulate a ***solution*** and make provision for rollback 3.2 Systematically test variables until the problem is isolated 3.3 Rectify the problem 3.4 Create a list of probable causes of the problem
4. Test system and complete documentation	4.1 Test the system to ensure the problem has been solved and record results 4.2 Identify and implement ***common preventative maintenance*** techniques to support ongoing maintenance strategies 4.3 Document the signs and symptoms of the problem and its solution, and load to database of problems or solutions for future reference

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- communication skills to:
  - liaise with clients
  - negotiate with other team members
  - provide customer service
  - work in teams
- literacy skills to:
  - analyse and evaluate information
  - document outcomes
- planning and organisational skills to:
  - conduct risk analysis for reviewing change procedures
  - maintain the continuity of IT operations and business functions
  - undertake basic training needs analysis
  - technical skills to apply methodology in fault diagnosis.

Required knowledge

- client support and maintenance practices
- current industry-accepted hardware and software products, including features and capabilities
- details of the system under modification
- one or more change-management tools
- quality assurance practices with regard to locating and troubleshooting IT equipment, system and software faults
- change control procedures
- system testing tools
- system's current functionality.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and	Evidence of the ability to:

© Commonwealth of Australia, 2025 Future Skills Organisation

evidence required to demonstrate competency in this unit	• develop a troubleshooting process • analyse and identify different faults • establish context and background information and determine the likely causes of the fault • obtain suitable tools and equipment and apply simple checks, tests and fault-finding methodology • apply the recommended means to rectify fault.
Context of and specific resources for assessment	Assessment must ensure access to: • system to be diagnosed • diagnostic and fault-finding tools • technical and system documentation • organisational requirements for documenting solution • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate locating and rectifying faults • verbal or written questioning to assess knowledge of types of faults and implications • evaluation of written reports prepared by candidate outlining signs and symptoms of the problem, test results interpretation and solution.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Troubleshooting process may include:	• documenting findings, actions and outcomes
	• establishing a theory of probable cause
	• identifying the problem, such as by questioning the user
	• identifying user changes to computer and performing backups before making changes
	• implementing preventative measures
	• implementing the solution
	• planning to resolve the problem
	• testing the theory to determine cause:
	  • if theory is confirmed determine next steps to resolve problem
	  • if theory is not confirmed re-establish new theory or escalate
	• verifying full system functionality.

System may include:	• computer systems • hardware and software components • network • website.

Fault-finding tools may include:	• for networking:
	  • mapping tools
	  • operating system tools
	  • open system interconnection (OSI) layered model
	  • Ping
	  • protocol analysers
	  • Telnet
	  • traceroute
	• for programming:
	  • break points
	  • compilers
	  • debug
	  • trace.

Legislation, OHS	• environmental considerations, such as:

© Commonwealth of Australia, 2025 Future Skills Organisation

requirements, codes, regulations and standards may include:	• clean-up protection • flashing lights • gas and other hazard detection equipment • identifying other services, including power and gas • noise, dust and clean-up management • safety barriers • safety equipment • stormwater protection • trench guards • warning signs and tapes • waste management • witches hats • OHS and environmental requirements relating to decommissioning and isolating worksite and lines prior to commencement • safe working practices, such as the safe use and handling of: • asbestos • chemicals • materials • special access requirements • tools and equipment • work platforms • suitable light and ventilation.
Specific symptoms may include:	• hardware-related symptoms: • alerts • excessive heat • noise • odours • status light indicators • visible damage, such as cable and plastic • laptop or mobile devices: • issues: • keyboard • pointer • power conditions • stylus • video • wireless card issues • methods: • check LCD cut-off switch

© Commonwealth of Australia, 2025 Future Skills Organisation

	• check switch for built-in wi-fi antennas or external antennas • plug in external monitor • remove unneeded peripherals • toggle Fn keys or hardware switches • verify backlight functionality and pixilation • verify power, such as LEDs, swap AC adapter • operating system (OS) related symptoms: • bluescreen • system lock-up • input or output device • application install • start or load • Windows-specific printing problems • print spool stalled • incorrect or incompatible driver • printers: • manage print jobs • print spooler • printer properties and settings • print a test page • use documentation and resources, including: • user or installation manuals • internet or web-based • training materials.
Problem may refer to:	• application • network • people in the organisation • problem with the business • system.
Solution may include:	• business processes • implementing a new system • new hardware and hardware upgrades • new software and software upgrades • user training.
Common preventative maintenance may include:	• backup procedures • ensuring proper environment • physical inspection • power devices: • appropriate source, such as power strip, surge protector or

© Commonwealth of Australia, 2025 Future Skills Organisation

	UPS
	• scheduling preventative maintenance:
	  • check disk
	  • defrag
	  • scandisk
	  • start-up programs
	• updates:
	  • driver
	  • firmware
	  • OS
	  • security
	• use of appropriate repair tools and cleaning materials:
	  • compressed air
	  • computer vacuum and compressors
	  • lint free cloth.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS501A Develop, implement and evaluate an incident response plan

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop and implement an incident response plan. The results of the incident response plan must be evaluated if they affect the mission of the organisation.

Application of the Unit

This unit applies to network managers who are responsible for maintaining network service.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Develop the incident response program	1.1 Develop the ***incident*** management policy 1.2 Identify the services the incident response team should provide 1.3 Create incident response plans according to security policy and organisational goals 1.4 Develop procedures for incident handling and reporting 1.5 Create incident response exercises and red-teaming activities 1.6 Develop specific processes for collecting and protecting forensic evidence during incident response 1.7 Specify incident response staffing and training requirements 1.8 Establish the response program
2. Implement the incident response program	2.1 Apply response actions in reaction to security incidents according to established policy, plans and procedures 2.2 Respond to and report incidents 2.3 Assist in collecting, processing and preserving evidence ***according to requirements*** 2.4 Execute incident response plans 2.5 Execute red-teaming activities and incident response exercises 2.6 Ensure lessons learned from incidents are collected in a timely manner and are incorporated into review plans 2.7 Collect, analyse and report incident management measures
3. Evaluate the incident response program	3.1 Assess efficiency and effectiveness of incident response program activities and implement changes as required 3.2 Examine effectiveness of red teaming and incident response tests, training and exercises 3.3 Assess effectiveness of communication between incident response team and related internal and external organisations, implementing changes where appropriate 3.4 Identify and implement improvements based on assessments of effectiveness

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - liaise with clients and team members
  - present technical information
- initiative and enterprise skills to develop incident response policies
- learning skills to build organisational knowledge
- literacy skills to prepare reports
- planning and organisational skills to:
  - manage a project
  - manage logistics for identified resources and procedures to ensure on-time availability of required equipment
- problem-solving skills to evaluate:
  - broad features of a particular business domain
  - best practice in system development.

Required knowledge

- broad knowledge of:
  - client business domain
  - OHS procedures when formulating prevention and recovery strategy
  - systems engineering when evaluating threats
- detailed knowledge of:
  - backup methodologies
  - specific components of the business planning process relevant to the development of information technology (IT) business solutions
  - current system functionality.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop an incident response program • manage an incident response activation and operation • evaluate the incident response.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • IT business specifications • information on the security environment, including relevant laws and legislation, existing organisational security policies, organisational expertise and knowledge • possible security environment, including threats to security that are, or are held to be, present in the environment • risk analysis tools and methodologies • IT security assurance specifications • incident scenarios.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of security environment and risk analysis • review of incident response plan and associated documentation.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Incident may include:	• fire • misuse or improper access • other physical damage • theft of data or property • unauthorised publication.
According to requirements may include:	• directives • laws • policies • procedures • regulations • standards.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS502A Establish and maintain client user liaison

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to establish and maintain client user liaison in an information technology (IT) environment, post support implementation. This occurs after the business critical functions have been determined.

Application of the Unit

This unit applies to a variety of IT staff, including systems analysts, business analysts, system administrators and technical support staff who are responsible for liaising with clients to ensure that their requirements are fully met.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine support areas	1.1 Identify and record information technology used in the organisational unit 1.2 Identify ***stakeholders*** of the ***system*** 1.3 Identify organisational structure, culture and politics related to support requirements 1.4 Determine what level of support is required by each organisational unit
2. Develop support procedures	2.1 Contact organisational units, as required, to verify support needs 2.2 Establish procedures for providing required support, including method of contact, frequency of meetings and reporting 2.3 Document agreed procedures or ***service level agreement*** (SLA)
3. Assign support personnel	3.1 Identify IT skills required to assist each organisational unit with support activities 3.2 Assign personnel according to ***human resource processes*** 3.3 Verify availability of selected personnel 3.4 Provide support using agreed procedures 3.5 Obtain feedback from ***appropriate persons*** on a regular basis

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - discuss support needs of clients

© Commonwealth of Australia, 2025 Future Skills Organisation

    - explain relevant concepts
    - enable the end user to attempt remedial action
- initiative and enterprise skills to contribute to solutions and goals of a non-routine or contingency nature
- literacy skills to:
    - document and interpret procedures and SLAs
    - report on service history issues
- planning and organisational skills to:
    - establish procedures for providing support
    - deliver on scope, time, cost and quality
    - promote communications and manage risk
    - assign support personnel according to human resource processes
    - organise equitable workloads for team members
- problem-solving skills to gain consensus on concepts
- research skills to:
    - identify organisational structure and culture
    - identify information technology within an organisational unit.

Required knowledge

- adequate response times
- awareness of stakeholders, their role in the organisation, and their level of dependence on IT infrastructure
- capabilities of IT devices
- current industry-accepted hardware and software products
- detailed knowledge of areas related to the organisation's services
- equipment that is vital in supplying business critical services:
    - internet file transaction security for client accounts
    - web server for ebusiness
- detailed knowledge of functionality of the IT system in supplying the essential and desirable services to the organisation
- quality assurance practices relating to how the service is supplied
- role of IT in the client's business domain
- server types to provide:
    - application
    - backup
    - email
    - firewall
    - proxy
    - web.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • establish and maintain client liaison in an IT environment • establish procedures for providing required support • identify IT skill requirements and assign appropriate support personnel • show personal responsibility and autonomy in performing complex technical operations or organising others.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • agreed procedures or SLAs • documented support requirements • technical records and documentation.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• review of:
	  • records provided by candidate which identify stakeholders and their support requirements
	  • support procedures or SLAs developed by the candidate
	  • evidence of participation in developing strategic initiatives
	• direct observation of candidate providing support and maintaining liaison using agreed procedures
	• verbal or written questioning to assess candidate's knowledge of establishing and maintaining client liaison.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support.

© Commonwealth of Australia, 2025 Future Skills Organisation

	In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Stakeholders may include:	• development team • project team • sponsor • user.
System may include:	• application service provider (ASP) • applications • databases • gateways • internet service provider (ISP) • operating systems • server.

Service level agreements may include:	• ASPs
	• audit of service levels
	• business processes and requirements
	• communications carriers
	• infrastructure services
	• ISPs
	• vendor products
	• workload and performance considerations and expectations regarding:
	  • charge back to business units
	  • penalties
	  • servicing.

Human resource processes may include:	• checking job and person specifications • observing work activities • professional recommendations or referrals • reviewing performance reports.

© Commonwealth of Australia, 2025 Future Skills Organisation

Appropriate person may include:	• authorised business representative • client • project manager • supervisor.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS503A Perform systems tests

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to ensure that the properties of the entire system are tested and proved adequate before handover to the client or user for final acceptance testing.

Application of the Unit

This unit applies to senior information and communications technology (ICT) staff employed in a range of work environments who are required to ensure that a system is defect-free before it is acceptance tested by the user.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Prepare for test	1.1 Prepare ***test environment***
	1.2 Determine software life cycle
	1.3 Define test plan and appropriate ***test tools***
	1.4 Recognise and separate the system into runnable modules mirroring live scenarios
	1.5 Gather and prepare logs and result sheets
	1.6 Notify operations of scheduled test to ensure preparedness and understanding of implications for operations
	1.7 Test scripts for online test or test run for batch test
	1.8 Conduct walkthrough to review expected results against acceptance criteria and system requirements documentation
2. Conduct test	2.1 Run test scripts and document results according to test and acceptance processes
	2.2 Perform required quality benchmarks or comparisons for acceptance testing
	2.3 Adopt ***organisation and industry standards***
	2.4 Compare actual results to expected results on completion of each system unit, and complete result sheets
3. Analyse and classify results	3.1 Summarise and classify results, highlighting critical or urgent areas of concern and prepare report
	3.2 Compare results against requirements
	3.3 Notify operations of test completion
	3.4 Log attendees' details or comments and gain required signatures
	3.5 Schedule feedback meeting to discuss report and possible next actions with stakeholders if necessary
	3.6 Ensure test reporting complies with documentation and reporting standards

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - present information
  - provide advice to colleagues and staff
- literacy skills to:
  - interpret technical documentation
  - write reports
- problem-solving skills to solve testing problems
- technical skills to analyse and use programming skills related to testing the operation and consistency of the total system.

Required knowledge

- automated test tools, with detailed knowledge of some features and processes
- input and output requirements
- organisational practice and rules for preparing test
- particular system requirements and features
- underlying test data.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • test the operation and consistency of the total system according to the system requirements, including testing performance, security, configuration sensitivity, and start-up and recovery from failure modes; with testing taking place prior to delivery • analyse test results

© Commonwealth of Australia, 2025 Future Skills Organisation

	• prepare reports in compliance with documentation and reporting standards.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • requirements and design documents • human resources • test hardware and environments in place and free for system test use (all testing to be carried out on the same platform as the completed system; scheduled testing to be on the production platform; production environment is required as part of test preparation) • system or application suitable for testing.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of candidate conducting a test using appropriate test tools
	• verbal or written questioning of underpinning skills and knowledge of components and run-able modules that make up a total system
	• evaluation of test results prepared by candidate, including confirming that functionality is as specified by the business, and documenting any software issues
	• review of test documentation, specifically confirming that:
	  • functionality of the tested system is as specified by the business in the business design specification document and the requirements documentation
	  • software will replace existing software or support the intended business functions and achieves the standards required by the organisation for the development of new systems
	  • software, network or web page is of high quality and interfaces with existing systems.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support.

© Commonwealth of Australia, 2025 Future Skills Organisation

	In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Test environment may include:	• data • network, communications and other equipment • operating system • other support software • program libraries.

Test tools may include:	• applications testing:
	  • Cyrano Suite
	  • DataShark
	  • Datatect
	  • preVue-C/S
	• code, unit, class testing:
	  • AssertMate
	  • BoundsChecker
	  • C-Cover
	  • CodeReview
	  • CodeWizard
	  • DeepCover
	  • FailSafe
	  • Hindsight
	  • Insure++
	  • JavaPureCheck
	  • JCAST
	  • Logiscope
	• stress load testing:
	  • Astra SiteManager
	  • Astra SiteTest
	  • automated test facilities

© Commonwealth of Australia, 2025 Future Skills Organisation

	• AutoTester Web • e-Load • e-MONITO • e-TEST Suite • JavaLoad • LoadRunner.
Organisation and industry standards may include:	• AS3925.1-1994 Software quality assurance - plans • AS4042-1992 Software configuration management plans • AS4043-1992 Software configuration management • AS/NZS 14102:1998 Information technology - guideline for evaluation and selection of computer-aided software engineering (CASE) tools • AS/NZS 4258:1994 Software user documentation process • AS/NZS ISO/IEC 12207:1997 Information technology - Software life cycle processes.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS504A Develop and conduct client acceptance test

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to plan and conduct acceptance testing as part of the process whereby clients will determine whether to accept the system.

Application of the Unit

This unit applies to senior information and communications technology (ICT) staff employed in a range of work environments who are required to conduct user acceptance tests.

Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams, including teams concerned with planning and evaluation.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Identify acceptance criteria and develop test plan	1.1 Review system requirements documentation and project plans to identify mandatory system objectives and optional criteria, and conditions for system acceptance 1.2 Develop test plan based on system requirements 1.3 Review and validate test plan based on mandatory criteria, conditions, and system objectives and requirements 1.4 Communicate test plan to client and prepare client for acceptance test 1.5 Notify ***appropriate person*** of the scheduled acceptance test
2. Perform functional testing on software modules	2.1 Prepare test environment for ***client*** use 2.2 Perform testing according to test plan and documentation 2.3 Execute each test cycle 2.4 Document errors, difficulties and problems
3. Validate test results against expected results	3.1 Record and investigate discrepancies and corrections according to project procedures and timeframe 3.2 Brief client on outcomes to ensure client understands test results 3.3 Monitor system performance as required 3.4 Reschedule required code changes or modifications
4. Obtain sign-off and acceptance	4.1 Confirm test results with client 4.2 Identify and document client concerns over system operation 4.3 Identify possible solutions to concerns and notify appropriate development staff as required 4.4 Confirm client approval and obtain sign-off 4.5 Seek and formalise agreement of involved parties regarding the

© Commonwealth of Australia, 2025 Future Skills Organisation

	rescheduling of further required maintenance

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to interpret test information
- communication skills to:
  - liaise with client and technical staff to ensure client understanding of test sequences
  - negotiate with team members
  - present information
- literacy skills to:
  - interpret technical specifications, standards and related documentation
  - prepare reports and technical documentation
- numeracy skills to make calculations
- planning and organisational skills to:
  - conduct risk management
  - develop test plans to efficiently undertake inspections and tests
  - estimate scope, time, cost and quality
  - determine project communications
- technical skills to conduct tests and validate test results.

Required knowledge

- automated test tools, with detailed knowledge of features and processes in some areas
- business rules and standards
- client user requirements
- system or application being tested
- testing techniques.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• review test-plan documentation and ensure client acceptance requirements are explicitly and accurately tested to predetermined standards of consistent performance, specifically:
	  • ensure system operates in the manner expected
	  • provide supporting material such as procedures and forms
	  • ensure there are no gaps in functionality
	  • ensure individual elements and the overall system provide the desired result or functionality
	  • provide unit and suite user-documentation
	  • copy user-accepted code to the live area
	  • ensure version numbers are correct and code is operational.

Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • business requirements • project documentation, including templates, standards, specifications, and client user and technical manuals • test plan • technical components of system, including software, hardware and network • staffing resources, including development, operations and client user representatives • system application suitable for testing • functional test cases selected to satisfy the agreed acceptance criteria (acceptance tests relate to the functionality of the system as stated in the requirements specification).

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of candidate undertaking acceptance tests
	• review of:
	  • reports and plans completed by the candidate for different scenarios and situations
	  • a completed acceptance documentation for systems prepared by candidate
	• verbal or written questioning to assess knowledge of tests and inspections types of systems and applications.

© Commonwealth of Australia, 2025 Future Skills Organisation

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Appropriate person may include:	• authorised business representative • client • supervisor.
Client may include:	• clubs • external organisations • individuals • internal departments • internal employees.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS505A Review and update disaster recovery and contingency plans

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to analyse the impact of the system on the organisation and carry out risk analysis, disaster recovery and contingency planning.

Application of the Unit

This unit applies to information technology (IT) professionals who are required to prepare contingency plans in case of disaster.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Evaluate impact of system on business continuity	1.1 Identify ***business critical functions*** and the security environment from ***documentation*** and from discussion with business area and ***project team***
	1.2 Identify critical data and ***software*** from documentation
	1.3 Assess potential impact of business risk and ***threats*** on IT ***systems***
	1.4 Identify and evaluate ***statutory requirements, commercial requirements*** and contingency possibilities according to specifications and cost ***constraints***
2. Evaluate threats to system	2.1 Identify threats to the system, considering security analysis and internal and external business environment
	2.2 Evaluate risk minimisation alternatives against ***specifications*** and cost constraints
3. Formulate prevention and recovery strategy	3.1 Evaluate prevention and recovery options to support critical business functions against business specifications and cost constraints
	3.2 Review current operational procedures to ensure that adequate risk safeguards and ***contingency plans*** are in place
	3.3 Submit disaster recovery and prevention strategy to ***appropriate person*** for approval
4. Develop disaster recovery plan to support strategy	4.1 Identify and document resources required for disaster recovery according to specifications and cost constraints
	4.2 Identify and document processes required for disaster strategy according to project ***standards***
	4.3 Identify ***cut-over criteria*** before initiating disaster plan
	4.4 Document disaster recovery plan and submit to appropriate person for review and sign-off

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - gain consensus on concepts when disaster recovery plan is submitted to higher authorities for review and sign-off
  - negotiate with client business area and project team when business critical functions are identified from project documentation
- literacy skills to interpret statutory requirements
- planning and organisational skills to:
  - manage logistics for resources and procedures required for disaster recovery
  - scope project, and plan time, cost, and quality
  - scope communications, risk analysis and management
- research skills to:
  - follow best practice in system development
  - specify, analyse and evaluate broad features of a particular business domain.

Required knowledge

- backup methodologies
- business planning process relevant to the development of IT business solutions
- client business domain
- disaster recovery plan strategies and components, including:
  - physical security
  - system failure, accident or sabotage (hackers)
  - denial of service
  - virus attack
  - cyber attack
  - telecommunications failure
- OHS
- legislative and organisational requirements
- system's current functionality
- systems engineering.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • specify contingencies that minimise down time for business critical functions • clearly specify directions on how to handle serious down time • coordinate, plan and articulate flexible logistics requirements.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • vulnerability assessment and general definition of requirements • acceptance test plan • business impact analysis • information technology security assurance specifications • relevant statutory documentation.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of the disaster recovery or contingency plan to ensure the following is covered:
	  • defined recovery requirements from the perspective of business functions
	  • impact of an extended loss on operations and key business functions
	  • contingency plan is understandable, and easy to use and maintain
	  • contingency planning considerations may be integrated into ongoing business planning and system development processes
	  • disaster recovery plan is not a one-off activity, but rather an ongoing process
	• review of disaster recovery plan developed by the candidate.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Business critical functions may include:	• customer service functions • financial systems • payroll.
Documentation may relate to:	• audit trails • client training • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • maintaining equipment inventory • naming standards • project management templates and report writing • satisfaction reports • version control.
Project team may include:	• different businesses working in partnership • individual business analysts • solution developers and business clients working together • third-party solution developers working together.
Software may include:	• commercial • in-house • packaged or customised software.
Threats may include:	• accident • cyber attack

© Commonwealth of Australia, 2025 Future Skills Organisation

	• denial of service • espionage • information technology failure • sabotage • security • telecommunications network failure • virus attack • weather, such as storms and earthquake.
Systems may include:	• application service provider • applications • databases • gateways • internet service provider (ISP) • operating systems • servers.
Statutory requirements may include:	• industry imposed controls and standards • legislation, such as Privacy Act • laws regarding confidentiality and reporting of data in organisations, such as health and banking.
Commercial requirements may include:	• access to internal network • availability • backup • confidentiality • encryption • firewalls • hacking • integrity • passwords and logons • storage and data recovery.
Constraints may include:	• budget • hardware • legal constraints • policy • resource • software • time.
Specifications may include:	• current system functionality • technical requirements • user-problem statement.
Contingency plans will typically:	• identify weaknesses and provide for the implementation of a disaster prevention program

© Commonwealth of Australia, 2025 Future Skills Organisation

	• minimise disruption to business operations • provide a coordinated approach to the disaster recovery process • vary in format and content detail.
Appropriate person may include:	• authorised business representative • client • supervisor.
Standards may include:	• ISO, IEC and AS standards • organisational standards • project standards.
Cut-over criteria may include:	• actual system down time • authorisations to cut-over • estimate of business impact, including • time before system is operational • cut-over plan refresher.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS506A Update IT system operational procedures

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to assess, update and document the operational procedures required to use the IT system.

Application of the Unit

This unit applies to individuals in a range of information and communications technology (ICT) areas who are required to record the ways in which a system works.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Assess technical and user documentation	1.1 Review current versions of ***technical and user documentation***
	1.2 Compare accuracy of technical and user documentation with current ***system*** functionality
	1.3 Identify and document inaccuracies in the documentation
2. Update procedures	2.1 Determine operational procedure requirements using review outcomes
	2.2 Develop or update operating procedures for the system
	2.3 Submit proposed operating procedures to ***appropriate person***
3. Update documentation	3.1 Review feedback and make appropriate changes
	3.2 Update technical and user documentation to incorporate changes
	3.3 Submit technical and user documentation to appropriate person for final approval
	3.4 Distribute technical and user documentation as agreed with appropriate person

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to present information to staff and others
- literacy skills to:
  - analyse and evaluate documentation
  - update technical and user documentation
  - write business reports
- planning and organisational skills to:
  - develop procedures

© Commonwealth of Australia, 2025 Future Skills Organisation

  - work in teams
- problem-solving skills to analyse and evaluate information
- technical skills to:
  - operate current system
  - produce documents on various media for distribution
  - review technical documentation.

Required knowledge

- client business domain
- current business practices related to preparing reports
- current industry-accepted hardware and software products, including their general features and capabilities
- documentation standards and tools
- role of stakeholders and the degree of stakeholder involvement.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • assess system functionality • review and update technical and user documentation • develop procedures to operate systems.
Context of and specific resources for assessment	Assessment must ensure access to: • system or project-related documentation • staffing resources • documentation tools • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate updating technical and user documentation

© Commonwealth of Australia, 2025 Future Skills Organisation

	• verbal or written questioning to assess candidate's knowledge of accuracy of technical and user documentation related to system functionality • review of operating procedures developed.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Technical and user documentation may include:	• brochures • help references • online help • operational procedures • reports • system design • system functionality • system or project specifications • technical manuals • training materials and self-paced tutorials • user guides.
System may include:	• applications • databases • gateways • networks • operating systems

© Commonwealth of Australia, 2025 Future Skills Organisation

	• servers • software.
Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS507A Implement and evaluate systems for regulatory and standards compliance

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to implement and evaluate the application of the principles, policies and procedures that enable an enterprise to meet applicable information security laws, regulations and standards to satisfy statutory requirements, perform industry-wide best practices, and achieve its information security program goals.

Application of the Unit

This unit applies to staff in a range of IT areas responsible for ensuring that systems, networks and websites comply with laws, conform to best practices and organisational standards, and meet security requirements.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Implement compliance systems	1.1 Monitor and assess the information security compliance practices of personnel according to enterprise policy and procedures 1.2 Maintain ongoing and effective communications with ***key compliance stakeholders*** 1.3 Conduct internal audits to determine if information security control objectives, controls, processes, and procedures are effectively applied and maintained, and perform as expected
2. Evaluate compliance systems	2.1 Assess the effectiveness of enterprise compliance program controls against ***appropriate benchmarks*** 2.2 Assess the effectiveness of information security compliance process and procedures for process improvement and implement changes where appropriate 2.3 Compile, analyse and report performance measures

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to articulate complex security scenarios in a clear and concise manner, relevant to all levels of the organisation
- literacy skills to interpret current security standards
- planning and organisational skills to schedule internal audits
- research skills to monitor the latest security standards as well as industry best practice.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required knowledge

- client business domain
- current industry-accepted hardware and software products, including security features and capabilities
- legislation relating to IT security
- operating system, including strengths and weaknesses over lifetime of product
- privacy issues and legislation relating to integrating legal requirements with IT security.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • monitor and assess information security compliance • conduct internal audits • assess the effectiveness of enterprise compliance • compile, analyse and report performance measures.
Context of and specific resources for assessment	Assessment must ensure access to: • IT business specifications • information on the security environment, including laws or legislation, existing organisational security policies, organisational expertise and knowledge • possible security environment, which includes threats to security that are, or are held to be, present in the environment • risk analysis tools and methodologies • IT security assurance specifications • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of: • enterprise policies

© Commonwealth of Australia, 2025 Future Skills Organisation

	• information security aims • IT audits • review of candidate's documented performance measures • observation of candidate conducting an IT audit.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Key compliance stakeholders may include:	• employees • external organisations • individuals • internal departments.
Appropriate benchmarks may include:	• applicable laws • policies • procedures • regulations • standards.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS509A Provide client IT support services

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to liaise with client users while providing IT support.

Application of the Unit

This unit applies to technical personnel responsible for providing higher technical assistance to users.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify support procedures	1.1 Identify support required by ***client***
	1.2 Review support call documentation to identify client contact person
	1.3 Review ***service level agreement*** (SLA) and appropriate procedures to determine action, and include escalation procedures
	1.4 Verify support requirements with client contact
2. Undertake support	2.1 Provide support activity required by the client
	2.2 Maintain communication with client contact throughout support activity by email, phone or other specific process
	2.3 Document action taken for support activity
	2.4 Acknowledge protocol differences during support activity
3. Gather feedback	3.1 Submit resolution documentation to client contact
	3.2 Contact client contact to determine satisfaction with support process
	3.3 Conduct follow-up action, as required

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - discuss support needs of clients
  - explain relevant concepts
- initiative and enterprise skills to contribute to solutions and goals of a non-routine or contingency nature
- literacy skills to:
  - document and interpret procedures and service level agreements

© Commonwealth of Australia, 2025 Future Skills Organisation

  - report on service history issues
- planning and organisational skills to:
  - assign support personnel according to human resource processes
  - deliver on scope, time, cost and quality
  - establish procedures for providing support
  - organise equitable workloads for team members
  - promote communications and manage risk
- project-planning skills related to scope, time, cost, quality, communications and risk management
- problem-solving skills to gain consensus on concepts
- research skills to:
  - identify information technology within an organisational unit
  - identify organisational structure and culture
- teamwork skills to contribute to solutions and goals of a non-routine or contingency nature
- technical skills to provide user support.

Required knowledge

- client business domain
- current industry-accepted hardware and software products, including their general features and capabilities
- help desk and maintenance practices
- quality assurance practices relating to IT support
- role of stakeholders and degree of stakeholder involvement
- current system functionality.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify support requirements and procedures • contact client • document support provided • liaise with user to obtain feedback • act on feedback as appropriate.

© Commonwealth of Australia, 2025 Future Skills Organisation

Context of and specific resources for assessment	Assessment must ensure access to: • SLAs • escalation procedure • documentation processes • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of:
	  • escalation procedures
	  • SLAs
	  • organisational support procedures
	• direct observation of candidate liaising with client
	• review of candidate's call documentation
	• evaluation of client feedback from candidate's communications.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

Client may include:	• employees • external organisations • individuals • internal departments.
Service level agreement may include:	• business processes and requirements • charge back to business units • different infrastructure services, including communications carriers, internet service providers (ISPs), application service providers (ASPs) and SLAs for vendor products • evaluation or audit of service levels • expectations regarding servicing • penalties • specific and quantity service levels • workload and performance considerations.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS510A Review and develop IT maintenance strategy

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to review, develop and set up maintenance strategies and supporting processes to achieve continuity of IT operations and business functions.

Application of the Unit

This unit applies to frontline technical support personnel, such as IT support technicians, and user support specialists responsible for maintaining computer equipment in an organisation.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify and analyse maintenance needs	1.1 Identify risks to business continuity due to system malfunction, including quantification of possible loss 1.2 Identify core business functions and determine the service requirements for those functions 1.3 Develop a maintenance philosophy to meet business needs and apply it to dealings with the ***client***
2. Identify and analyse IT system components to be maintained	2.1 Review ***systems architecture*** and configuration documentation for currency 2.2 Conduct an ***equipment*** and ***software*** audit if appropriate information is not available 2.3 Determine and document the warranty status of ***components*** and software according to vendor, project or organisational requirements 2.4 Identify critical components and software and document recommendations regarding possible service arrangements
3. Develop service level agreements	3.1 Determine the views and requirements of the client in order to identify maintenance requirements 3.2 Prepare ***service level agreements*** (SLAs) to match client user and business requirements
4. Formulate maintenance strategy	4.1 Examine maintenance options against cost constraints, risks to business continuity and SLAs 4.2 Identify a specific maintenance strategy based on cost, business and SLA requirements 4.3 Create a preventative maintenance schedule based on cost, business and SLA requirements 4.4 Negotiate a maintenance strategy with client and make changes to SLAs where necessary 4.5 Document the recommended procedure for approval from ***appropriate person*** according to organisational requirements
5. Define client and	5.1 Negotiate and create reporting procedures for service requests

© Commonwealth of Australia, 2025 Future Skills Organisation

supplier processes and standards	with client and suppliers 5.2 Determine response time standards with client and suppliers 5.3 Create escalation procedures with client and suppliers 5.4 Set up the help desk or other support function according to agreed standards and procedures and in line with industry best practices

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse current system practices and system composition and to suggest improvements to them, as part of the development of strategic initiatives
- change-management skills to maintain the continuity of IT operations and business functions, in carrying out system upgrade in its service levels, or repair or replacement of equipment or software
- communication skills to:
  - liaise with customers in the provision of customer services
  - provide information, report and make recommendations on new models of component maintenance schedules in response to pre-existing inadequate measures
- initiative and enterprise skills to work as a team member in the development of solutions and goals of a non-routine or contingency nature
- literacy skills to:
  - evaluate and present information
  - write technical reports for business, involving analysis and evaluation of information in such areas as maintenance schedules for IT equipment, level of service required, SLA, cost and viability, response time levels, escalation procedures with clients, warranty conditions with suppliers, and presenting proposals for improvements to the servicing system in general
- planning and organisational skills to contribute to maintenance and continuity of IT operations and business functions
- problem-solving skills to participate in development of maintenance strategies
- technical skills to determine level of support to a client.

Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

- client business domain and of the features of the IT system that support the client's business activity
- current industry-accepted hardware and software products, such as help-desk software, including:
  - database for storing hardware and software details
  - product warranty and service difficulty records, such as repair, replacement and reconfiguration
- help desk and maintenance practices, including general composition and operation of information database for tracking hardware, software and operational issues
- how the system has been set up to process data and what data elements are stored
- quality assurance practices with reference to maintenance, warranty and repair of network equipment and software
- relationships between the stakeholders and the service provider.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • determine maintenance strategies • put in place support processes for maintaining the continuity of IT operations and business functions.
Context of and specific resources for assessment	Assessment must ensure access to: • systems architecture documentation • warranty documents • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess knowledge of:
	  • SLAs
	  • industry support strategies
	  • preventative maintenance
	• review of:
	  • preventative maintenance schedule

© Commonwealth of Australia, 2025 Future Skills Organisation

	• SLAs • help-desk procedures.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• employee • external organisation • individual • internal department.

Systems architecture may include:	• configuration:
	  • large memory model
	  • requests per second
	  • small memory model
	• database software:
	  • DB2
	  • Informix
	  • Ingres
	  • Microsoft Structured Query Language (MS SQL) server
	  • Mini SQL (mSQL)
	  • MySQL
	  • Oracle
	  • Sybase

© Commonwealth of Australia, 2025 Future Skills Organisation

	• operating system:
	  • Linux
	  • Mac OS
	  • multi-user ability
	  • Novell NetWare 5 or above
	  • Windows 2000 or above.

Equipment may include:	• hard drives • hubs • modems or other connectivity devices, such as digital subscriber line (DSL) modems • monitors • other peripheral devices • personal computers • personal digital assistant (PDA) • printers • switches • workstations.
Software may include:	• commercial • customised • in-house • packaged.
Components may include:	• CD and DVD drives • central processing unit (CPU) • complementary metal oxide semiconductor (CMOS) battery • CPU upgrades • drives • fax or modem cards • interface cards • motherboards • random access memory (RAM) upgrades.
Service level agreements may include:	• business processes and requirements • charge back to business units • different infrastructure services, including communications carriers, internet service providers (ISPs), application service providers (ASPs) and SLAs for vendor products • evaluation or audit of service levels • expectations regarding servicing • penalties • specific and quantity service levels • workload and performance considerations.
Appropriate person may	• authorised business representative

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• client • supervisor.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS511A Prioritise IT change requests

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to analyse IT change requests and rank them in priority order.

Application of the Unit

Experienced managers, project managers, and those with managerial responsibility for systems that undergo continual change apply the skills and knowledge in this unit. Information technology and the manufacturing domain are examples where the change-management process delivers benefits, as well as enabling traceability of changes.

They provide technical advice, guidance and leadership in resolution of specified problems, and the role may involve responsibility for others.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Classify and monitor change requests	1.1 Receive and record change requests from the ***client*** or ***other sources***
	1.2 Classify and prioritise change requests according to business guidelines and ***service level agreements*** (SLAs)
2. Determine priority settings	2.1 Identify risks to business continuity and prioritise changes that reduce risks for implementation
	2.2 Evaluate the costs and benefits of implementing changes against the current ***system***
	2.3 Examine the benefits and costs of how and when a change is made, including risks to business continuity
	2.4 Schedule change analysis according to business down periods and periods of business-critical activities
3. Develop change analysis work plan to develop and implement changes	3.1 Analyse similar change requests that might be developed and implemented simultaneously
	3.2 Determine impact to the system and organisation of methodology and timing of change
	3.3 Notify the reason for the change to key ***stakeholders***
	3.4 Determine the resources necessary to carry out the change development, taking into account time and cost constraints
	3.5 Develop a change plan based on change analysis
	3.6 Review the change plan documentation to ensure it is completed according to system ***documentation*** standards
	3.7 Forward the change plan to the ***appropriate person*** for consideration and decision
4. Confirm change plan is complete and satisfies	4.1 Conduct feedback session with ***client*** groups to ensure change requirements are satisfactory

© Commonwealth of Australia, 2025 Future Skills Organisation

client	4.2 Complete follow-up work and make recommendations for changes in procedures or documentation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse risk when reviewing change requests
- communication skills to:
  - facilitate groups to present and collect information and gain consensus on concepts
  - manage conflicts and handle difficult clients when reviewing change requests
  - negotiate with other team members
  - provide customer service
- literacy skills to:
  - evaluate and present information
  - write reports for business
- problem-solving skills to participate in the development of strategic initiatives
- teamwork skills to contribute to solutions and goals of a non-routine or contingency nature
- technical skills to maintain the continuity of IT operations and business functions.

Required knowledge

- client business domain
- help desk and maintenance practices
- quality assurance practices relating to IT system changes
- role of stakeholders and the degree of stakeholder involvement
- change-management tools
- current industry-accepted hardware and software products, including their general features and capabilities
- detailed knowledge of system's current functionality.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • review change requests and prioritise according to business guidelines and SLAs • evaluate cost-benefit analysis, including risks to business continuity • develop change plan based on change analysis • review change procedures and make appropriate recommendations.
Context of and specific resources for assessment	Assessment must ensure access to: • sites on which change requests may be coordinated • SLAs currently used in industry • business guidelines • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess knowledge of one or more change-management systems • direct observation of candidate reviewing infrastructure discrepancies and implementing solutions • review of documentation prepared by candidate, including guidelines and processes for regular reviews.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• employee • external organisation • individual • internal department.
Other sources may include:	• changes in underlying systems • other projects • problem reports • senior management • system enhancements.

Service level agreements may relate to:	• business processes and requirements
	• charge back to business units
	• clearly specified and quantified service levels
	• evaluation or audit of service levels
	• expectations regarding servicing
	• many different infrastructure services:
	  • application service providers (ASPs)
	  • communications carriers
	  • internet service providers (ISPs)
	  • SLAs for vendor products
	• penalties
	• workload and performance considerations.

System may include:	• applications • ASP • databases • gateways • ISP • operating systems • servers.
Stakeholders may include:	• development team • project team • sponsor • user.

© Commonwealth of Australia, 2025 Future Skills Organisation

Documentation may follow:	• audit trails • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • naming standards • project management templates • report writing principles • version control.
Appropriate person may include:	• authorised business representative • client • project manager • supervisor.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS512A Review and manage delivery of maintenance services

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to review and manage the delivery of maintenance services.

Application of the Unit

This unit applies to experienced managers, project managers and those with managerial responsibility for delivery of maintenance services.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Review service standards	1.1 Review ***service level agreements*** (SLAs) 1.2 Identify actual fault reporting and restoration performance and compare with SLAs to ensure they meet requirements 1.3 Record areas of discrepancy
2. Review infrastructure	2.1 Identify internal support and ***maintenance options*** 2.2 Undertake a review of infrastructure 2.3 Record areas of discrepancy
3. Determine and implement solutions	3.1 Compare service standards and infrastructure discrepancies and identify gaps in existing service 3.2 Document discrepancies identified 3.3 Determine cost-effective solutions and impact 3.4 Implement solutions
4. Organise reviews	4.1 Determine guidelines for regular reviews with ***stakeholders*** 4.2 Undertake reviews as per agreed guidelines 4.3 Document review process and submit to the stakeholder 4.4 Ensure effective reporting procedures are in place and used

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse risk when reviewing change procedures
  - compare actual performance with SLA
- communication skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - facilitate groups to present and collect information and gain consensus on concepts
  - manage conflicts and handle difficult clients related to reviewing change procedures
  - negotiate with other team members
  - provide customer service
- literacy skills to:
  - evaluate and present information
  - write reports for business
- problem-solving skills involving participation in the development of strategic initiatives
- teamwork skills to contribute to solutions and goals of a non-routine or contingency nature
- technical skills to maintain the continuity of IT operations and business functions during change management.

Required knowledge

- business scheduling requirements
- capacity planning
- change-control procedures
- context of changes being implemented
- current industry-accepted hardware and software products, including their general features and capabilities
- general knowledge of the client business domain
- help desk and maintenance practices
- role of stakeholders and the degree of stakeholder involvement
- features and functions of system under modification
- system's current functionality.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • analyse and report on faults and restoration performance and compliance with SLA • analyse and prioritise requests according to business requirements • review infrastructure and document discrepancies with expected service delivery

© Commonwealth of Australia, 2025 Future Skills Organisation

	• implement cost-effective solutions and evaluate impact.
Context of and specific resources for assessment	Assessment must ensure access to: • sites on which review of delivery of maintenance services may be conducted • established IT service infrastructure • SLAs and business guidelines • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess knowledge of compliance with service level agreement • direct observation of candidate reviewing fault reports, restoration performance and infrastructure discrepancies • review of documentation prepared by candidate for regular assessments with stakeholders, including guidelines, processes and procedures.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Service level agreements	• range of different infrastructure services:

© Commonwealth of Australia, 2025 Future Skills Organisation

may relate to:	• application service providers (ASP) • communications carriers • internet service providers (ISP) • SLAs for vendor products • business processes and requirements • charge back to business units • clearly specified and quantified service levels • evaluation or audit of service levels • expectations regarding servicing • penalties • workload and performance considerations.
Maintenance options may include:	• business hours only support • continuous support and technical help • real-time online support • on-site response • remote diagnostics • return to depot • second-level support • telephone support • web-based support.
Stakeholders may include:	• development team • project team • sponsor • user.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS513A Develop detailed test plans

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to plan for testing by collating documentation of conditions and expected results sufficient to allow for thorough system testing.

Application of the Unit

This unit applies to information technology (IT) staff in a variety of areas who are required to test IT systems, including software development, systems administration, networking, and web development. Group or team coordination may also be involved.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Prepare test environment and gather tools	1.1 Determine structure of system and user accounts to understand the test environment 1.2 Determine areas to test and test objectives, according to organisational standards 1.3 Ensure accessibility of documentation 1.4 Notify user representatives or approval authorities of objectives and scheduled test 1.5 Notify operations staff of scheduled test to ensure preparedness and an understanding of implications
2. Prepare test data	2.1 Gather test schedules, according to organisational standards 2.2 Correlate schedules with related functionality, according to organisational standards 2.3 Check ***testing schedule*** prior to validation, according to organisational standards 2.4 Prepare test drivers or stubs for test harness, according to organisational standards 2.5 Register test plan, and initiate log entries, according to organisational standards
3. Complete test plan and acceptance processes	3.1 Use software metrics where appropriate 3.2 Validate test and acceptance processes 3.3 Ensure documentation and reporting comply with test plan and ***quality benchmarks***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- communication skills to:
  - conduct presentations
  - liaise with system users and other internal staff
  - participate in teams
- literacy skills to:
  - analyse and evaluate information
  - interpret business and organisational requirements
  - prepare documentation and reports
- planning and organisational skills to develop strategic initiatives
- technical skills to:
  - participate in critical areas, including access control and pathing
  - identify, analyse and evaluate broad features of system testing and best practice in system testing.

Required knowledge

- at least three different operating systems, with detailed knowledge of operating systems relevant to project requirements
- automated test tools, with detailed knowledge of features and processes in some areas
- organisational requirements
- system or application being tested
- testing techniques.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• interpret software specifications
	• consistently and accurately develop a comprehensive test plan that documents:
	  • test conditions or cases to be applied
	  • data to be processed
	  • automated testing coverage
	  • expected results

© Commonwealth of Australia, 2025 Future Skills Organisation

	• activities, dependencies and effort required to conduct the system test.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • system engineering management plan • test and evaluation program plan • system or application suitable for testing plus its associated documentation • organisational plans and documentation.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of candidate preparing test data
	• verbal or written questioning to assess candidate's knowledge of:
	  • items to be tested
	  • features to be tested
	  • tasks involved in testing
	  • personnel involved
	  • any risks requiring contingency planning
	• evaluation of candidate's test plan describing the scope, approach, resources, and schedule of intended testing activities.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Testing schedule may relate to:	• complexity • dependency • importance • security • testability • X-factor, where X is an unknown and may or may not impact on the test schedule.
Quality benchmarks may include:	• AS3925.1-1994 Software quality assurance - plans • AS4042-1992 Software configuration management plans • AS4043-1992 Software configuration management • AS/NZS 14102:1998 Information technology - guideline for evaluation and selection of computer-aided software engineering (CASE) tools • AS/NZS 4258:1994 Software user documentation process • AS/NZS ISO/IEC 12207:1997 Information technology - Software life cycle processes.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS514A Perform integration tests

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to ensure that the components of the system operate together to the expected standard.

Application of the Unit

This unit applies to senior development staff responsible for ensuring that sub-systems function correctly when combined.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Prepare for test	1.1 Prepare the ***test environment***
	1.2 Prepare the test scripts (online test) or test run (batch test) for running
	1.3 Review expected results against ***test and acceptance criteria***
	1.4 Confirm pre-existing modules and compile modification logs
	1.5 Perform static tests of each point of integration and verify correctness of arguments, positional parameters and return values in each integration suite
	1.6 Review results of earlier component testing and ensure critical issues are identified and taken into account
2. Conduct test	2.1 Select appropriate ***test tools***
	2.2 Run test scripts and document the results against ***software life cycle*** model
	2.3 Ensure that memory leakage, global name-space pollution and static variables are specifically addressed for each integration unit in line with test and acceptance criteria
	2.4 Follow and adopt integration standards where appropriate in line with ***quality benchmarks***
	2.5 Compare test results to requirements on completion of each integration component
3. Analyse and classify results	3.1 Summarise and classify test results and highlight areas of concern
	3.2 Compare the test results against the requirements and design specification and prepare report
	3.3 Notify operations of completion of the testing where appropriate
	3.4 Ensure attendees' details and comments are logged and signatures gained
	3.5 Schedule a feedback meeting to discuss report and possible next actions with stakeholders if necessary
	3.6 Ensure test reporting compliance with ***documentation and***

© Commonwealth of Australia, 2025 Future Skills Organisation

	reporting standards

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business-related matters
- literacy skills to:
  - interpret technical documentation
  - write reports in required formats
- numeracy skills to take test measurements, and interpret and evaluate results
- planning and organisational skills to:
  - coordinate the test process in liaison with others
  - plan, prioritise and monitor own work
- problem-solving and contingency-management skills to develop strategic review results of earlier unit testing and identify critical issues
- research skills to identify, analyse and evaluate broad features of system testing and best practice in system testing
- technical skills to:
  - analyse data related to analysis and evaluation
  - use programming skills in programming languages relevant to project.

Required knowledge

- at least two programming languages, with detailed knowledge of programming languages required by system
- automated test tools, with detailed knowledge of features and processes in some areas
- input and output requirements
- organisational practice and standards relating to integration testing
- system or application being tested
- testing techniques, with detailed knowledge of features and processes
- underlying test data.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • perform integration requirements for the units of the particular system • determine whether the units of the system operate according to requirement specifications • prepare reports in compliance with documentation and reporting standards.
Context of and specific resources for assessment	Assessment must ensure access to: • acceptance criteria • test plan • integration standards • requirements and design documents used in the analysis of the test • system or application suitable for testing • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate conducting a test using appropriate test tools and integration standards in line with quality benchmarks and ensuring that components have passed the integration tests at the interface level between each component • verbal or written questioning of underpinning skills and knowledge of compiling, linking and loading components together • evaluation of report prepared by candidate outlining testing procedures and test results.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the

© Commonwealth of Australia, 2025 Future Skills Organisation

	work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Test environment may include:	• data • network or communications and other equipment • operating system • other support software • program libraries.

Test and acceptance criteria may relate to:	• type of test:
	  • cohesion
	  • efficiency
	  • functional.

Test tools may include:	• applications testing:
	  • Cyrano Suite
	  • DataShark
	  • Datatect
	  • preVue-C/S
	• code, unit and class testing:
	  • AssertMate
	  • BoundsChecker
	  • C-Cover
	  • CodeReview
	  • CodeWizard
	  • DeepCover
	  • FailSafe
	  • Hindsight

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Insure++ • JavaPureCheck • JCAST • Logiscope • stress load testing: • Astra SiteManager • Astra SiteTest • automated test facilities • AutoTester Web • e-Load • e-MONITO • E-TEST Suite • JavaLoad • LoadRunner.
Software life cycle may include:	• AS/NZS15271:1999 Guide for AS/NZS ISO/IEC 12207 Information technology - Software life cycle processes • AS/NZS ISO/IEC12207:1997 Information technology - Software life cycle processes.
Quality benchmarks may include:	• relevant quality standards: • AS 3925.1-1994 Software quality assurance - Plans • AS 4042-1992 Software configuration management plans • AS 4043-1992 Software configuration management • AS/NZS 14102:1998 Information technology - Guideline for evaluation and selection of CASE tools • AS/NZS 4258:1994 Software user documentation process • AS/NZS ISO/IEC 12207:1997 Information technology - Software life cycle processes • standards for software review, mainly developed by: • Institute of Electrical and Electronics Engineers (IEEE) • International Organization for Standardization (ISO) • Software Engineering Institute (SEI) • US Department of Defence (DoD) standards. Note: International and Australian standards are updated and changed on a regular basis. It is therefore important to check the Standards Australia website on a regular basis for new standards.
Documentation and reporting may include:	• ISO, International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • templates for information gathering processes • various organisational approaches to: • audit trails

© Commonwealth of Australia, 2025 Future Skills Organisation

	• naming standards • project-management templates • report writing • version control.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS515A Manage the testing process

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to effectively manage and administer the end-to-end testing process, including test definition, execution and reporting.

Application of the Unit

This unit applies to senior staff responsible for managing the testing team and its activities.

Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams, including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Develop test schedule	1.1 Determine testing requirements and objectives 1.2 Review test plan, where available 1.3 Develop testing timeline and allocate ***resources*** 1.4 Document test objectives and schedule according to test procedures and distribute to ***appropriate person*** 1.5 Obtain feedback and incorporate relevant changes
2. Complete test procedures	2.1 Copy necessary code into the ***testing environment*** 2.2 Allocate and manage personnel carrying out the testing process 2.3 Administer alterations or changes to the code 2.4 Integrate code into production environment
3. Review the completeness and accuracy of the system	3.1 Administer full system test to ensure suitability of the system 3.2 Document outcomes of system test for use in subsequent development phases 3.3 Evaluate results of system test to determine acceptability of system

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - liaise with colleagues and staff
  - negotiate with team members
  - present information
- literacy skills to analyse and evaluate information
- planning and organisational skills to:
  - estimate scope, time, cost and quality
  - scope communications and risk management
- problem-solving skills to develop strategic initiatives and review procedures and documentation used in the system test
- research skills to identify, analyse and evaluate:
  - broad features of system testing
  - best practice in system testing
- technical skills to use application software to analyse, evaluate and present information.

Required knowledge

- automated test tools, with detailed knowledge of some features and processes
- organisational procedures
- system requirements, with detailed knowledge of the particular system requirements and features
- system or application being tested
- testing techniques.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop a test schedule • manage the procedure • review and accept or reject a pre-implemented system based on test outcomes.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • human resources

© Commonwealth of Australia, 2025 Future Skills Organisation

	• requirements and design documentation • test plan • test hardware and environments (testing to be carried out on the same platform as the completed system, with scheduled testing to be on the production platform and the production environment required as part of test preparation) • system or application suitable for testing.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of candidate developing a test schedule
	• verbal or written questioning to assess candidate's knowledge of:
	  • entire system requirements, both development and implementation
	  • testing process
	• evaluation of candidate's documented test outcomes:
	  • confirming functionality
	  • addressing any software issues.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

Resources may include:	• personal computer (PC) • staff • time • software.
Appropriate person may include:	• authorised business representative • client • supervisor.
Testing environment may include:	• dedicated network • live network • testing network • development network • production network.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS516A Perform stress and load tests on integrated platforms

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to plan and perform tests to ensure the ability of a system to cope with expected high levels of data volume.

Application of the Unit

This unit applies to senior staff who are responsible for ensuring that the proposed system can handle anticipated loads.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Create test plan	1.1 Determine scope, objectives and specific tests in order to place load on the ***system***, including expected results and performance impact 1.2 Determine and document standards for acceptance and compliance with ***client*** 1.3 Determine and document clear responsibilities and contact points with third-party suppliers for support 1.4 Identify testing resources and tools from a range of available sources 1.5 Identify and record base-system loads or level of activity against which the test will be measured 1.6 Identify processes or steps in test, including automated testing 1.7 Assemble test-plan documentation and distribute to ***appropriate person***
2. Undertake test	2.1 Implement test plan according to test plan sequencing 2.2 Confirm that each technology ***component*** operates correctly within integrated platform 2.3 Confirm that integrated platform operates to project and industry standards 2.4 Undertake documentation of testing outcomes to meet project standards 2.5 Detect faults
3. Diagnose and resolve faults	3.1 Identify and document faults according to ***project plan*** 3.2 Diagnose faults and take corrective action 3.3 Manage problem-resolution processes according to project procedures 3.4 Enforce compliance standards with third-party suppliers, as skills required
4. Update documentation	4.1 Update appropriate project and system documentation to

© Commonwealth of Australia, 2025 Future Skills Organisation

	record and present test findings to development staff for their attention, if test is unsuccessful

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse, diagnose, and evaluate the development of new criteria, knowledge and procedures
- communication skills to:
  - gain consensus on concepts and clarify responsibilities
  - negotiate with client, third-party suppliers and technical staff
  - present information
- literacy skills to:
  - develop procedures
  - interpret technical specifications, standards documents and related documentation
  - update documentation
- planning and organisational skills to:
  - determine responsibilities and contact points with third-party suppliers for support
  - determine specific tests in order to place load on the system, and determine expected results and performance impact
  - estimate project scope and objectives
- technical skills to:
  - conduct tests
  - diagnose faults.

Required knowledge

- automated test tools, with detailed knowledge of features and processes in some areas
- organisational requirements relating to stress and load testing
- program design and performance
- system or application requirements and performance
- testing techniques, with detailed knowledge of features and processes in some areas.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • test the system's ability to cope with expected high levels of data volume while meeting the predetermined performance standards • identify problems and fault-resolution strategies that may occur during stress testing • ensure system operates in the manner expected under expected conditions • ensure supporting material, such as procedures and forms, is accurate and suitable for the purpose intended • determine that stated conditions reflect the upper limits expected by client • ensure there are no unacceptable reductions in service • ensure individual elements and the overall system provide the desired result or functionality • ensure documentation is available and accurate.
Context of and specific resources for assessment	Assessment must ensure access to: • business requirements • project documentation, including templates, standards, specifications and client user and technical manuals • business rules and expected loads • base tools • technical components of system, including software, hardware and network • staffing resources, including development, operations and client user representatives • system or application suitable for testing • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate preparing for test, and recording and investigating discrepancies and corrections after

© Commonwealth of Australia, 2025 Future Skills Organisation

	test • verbal or written questioning of skills and knowledge for identifying acceptance criteria and developing test plans • evaluation of candidate's documented record of test results and recommended solutions.
Guidance information for assessment	Holistic assessment with other units to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

System may include:	• application service provider (ASP) • applications • databases • gateways • internet service provider (ISP) • operating system • servers.
Client may include:	• external organisation • individual • internal department • internal employee.
Appropriate person may include:	• authorised business representative • client • supervisor.

© Commonwealth of Australia, 2025 Future Skills Organisation

Component may include:	• databases • networks • servers • software integration.
Project plan may include:	• parties and their responsibilities • planning and preparation that begins in the design phase, and runs concurrently with design, code and implementation • project budget • project objectives • project scope • schedule.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS517A Use network tools

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use tools to assist in managing a network effectively.

Application of the Unit

This unit applies to system administrators and network administrators who monitor security and resolve issues for the network.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Use command line tools	1.1 Outline command-line environment 1.2 Differentiate command-line and graphical user interface (GUI) systems 1.3 List ***command-line tools*** 1.4 Apply command-line tools in ***GUI environment***
2. Use hardware tools	2.1 Identify appropriate ***hardware tools*** and their function 2.2 Review OHS requirements for tool use 2.3 Manage network using hardware tools 2.4 Analyse test results
3. Use software tools	3.1 Identify appropriate ***software tools*** for network security 3.2 Recognise ***areas of vulnerability*** 3.3 Classify function of each tool 3.4 Manage network using software tools 3.5 Analyse test results

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - anticipate and respond to a range of attacks
  - evaluate performance
  - identify and interrogate complex and varied areas of attack
  - interpret results of tests
- technical skills to:
  - develop and refine security of the network

© Commonwealth of Australia, 2025 Future Skills Organisation

- resolve network vulnerabilities
- test network functions and security.

Required knowledge

- available network tools
- processes and techniques related to using network tools
- range of attacks that affect network security
- problems and challenges relating to network security.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• identify and use appropriate tools for:
	  • monitoring network performance
	  • identifying network threats
	  • isolating security breaches.

Context of and specific resources for assessment	Assessment must ensure access to: • maintenance procedures • network system • availability of hardware and software tools • security diagnostic software • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of network tools • direct observation of candidate demonstrating use of appropriate network tools • evaluation of prepared report, outlining: • selection of appropriate tool

© Commonwealth of Australia, 2025 Future Skills Organisation

	• interpretation of output • recommendation of solution • evaluation of candidate's secured system.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Command line tools may include:	• arp • arping • dig • hostname • ifconfig • ipconfig • mtr • nbtstat • netstat • nslookup • Ping • route • traceroute.
GUI environment may include:	• Linux platforms • Mac platforms • Windows platforms.

© Commonwealth of Australia, 2025 Future Skills Organisation

Hardware tools may include:	• butt set • cable stripper • cable testers • multimeter • optical time-domain reflectometer (OTDR) • protocol analyser • punch down tool • snips • temperature monitor • time-domain reflectometer (TDR) • toner probe • voltage event recorder.
Software tools may include:	• intrusion detection software • intrusion prevention software • packet sniffers or network analysers • port scanners • protocol analysers.
Areas of vulnerability may include:	• exploits • unsecured ports • wide-scale attacks • worms.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS518A Install and upgrade operating systems

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to maintain operating systems (OS) in a medium to large organisation.

Application of the Unit

This unit applies to those working in the support area who are required to install new operating systems and upgrade existing ones.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Determine organisational help-desk procedures	1.1 Review organisation's technical support procedures 1.2 Interrogate help-desk system 1.3 Liaise with client
2. Install or upgrade a desktop OS	2.1 Install an ***OS*** 2.2 Upgrade an existing OS 2.3 Research and implement automated OS installation techniques and procedures 2.4 Migrate files
3. Manage and troubleshoot resource access	3.1 Configure local resources access 3.2 Configure sharing of local resources 3.3 Assign access rights to shared resources
4. Configure and troubleshoot hardware devices and drivers	4.1 Determine and resolve problems with hardware resources 4.2 Research and install appropriate device drivers 4.3 Configure hardware resources 4.4 Configure device drivers
5. Configure and troubleshoot the desktop and user environments	5.1 Construct ***profiles*** for users 5.2 Organise shortcuts 5.3 Arrange ***screen management***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to interpret technical manuals

© Commonwealth of Australia, 2025 Future Skills Organisation

- learning skills to maintain knowledge of current industry accepted hardware and software products
- literacy skills to read and interpret manuals and web sources
- planning and organisational skills to plan installations or upgrades in the most efficient manner
- problem-solving skills to solve client OS problems
- technical skills to select, source and use appropriate software and tools based on analysis of technical needs.

Required knowledge

- procedures and techniques involved in the installation and upgrade of OS
- procedures and principles involved in unattended OS installation.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • install, upgrade and customise an operating system to user requirements.
Context of and specific resources for assessment	Assessment must ensure access to: • stand-alone or networked personal computers • appropriate OS installation CD or recovery boot discs • drivers for connected devices • help-desk system • OS service packs • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate upgrading, installing and customising an OS • review candidate's completed call documentation and task

© Commonwealth of Australia, 2025 Future Skills Organisation

	documentation • verbal or written questioning to determine candidate's knowledge of OS problems, installs and upgrades.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

OS may include:	• Mac:
	  • Mac 9
	  • Mac X
	• current Windows:
	  • Windows 2000
	  • Windows 7
	  • Windows Vista
	  • Windows XP
	• legacy Windows:
	  • DOS
	  • WIN2000/NT/XP
	  • WIN95/98/ME (Similar to DOS)
	  • Windows 98
	  • Windows ME
	  • Windows NT 4.0
	  • WINDOWS VISTA, Windows 7 or current Client OS

© Commonwealth of Australia, 2025 Future Skills Organisation

	Windows 95
	• Unix-like operating systems:
	  • BSD and derivations:
	  • FreeBSD
	  • NetBSD
	  • OpenBSD
	  • GNU and Linux
	  • NextStep
	  • Suse Linux
	  • available open source OS.

Profiles may include:	• local profiles • mandatory profiles • roaming profiles.
Screen management may include:	• data projectors • multiple screens • screen frequency • screen resolution.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASAS601A Implement change-management processes

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to apply techniques that facilitate the planning, implementation and monitoring of information technology change.

Application of the Unit

This unit applies to senior information and communications technology (ICT) staff in a range of areas who are required to manage change in ICT systems.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Plan IT system changes	1.1 Research and develop ***change procedures*** and conventions 1.2 Develop IT change-management plan 1.3 Identify key personnel responsible for change-management policy and procedures 1.4 Train staff and management in change-management procedures and policies 1.5 Evaluate current IT ***system*** to determine changing ***user*** or business patterns 1.6 Identify key personnel responsible for authorising and implementing change-management plan
2. Identify technology system change needs	2.1 Determine current IT ***benchmarks*** 2.2 Compare identified needs against performance benchmarks to identify possible changes 2.3 Assess proposed changes to determine impact 2.4 Notify key personnel of necessary change
3. Implement change	3.1 Plan change schedule 3.2 Prioritise changes and allocate resources 3.3 Implement change-management plan and procedures 3.4 Involve ***stakeholders*** in the implementation process 3.5 Capture new performance benchmarks to measure changes 3.6 Ensure appropriate ***liaison methods*** are used 3.7 Identify training ***requirements*** 3.8 Notify stakeholders of change
4. Monitor and review implementation	4.1 Measure change performance against new benchmarks 4.2 Submit performance results to stakeholders 4.3 Obtain sign-off on changes 4.4 Provide appropriate documentation and reporting

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to gather and analyse data regarding the priorities and effects of specific changes
- communication skills to liaise with stakeholders and team members
- literacy skills to write technical reports
- planning and organisational skills to prioritise tasks and contingency arrangements
- technical skills to:
  - administer local and remote change procedures
  - ensure previous system is backed up for a cancelled system change
  - monitor system security during change and prevent system threats.

Required knowledge

- change-management principles
- functions and features of current information technology systems
- internet, and internet working architecture
- principles and structure of performance benchmarking
- server access security procedures and general security issues relating to a particular operating system.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate	Evidence of the ability to: • identify elements that require changing • plan, implement, monitor and review change and apply guidelines and policies to the change-management process

© Commonwealth of Australia, 2025 Future Skills Organisation

competency in this unit	• maintain appropriate version control • maintain compliance with existing accessibility and other policies.
Context of and specific resources for assessment	Assessment must ensure access to: • international standards • operational data from an organisation • needs analysis data • organisational planning guidelines • version control guidelines • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of:
	  • performance benchmarking
	  • change-management principles
	  • information technology systems
	  • internet and internetworking architecture
	  • server access security procedures and general security issues relating to a particular operating system
	• review of candidate's completed documentation of the change process.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Change procedures may relate to:	• document
	• formal procedures that must be adhered to:
	  • check points and sign-offs with documented procedures and templates
	  • communication with stakeholders
	  • dispute resolution
	  • implementation of financial control mechanisms
	  • modification procedures
	  • processes for determining size and cost
	• incremental
	• process-based
	• result of an impact on quality, cost or OHS
	• socially-based
	• verbal.

System may include:	• application programs • networks • operating systems • websites.
User may include:	• department within the organisation • person within a department • third party.
Benchmarks may include:	• cost savings • performance • quality • technical.
Stakeholders may include:	• community groups • corporate body • end user • government body • internal or external client.
Liaison methods may include:	• customer relationship management (CRM) technologies • email

© Commonwealth of Australia, 2025 Future Skills Organisation

	• group information sessions • management reviews • needs analysis surveys • newsletters • planning workshops • telephone calls • web information portals • written reports.
Requirements may relate to:	• application • business • network • people in the organisation • system.

Unit Sector(s)

Systems administration and support

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASUS701A Plan and manage virtualisation for IT sustainability

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to analyse, plan and manage options using virtualisation and managed services for organisational processes to meet sustainability targets.

Application of the Unit

This unit applies to those who have responsibility for conducting or managing information and communications technology (ICT) infrastructure projects, such as network managers, information technology (IT) infrastructure managers, network planners and designers, consultants or contractors.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the	*Performance criteria describe the performance needed to*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
essential outcomes of a unit of competency.	*demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Develop an organisational plan to implement IT virtualisation	1.1 Analyse current enterprise operations to determine what processes or practices can be realised using virtualisation to ensure long-term sustainability within the ***organisational guidelines*** 1.2 Research and analyse alternative ***virtualisation scenarios***, including a risk analysis and relative comparisons of each, considering return on investment (RoI) 1.3 Produce results of the analysis prioritising the sequence of processes to be virtualised, based on ***enterprise priorities*** and the setting of sustainability targets for the organisation
2. Manage strategies for deploying virtual machines	2.1 Analyse ***business factors*** that cause enterprises to migrate to virtualisation 2.2 Identify ***virtualisation inhibitors*** that are preventing the organisation from deploying strategies on local virtual machines 2.3 Produce a ***virtualisation management plan*** to capitalise on using virtual machines according to enterprise priorities
3. Manage outsourced services and cloud networks	3.1 Analyse the IT requirements of the organisation to produce a cloud architecture using multiple ***cloud computing elements*** indicating the ***layers of the cloud client stack*** 3.2 Produce a cost-benefit ***analysis*** 3.3 Produce analytical justifications that will determine the ***deployment model*** that meets the ***business requirements*** of the organisation 3.4 Set up a ***service level agreement*** (SLA) with the managed services provider (MSP) or the network provider to ensure the responsibilities of the stakeholders are specified and agreed to

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- analytical skills to compare and evaluate effective and innovative technical solutions involving the introduction or improvement of sustainability
- communication skills to:
  - adjust communication to suit different audiences
  - consult on and validate policy
  - liaise with stakeholders to outline resulting sustainability benefits
  - respond effectively to diversity
  - work as a member of a team
- literacy skills to:
  - prepare analytical reports, management plans and SLAs regarding the level of achievement of sustainability benchmarks, environmental targets and performance highlights
  - document technical requirements and procedures
  - evaluate complex and formal documents, such as government policy and legislation
  - interpret:
    - related sustainability documentation
    - technical specifications and installation manuals
  - process and present written information to a diverse range of people
  - write reports, design solutions and recommendations in required formats
- numeracy skills to:
  - analyse and confirm capacity and interoperability requirements
  - calculate budget requirements and limitations
  - determine workforce requirements
  - perform calculations to produce cost-benefit analysis
- planning and organisational skills to plan, prioritise and monitor own work
- problem-solving skills to:
  - account for unexpected variations to requirements
  - manage different points of view and dissenting stakeholders
  - resolve installation issues
- research and writing skills to:
  - prepare written SLA requiring precise expression, language and structures suited to the intended audience
  - research and present information
- research skills to:
  - interrogate vendor databases and websites to identify different solutions to meet client business specifications
  - gain and maintain relevant knowledge on current technology driving sustainability

© Commonwealth of Australia, 2025 Future Skills Organisation

- technical skills to:
  - evaluate virtual machines and methodologies
  - produce cloud architecture and integration into existing network
  - use sustainability software tools.

Required knowledge

- best practice approaches relevant to sustainability
- business processes, including:
  - relevant organisational policies, procedures and protocols
  - relevant systems and procedures to aid in the achievement of workplace sustainability
- client business domain, including client organisation structure and business functionality
- cloud computing architecture
- compatibility issues and resolution procedures
- configuration of internet protocol (IP) networks
- current industry-accepted products
- customer and business liaison
- energy consumption and energy audit methodology
- environmental and sustainability legislation, regulations and codes of practice applicable to industry and organisation
- environmental impacts of products, processes, systems and services
- equal employment opportunity, equity and diversity principles and OHS implications of policy being developed
- IT power-consumption calculations
- linkage between processes
- policy development processes and practices
- principles, practices and available tools and techniques of sustainability management relevant to the ICT industry
- quality assurance systems relevant to own organisation
- range of relevant managed services, including software, network and support
- systems diagnostic features
- technologies:
  - cloud computing
  - power supply requirements and management
  - server design and network architecture
  - set-up and configuration procedures
  - single and multiple processors
  - vendor specifications and requirements for software installation
  - virtual server functionality
  - virtualisation using software simulation.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop plan for virtualisation and manage strategies, including managed services • determine and meet client requirements for installation and testing of virtual server • install, integrate and test virtualisation components according to vendor and technical specifications • produce cost-benefit analysis and virtualisation management plan for justification • set up SLAs.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • site and equipment on which servers can be virtualised • server virtualisation currently used in industry • relevant documentation, feasibility studies, equipment manuals and other site-related documentation.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate carrying out installation, integration and testing of virtual server • review of plans completed by the candidate for different sites outlining design and resources required • verbal or written questioning to assess knowledge of methodologies used.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking

© Commonwealth of Australia, 2025 Future Skills Organisation

	background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Organisational guidelines may include:	• budget allocations • capital expenditure • integrity • operational expenditure • projected growth • reliability • risk management • security.

Virtualisation scenarios may include:	• cloud networking:
	  • hybrid
	  • private
	  • public
	• managed services:
	  • backup
	  • network management
	  • software production, support and maintenance
	  • storage
	  • system management
	  • user management
	• virtual machines:
	  • IP network and voice over internet protocol (VoIP)
	  • PC
	  • server
	  • simulators
	  • storage
	  • test machines.

© Commonwealth of Australia, 2025 Future Skills Organisation

Enterprise priorities may include:	• dynamic loads and demands • frequency of changes to specifications • return on investment • system integrity and security • time for implementation.
Business factors may include:	• improved IT responsiveness and effectiveness • backup and data protection • company profitability and growth rate • guaranteed application quality of service • improved application availability • improved business continuity • stronger security • time spent on routine IT administrative tasks • virtualisation of business critical applications.

Virtualisation inhibitors may include:	• lack of:
	  • available budget
	  • resources or skills to deploy
	• uncertainty about:
	  • best possible solution
	  • business benefits of return on investment.

Virtualisation management plan may include:	• acquiring skills and resources • obtaining reliable business consultant on virtualisation • preparing risk analysis • revisiting budget allocations • using tools on total cost of ownership (TCO) to prove cost benefits.

Cloud computing elements may include:	• cloud infrastructure:
	  • billing
	  • security
	  • software testing
	• cloud platform:
	  • access control service
	  • application server
	  • data protection
	  • web applications
	  • web frontend
	• cloud service:
	  • communication
	  • customer relationship management (CRM)
	  • database

© Commonwealth of Australia, 2025 Future Skills Organisation

	• email server • file server • finance and accounting • IT tools • productivity • scheduling • storage and backup • cloud storage: • database.

Layers of the cloud client stack may include:	• application services or software as a service (SaaS):
	  • Aviary - image editor
	  • business applications
	  • Google docs
	  • Jaycut - video editor
	  • MS Office Web applications
	  • Pixlr - photo editor
	• infrastructure services or infrastructure as a service (IaaS):
	  • Amazon Web Services
	  • Flexiscale
	  • GoGrid
	• platform services or platform as a service (PaaS):
	  • Force.com
	  • Google AppEngine
	  • Microsoft Azure
	  • RackSpace.

Analysis would:	• verify if virtualisation, either through cloud computing or managed services, would offer better returns on investment • allow the organisation to meet sustainable targets.
Deployment model may include:	• hybrid cloud • private or internal cloud • public or external cloud.
Business requirements may include:	• availability and performance • compliance • legal • open source • privacy • security • sustainability.
Service level agreement	• backup • costs

© Commonwealth of Australia, 2025 Future Skills Organisation

may include:	• interoperability • quality of service • reliability • risk management.

Unit Sector(s)

Sustainability

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASUS702A Conduct a business case study for integrating sustainability in IT planning and design projects

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to establish a business case to justify innovative implementation of sustainability in information technology (IT) planning and design projects. It involves accessing industry information and applying legislative guidelines.

Application of the Unit

Project managers, planners and designers, consultants or contractors who have responsibility for conducting or managing information and communications technology (ICT) projects apply the skills and knowledge in this unit.

This unit will prepare the participant in planning and conducting cost-benefit analysis and return on investment for the implementation of sustainable schemes at the enterprise level.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Scope the project for establishing a business case for integrating sustainability in IT project	1.1 Analyse proposed ***IT project*** specifications to determine scope and extent of sustainability integration in design aspects 1.2 Analyse and evaluate ***expected goals*** of project and relate the business case to broader organisational goals 1.3 Research ***appropriate sources of information*** relevant to the project to prepare the business case for validation with ***stakeholders***
2. Plan and conduct the business case for a sustainable IT project	2.1 Evaluate the ***critical success factors*** to determine the vital strategy for the project to implement sustainability and gain competitive advantage 2.2 Produce ***estimate of costs*** projected over an appropriate time period and determine potential for ***return on investment*** for a proposed design and implementation plan 2.3 Conduct a cost-benefit analysis to determine the financial gain of the derived ***overall benefit*** obtained by integrating sustainability into the project 2.4 Produce ***executive summary*** for the stakeholders on the proposal, including risk analysis if the sustainability component activity is not implemented
3. Devise management strategies for integrating sustainability into an IT project	3.1 Initiate and progress ***sustainable management principles*** that result in reduced environmental impact 3.2 Establish, regularly review and improve ***key performance indicators*** (KPIs) on sustainability performance 3.3 Incorporate innovative planning and design rules for IT projects that foster sustainability and environmental best practice 3.4 Produce energy usage projection using estimated carbon dioxide emissions with comparable ***benchmarks*** and provide ***detailed report*** to support the long-term benefits

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to compare and evaluate effective technical solutions involving introduction or improvement of sustainability
- communication skills to:
  - adjust communication to suit different audiences
  - consult on and validate policy
  - liaise with stakeholders to outline the resulting sustainability benefits
  - respond effectively to diversity
  - work as a member of a team
- literacy skills to:
  - prepare reports and an executive summary regarding the level of achievement of sustainability benchmarks, environmental targets and performance highlights
  - document technical requirements and procedures
  - evaluate complex and formal documents, such as government policy and legislation
  - interpret technical specifications and related sustainability documentation
  - prepare a business case
- numeracy skills to:
  - analyse and confirm business requirements
  - calculate budget requirements and limitations
  - determine workforce requirements
  - perform calculations related to life cycle assessment (LCA) and carbon dioxide (CO2) emissions
- organisational skills to:
  - arrange relevant documentation and approvals
  - set out project requirements and priorities
- problem-solving skills to:
  - account for unexpected variations to requirements
  - manage different points of view and dissenting stakeholders
- project-management skills to undertake or manage a complex project
- research and writing skills to:
  - prepare written business cases requiring precise expression, language and structures suited to intended audience
  - research and present information

© Commonwealth of Australia, 2025 Future Skills Organisation

  - gain and maintain relevant and current technology driving sustainability
- technical skills to use sustainability software tools.

Required knowledge

- best practice approaches relevant to sustainability
- energy consumption and energy audit methodology
- environmental and sustainability legislation, regulations and codes of practice applicable to industry and organisation
- environmental impacts of products, processes, systems and services
- equal employment opportunity, equity and diversity principles and OHS implications of policy being developed
- global and national initiatives, legislation, policies and guidelines
- policy development processes and practices
- principles, practices and available tools and techniques of sustainability management relevant to the ICT industry
- quality assurance systems relevant to own organisation
- relevant industry knowledge
- relevant organisational policies, procedures and protocols to assist in achieving workplace sustainability
- sustainability assessment tools
- sustainable management principles and strategies
- software tools for IT power consumption and CO2 emissions calculations.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • establish a business case to introduce or improve sustainability in an IT project • produce a cost-benefit analysis showing overall benefit of integrating sustainability into an IT project • devise, implement and review management strategies showing a measurable improvement using the chosen benchmark indicators.
Context of and specific	Assessment must ensure access to:

© Commonwealth of Australia, 2025 Future Skills Organisation

resources for assessment	• appropriate learning and assessment support when required • modified equipment for people with special needs • sites on which preparation of a business case for introducing or improving sustainability in an IT project may be carried out • relevant legislation, standards, guidelines, reports and equipment specifications and drawings • range of workplace documentation and personnel, information and resources, such as compliance obligations, organisational plans, and work responsibilities.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of policy developed by candidate and procedural documentation outlining the approach taken • review of implementation strategy, plans and work plans prepared by candidate • analysis of methods used to involve stakeholders in policy development, implementation and review • review of work area relating to policy and procedures being developed to assess measurement of resources used, hazards and compliance.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

IT project may include:	• content delivery or distribution network • data storage networks • equipment upgrades • introduction of new technology • media networking • new data centre • new IP network • security network • server network • software upgrade • unified communication.
Expected goals may include:	• achieving best practice while protecting the environment without sacrificing profitability • better return on investment • improving public perception of company image • meeting sustainability targets • providing information on trade-offs of alternative processes, products and materials • reducing resources and emissions.

Appropriate sources of information may include:	• AS/NZS 3598:2000
	• BS EN 16001:2009
	• Dow Jones Sustainability Index (DJSI)
	• international standards for environmental management - life cycle assessment:
	  • AS/NZS ISO 14040:1998
	  • AS/NZS ISO 14041:1999
	  • AS/NZS ISO 14042:2001
	  • AS/NZS ISO 14043:2001
	  • AS/NZS ISO 14048:2003
	• United States Environmental Protection Agency (EPA) - Life-Cycle Assessment: Principles and Practice EPA/600/R-06/060 May 2006.

Stakeholders may include:	• business partners • community • customers • government organisations • industry associations • investors • shareholders • staff • technical experts.

© Commonwealth of Australia, 2025 Future Skills Organisation

Critical success factors may include:	• better customer satisfaction • improved profit margin • improved quality of products and services • improved revenue growth • increase in customer numbers • increase in new sources of business • positive cash flow.
Estimate of costs may include:	• annual operating costs • capital costs • detailed breakdown of costs • recurring costs • summary of costs by category.
Return on investment may include:	• carbon trading • project life • rate of depreciation • simple return on investment calculation.

Overall benefit may include:	• improved:
	  • employee satisfaction
	  • operational expenditure
	  • use of workspace
	  • organisation performance and efficiency
	  • public perception of company
	• more reliable service to customers
	• carbon tax trade-offs.

Executive summary may include:	• background to the proposal • introduction to the proposal • past and current environment • rationale for establishing the business case at this time.

Sustainable management principles may include:	• audit waste-management procedures
	• improving the energy efficiency of IT network equipment:
	  • reducing the need for air conditioning
	  • shutting down equipment during low demand
	• procurement strategies:
	  • assessing suppliers' environmental policies and procedures
	  • lowering energy consumption or environmental impact of replacement products or services
	  • managing the environmental impacts of electrical and electronic equipment
	  • using energy consumption and environmental impact as criteria in the process of awarding contracts
	• supply chain:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• driving ethical values through the supply chain • engaging supplier involvement in emissions reporting and continual improvement • engaging suppliers who provide information on energy consumption and product lifecycles • influencing suppliers to provide energy efficient products and services.
Key performance indicators may include:	• kg CO2 emissions from company car fleet • kg CO2 emitted per floor area occupied in permanent buildings • percentage of timber from well-managed, sustainable sources used in construction • percentage volume of material from sustainable sources • reduction of quantity (in 1000's kg) of ozone depleting gases used in air-conditioning equipment.
Benchmarks may include:	• AccountAbility AA1000 Assurance Standard (2008) • BSI BenchMark • Carbon Disclosure Project (CDP) • DJSI • Global Reporting Initiative (GRI) G3 guidelines (telecommunications sector supplement).
Detailed report may include:	• calculated estimated CO2 emissions for nominated project • calculated potential energy savings and payback periods for recommended actions • innovative approaches • recommendations in order of priority on range of activities with sustainable outcomes.

Unit Sector(s)

Sustainability

© Commonwealth of Australia, 2025 Future Skills Organisation

ICASUS703A Research strategies using SAP solutions for sustainable economic and environmental outcomes

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to establish a business case to justify the implementation of systems, applications and products (SAP) in operational strategies to achieve more sustainable business operations and environmental sustainability. It involves accessing industry information and applying legislative guidelines.

SAP is also referred to as systems applications and products.

Application of the Unit

Business analysts, project managers, consultants, planners and designers who have responsibility for conducting or managing business operations apply the skills and knowledge in this unit.

This unit will prepare the participant to plan and conduct cost-benefit analysis and return on investment for the implementation of sustainable schemes at an enterprise level.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Scope the enterprise for establishing a business case for integrating SAP into business operations	1.1 Analyse current ***enterprise operations*** to determine what processes or practices can be realised using SAP to ensure long-term sustainability within ***organisational guidelines*** 1.2 Research and analyse a range of alternative ***SAP product and services solutions***, including a risk analysis and relative comparisons to prepare a business case for validation with ***stakeholders*** 1.3 Produce preliminary results of the scoping analysis with recommended priority of SAP solutions that would optimise ***business sustainability*** and deliver competitive advantage
2. Plan and conduct the business case for using SAP solutions	2.1 Evaluate scoping analysis report to produce an ***operating costs estimate*** projected over appropriate time period for a proposed plan, based on ***SAP solution*** for business critical operation 2.2 Conduct cost-benefit analysis to predict the potential ***return on investment*** (RoI) on economic and environmental sustainability and ***business benefits*** derived by proposed SAP solution 2.3 Produce ***executive summary*** of the proposal for validation with stakeholders, including risk analysis if the SAP solution activity is not implemented
3. Devise management strategies for implementing SAP sustainability solution in the business operations	3.1 Produce management plan to implement ***sustainability strategies*** using ***SAP software solution tools*** to improve profitability and reduce environmental impacts 3.2 Establish regular reviews using SAP reports to improve ***key performance indicators*** (KPIs) on sustainability performance

© Commonwealth of Australia, 2025 Future Skills Organisation

	3.3 Produce energy usage analysis for proposed SAP solution using projected carbon dioxide (CO2) emissions with comparable ***benchmarks***
	3.4 Provide detailed ***feasibility report*** to support long-term economic and environmental benefits

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to compare and evaluate effective SAP solutions involving introduction or improvement of sustainability
- communication skills to:
  - adjust communication to suit different audiences
  - consult on and validate policy
  - liaise with stakeholders to outline resulting sustainability benefits
  - respond effectively to diversity
  - work as a member of a team
- literacy skills to:
  - prepare reports and executive summary regarding level of achievement of sustainability benchmarks, environmental targets and performance highlights
  - document SAP requirements and procedures
  - evaluate complex and formal documents, such as government policy and legislation
  - interpret operational specifications and related sustainability documentation
  - prepare a business case
- numeracy skills to:
  - analyse and confirm target predictions
  - calculate budget requirements and limitations
  - determine workforce requirements
  - perform calculations related to life cycle assessment (LCA)
- organisational skills to arrange relevant documentation for analysis
- planning skills to set out priorities for evaluation and analysis
- problem-solving skills to:
  - account for unexpected variations to requirements
  - manage different points of view and dissenting stakeholders
- project-management skills to undertake or manage a complex project
- research and writing skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - prepare written business cases requiring precise expression, language and structures suited to the intended audience
  - research and present information
- research skills to gain and maintain relevant strategies to implement SAP solutions
- technical skills to use SAP software tools.

Required knowledge

- best practice approaches relevant to SAP sustainability
- extensive range of SAP software solutions and tools
- energy consumption and energy audit methodology
- waste and recycling policies and management
- procurement and supply chain management
- business operation and procedures
- environmental and sustainability legislation, regulations and codes of practice applicable to industry and organisation
- carbon emission global and national legislation and targets
- environmental impacts of products, processes, systems and services
- equal employment opportunity, equity and diversity principles and OHS implications of policy being developed
- principles, practices and available tools and techniques of economic and environmental sustainability management
- quality assurance systems relevant to own organisation
- relevant industry competency
- relevant organisational policies, procedures and protocols
- relevant systems and procedures to aid in the achievement of workplace sustainability.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • conduct a scoping exercise and produce analytical report • conduct cost-benefit analysis using SAP solutions to justify RoI on economic and environmental sustainability • produce executive summary for stakeholder validation • produce management plan to implement strategies using SAP

© Commonwealth of Australia, 2025 Future Skills Organisation

	software solutions • produce energy usage analysis and feasibility report for long-term sustainability.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • sites on which preparation of a business case for introducing or improving sustainability in an enterprise may be carried out • relevant legislation, standards, guidelines, reports and equipment specifications and drawings • range of workplace documentation and personnel, information and resources, such as compliance obligations, organisational plans, work responsibilities.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of research and analysis conducted by candidate • review of implementation strategy, management plans prepared by candidate • analysis of methods used to involve stakeholders in validation, implementation and review • review of methodologies and procedures used by candidate to evaluate SAP solutions and recommendations made for long-term sustainability • review of work area relating to policy and procedures being developed to assess measurement of resources used, hazards and compliance.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Enterprise operations may include:	• building management • energy usage and utilities • finance and accounting • human resources • information technology (IT) services and support • manufacturing and production • procurement and logistics • recycle and waste management • research and development • sales and marketing • warehousing.
Organisational guidelines may include:	• automation of processes • budget allocations • capital expenditure (capex) • improved cash flow • inefficiencies • integrity • operational expenditure (opex) • projected growth • reliability • reporting activities • risk management • security.

SAP product and services solutions may include:	• business intelligence (BI) solutions:
	  • administration
	  • business reports
	  • desktop intelligence
	  • web intelligence
	• customer relationship management (CRM):
	  • customisation
	  • sales
	• enterprise resource planning (ERP):

© Commonwealth of Australia, 2025 Future Skills Organisation

	• financial:
	  • asset accounting
	  • financial accounting
	  • management accounting
	  • product costs planning
	  • profitability analysis
	  • travel accounting
	• human capital management (HCM):
	  • organisational management
	  • payroll configurations
	  • talent management
	  • time recording
	• procurement and logistics:
	  • inventory management
	  • materials management
	  • physical inventory
	  • transportation
	  • warehouse management
	• product development and manufacturing:
	  • manufacturing integration and intelligence
	  • production planning and scheduling
	  • supply network planning
	• sales and service:
	  • billing
	  • delivery processes
	  • pricing
	  • sales order management
	• governance, risk and compliance (GRC) access control solutions:
	  • compliant user provisioning and enterprise role access control management
	  • implementation and configuration
	• information management (IM) solutions:
	  • data integrator
	• enterprise performance management (EPM) solutions:
	  • planning and consolidation
	  • profitability and cost management
	  • strategy management
	• platforms:
	  • BI

© Commonwealth of Australia, 2025 Future Skills Organisation

	• change request management • data acquisition • data warehousing • database administration • modelling and implementation • system administration • user management and authorisation • product life cycle management (PLM): • asset management • life cycle data management • project portfolio management • quality management • supply chain management • service-oriented architecture (SOA) • supplier relationship management (SRM): • invoice and payment management • product and services selection • purchase order (PO) management.
Stakeholders may include:	• business partners • community • customers • government organisations • industry associations • investors • shareholders • staff • technical experts.
Business sustainability may include:	• better customer satisfaction • better survivability in hard economic times • competitive advantage • improved positive cash flow • improved quality of products and services • long-term profitability • meeting environmental sustainability targets • meeting operational targets • reduced compliance costs • reduced inefficiencies.
Operating costs estimate may include:	• annual operating costs • capital expenditure costs • compliance costs

© Commonwealth of Australia, 2025 Future Skills Organisation

	• downtime costs • energy costs • human resources (HR) costs • recurring costs • summary of costs by category • training costs • transport and logistics costs.

SAP solution may include:	• economic solution:
	  • accessibility and security of IT services for critical business operations
	  • assured information gathering, reporting and auditing against KPIs
	  • benchmarking against peers to improve performance
	  • emergency management to prevent occurrence of disastrous situations resulting in poor company image
	  • environment, health and safety risk assessment and reduction
	  • financial risks and performance for higher profitability
	  • OHS for legal obligations and profitability
	  • labour compliance and human rights to promote a safe and productive work environment
	  • manufacturing process safely using hazardous chemicals
	  • material and product safety for safe transport, storage and use of hazardous materials
	  • product compliance to minimise disruption to production
	  • strategic workforce management to deploy talent with required skills and levels at right location and time
	  • workforce diversity for expansion of global market share through innovation
	• environmental solution:
	  • carbon management to reduce carbon footprint and grow profitability
	  • commuting: implication of travel choices and use of more sustainable options, including alternative transportation and teleconferencing
	  • energy and utility management for more efficient use of energy and reduced impact on environment, without disrupting production levels
	  • environmental compliance at local, regional and global levels
	  • green IT: use of virtualisation, cloud networks and certification of hardware, based on power benchmarks from technology partners

© Commonwealth of Australia, 2025 Future Skills Organisation

	• green logistics using hybrid transportation to reduce energy usage and gas emissions • natural resource management to optimise use of natural, human and physical resources • personal footprint: transportation, housing, food, goods and services, energy consumption and waste recycling • recycling compliance for administration and reporting of data on recycled content ratios, packaging improvements and carbon footprint • smart grid participation and use of renewable and clean energy technology • strategy management to measure and manage sustainability performance • supply chain sourcing and procurement to ensure verifiable sustainable claims on lower carbon emissions • support product LCA to reduce carbon, water, energy and other resources footprints with impacts on labour practices and human rights • sustainable designs by increasing revenue streams using improved products and lower resource consumption.
Return on investment may include:	• carbon trading offsets • cost savings on improved efficiencies • costs of inefficiencies and wastage • equipment replacement costs • monitoring, reporting and auditing of processes • more versatile and skilled workforce • project life • rate of depreciation • returns on use of renewable energies • simple RoI calculation • sustainable operating and capital expenditures.

Business benefits may include:	• better:
	  • competitive advantage
	  • employee satisfaction
	  • energy usage and resource management
	  • global compliance
	  • operational expenditure
	  • profitability
	  • recycling plan
	  • use of workspace
	  • waste management plan
	• improved:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• cash flow • organisation performance and efficiency • public perception of company • more reliable service to customers • more robust enterprise in hard economic times • possible carbon tax trade-offs • reduced carbon emission operations.
Executive summary may include:	• background and introduction to the proposal • past and current environment • plan for the company long-term direction and sustainability • rationale for establishing the business case at this time • risk analysis for not implementing proposal • summary of cost-benefit analysis and business plan • summary of feasibility study • summary of implementation plan and time line.

Sustainability strategies may include:	• auditing waste management procedures
	• establishing a comprehensive inventory of carbon emissions and other environmental impacts
	• establishing an effective recycling management policy
	• improving the energy efficiency of enterprise equipment:
	  • reducing the need for air conditioning
	  • shutting down equipment during low demand
	• procurement strategies:
	  • assessing suppliers' environmental policies and procedures
	  • lowering energy consumption or environmental impact of replacement products or services
	  • managing environmental impacts of electrical and electronic equipment
	  • using energy consumption and environmental impact as criteria in the process of awarding contracts
	• supply chain:
	  • driving ethical values through the supply chain
	  • engaging supplier involvement in emissions reporting and continual improvement
	  • engaging suppliers who provide information on energy consumption and product life cycles
	  • influencing suppliers to provide energy efficient products and services.

SAP software solution tools may include:	• carbon emission management • energy and utility consumption audit and management • LCA

© Commonwealth of Australia, 2025 Future Skills Organisation

	• PLM • supply chain management • waste management.
Key performance indicators may include:	• kg CO2 emissions from company car fleet • kg CO2 emitted per floor area occupied in permanent buildings • percentage of timber used in construction from well-managed, sustainable sources • percentage volume of material from sustainable sources • reduction of quantity (in 1000's kg) of ozone depleting gases used in air-conditioning equipment.
Benchmarks may include:	• AccountAbility AA1000 Assurance Standard (2008) • BSI BenchMark • Carbon Disclosure Project (CDP) • Dow Jones Sustainability Index (DJSI) • Global Reporting Initiative (GRI) G3 guidelines (telecommunications sector supplement).
Feasibility report may include:	• calculated estimated CO2 emissions for the proposed SAP solution • calculated potential energy savings and payback periods for recommended actions • innovative approaches • recommendations in order of priority on range of activities with sustainable outcomes.

Unit Sector(s)

Sustainability

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB201A Use social media tools for collaboration and engagement

Modification History

Version	Comments
ICAWEB201A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to establish a social networking presence using social media tools and applications.

The unit specifically identifies the requirement to review, compare and use different types of social networking tools and applications.

Application of the Unit

This unit applies to information and communications technology (ICT) personnel who need to develop a social networking web presence for a small or large office environment using social media tools and applications.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Describe different types of social media tools and applications	1.1 Explain characteristics of the term ***social media***
	1.2 Identify different types of ***social-media tools and applications***
	1.3 Illustrate some of the ***issues*** associated with the use of social media tools and applications
2. Compare different types of social media tools and applications	2.1 Select one social media type for review
	2.2 Review most popular tools and applications within that social media type
	2.3 Itemise benefits across a range of the most popular tools and applications
	2.4 Select most appropriate social media tool or application
3. Set up and use popular social media tools and applications	3.1 Identify social media tools and applications for possible implementation
	3.2 Initiate preferred social media tools and applications for use
	3.3 Establish social media interface using ***text and file content***
	3.4 Initiate ***social networking*** interaction
	3.5 Test and evaluate tools and applications for ***ease of use***
	3.6 Present findings

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- communication skills to:
  - communicate with peers and supervisors
  - seek assistance and expert advice
- literacy skills to:
  - interpret user online manuals and help functions
  - read and write basic documents and instructions
- problem-solving skills to address problems when using applications
- technical skills to:
  - access the internet
  - operate a personal computer (PC) and printer
  - to enter text and numerical data
  - use social media application packages.

Required knowledge

- basic technical terminology in relation to social networking and social media applications and tools
- basic knowledge of uploading images, text files, PDF files, audio files, video files and link associated files
- features and functions of social media applications
- import and export software functions
- linking documents
- OHS principles and responsibilities for ergonomics, including work periods and breaks
- tagging to facilitate collaborative folksonomy
- social media applications and procedures for connecting to social networking sites
- use of input and output devices
- use of RSS feeds to connect a social network.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify different types of social media tools and applications, and issues associated with their use • access the internet, set up a social networking presence and upload and link a wide variety of files

© Commonwealth of Australia, 2025 Future Skills Organisation

	• use OHS principles and responsibilities for ergonomics, such as work periods and breaks.
Context of and specific resources for assessment	Assessment must ensure access to: • PC and printer • internet • social-media tools and applications • online instructional documents • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of types of social media tools and applications, and social-networking sites • direct observation of candidate accessing and interacting with a variety of social-networking sites • review of social-media tools and application evaluations.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

Social media may include:	• web applications that facilitate:
	  • information sharing
	  • interoperability
	  • user-centred design.

Social-media tools and applications may include:	• blogs
	• folksonomies
	• hosted services
	• mashups
	• social networking sites:
	  • YouTube
	  • Flickr
	  • Facebook
	  • Twitter
	• video sharing sites
	• web applications
	• wikis.

Issues may include:	• copyright • privacy • security • trust.

Text and file content may include:	• applications, including:
	  • .exe
	  • .pdf
	  • .ppt
	  • .rtf
	  • .zip
	• audio, including:
	  • .mid
	  • .mp3
	  • .wav
	• graphics, including:
	  • .bmp
	  • .gif
	  • .jpg
	  • .swf
	  • .tif
	• text, including:
	  • .htm
	  • .txt
	• video, including:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• .avi • .mov • .mpg • web, including: • .asp • .xml.
Social networking is being connected by one or more specific types of interdependency, such as:	• common interest • financial exchange • knowledge • personal relationships • prestige • relationships of beliefs.
Ease of use may include:	• affordability • desirable features for an online presence: • bulletin boards • direct mailing to customers • online forums • selling of products online • ease of communications • flexibility for placement of text, links and images • reasons for an external online presence: • communication with potential customers • promotion of products and services • recruitment of volunteers and new staff • reasons for an internal online presence: • regular staff communications • enterprise cohesion • display of staff achievements • reliability • set-up ease.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB301A Create a simple markup language document

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design, create and save a basic markup language document using a text editor.

Application of the Unit

This unit applies to web assistants responsible for creating web pages using a markup language.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Review requirements	1.1 Review the requirements of the document 1.2 Select the appropriate ***markup language*** based on organisational standards 1.3 Review document structure
2. Create document structure	2.1 Create and assign the basic elements of the document 2.2 Markup sections of the document to depict the ***structure***
3. Validate documents	3.1 Validate markup language document against requirements 3.2 Validate markup language document in different ***browsers***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with peers and supervisors
- literacy skills to:
  - follow documented instruction from a supplied guide
  - interpret workplace instructions and other technical documents
  - keep up-to-date with latest industry guidelines
- problem-solving skills to use markup language and troubleshoot problems
- technical skills to use a markup language to create the required web page.

Required knowledge

- markup language and associated standards
- features and limitations of range of available browsers
- web accessibility.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • create and save a markup language document • use a markup language without the automated generation of code.
Context of and specific resources for assessment	Assessment must ensure access to: • organisational style guide or policy • document specification • text editor • range of browsers • internet access to validate markup • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of web pages prepared by candidate using a text editor • evaluation of candidate's validated markup code results in commonly used browsers.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Markup language may include:	• dynamic hypertext markup language (DHTML) • hypertext markup language (HTML) • standard generalised markup language (SGML) • virtual reality modelling language (VRML) • eXtensible hypertext markup language (XHTML) • eXtensible markup language (XML).
Structure may include elements describing:	• headings • lists • paragraphs.
Browsers may include:	• Firefox • Google chrome • Internet Explorer • Konqueror • Lynx • Mozilla • Opera • Safari.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB302A Build simple websites using commercial programs

Modification History

Version	Comments
ICAWEB302A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use web authoring tools to create, modify and test simple web pages and websites.

Application of the Unit

This unit applies to people with responsibility for creating and maintaining simple websites.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and*

© Commonwealth of Australia, 2025 Future Skills Organisation

	knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify authoring requirements	1.1 Select preferred ***web authoring tool*** according to ***client*** requirements 1.2 Set preferences for the web authoring tool, including site ***file transfer protocol client***
2. Create and save files	2.1 Create files and save in correct location or directory 2.2 Navigate the web authoring tool environment or workspace 2.3 Access and use a range of features in the web authoring tool 2.4 Maintain suitable directory structure for the site 2.5 Save in appropriate directory structure 2.6 Upload files to appropriate folder on the ***server***
3. Add content to web pages	3.1 Insert and format text content according to client ***requirements*** 3.2 Insert ***images***, data tables and simple forms 3.3 Access ***markup language*** and make basic modifications to code
4. Create simple navigation	4.1 Create a site map to plan navigation 4.2 Create links between pages to reflect content structure using both text and images
5. Test website	5.1 Test elements of website content across a number of different ***browsers*** and browser versions to ensure consistency of presentation and performance 5.2 Test that website meets client requirements

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- communication skills to clarify requirements
- research skills to gather information and review software suitability
- literacy skills to read and understand client requirements
- technical skills to:
  - open, edit, save, organise and back up files appropriately
  - operate a computer
  - troubleshoot basic hardware and software issues
  - upload files to web server
  - use basic hypertext markup language (HTML) coding.

Required knowledge

- Australian Computer Society Code of Ethics
- OHS requirements relevant to the IT industry
- overview knowledge of website publishing and markup language
- sustainability concepts, including energy and resource conservation.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • select and use a web authoring tool to create web pages • insert text and image elements in a web page • modify existing markup • test web page content for consistency • upload files to server.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware and software • web authoring tools • web servers • website • storage media • FTP client software

© Commonwealth of Australia, 2025 Future Skills Organisation

	• server security password and access procedures • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning to assess knowledge of web publishing, markup, uploading and testing procedures • observation of candidate performing tasks related to creating web pages • review of a newly created website.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Web authoring tool may include:	• Adobe Creative Suite • Amaya for Mac, Windows, Linux, Unix • BBEdit for Mac • CoffeeCup • Dreamweaver for Mac, Windows • EditPad

© Commonwealth of Australia, 2025 Future Skills Organisation

	• EditPlus • FrontPage • GoLive • Homesite • Kompozer for Windows, Mac and Linux • Pagemill • SeaMonkey for Windows, Mac and Linux.
Client may include:	• external organisations • individuals • internal departments.
File transfer protocol client may include:	• CuteFTP for Windows • Filezilla for Windows, Mac OS, Linux • Transmit for Mac OS • WS-FTP for Windows.
Server may include:	• application or web servers • email servers • file and print servers • file transfer protocol (FTP) servers • firewall servers • proxy or cache servers.
Requirements may include:	• application • business or organisational • individuals • network • people in the organisation • system.
Images may include:	• animations • backgrounds • banners • clip art • content-related images • decorative elements • logos • photos.
Markup language may include:	• cascading style sheet (CSS) • hypertext markup language (HTML) • eXtensible hypertext markup language (XHTML) • eXtensible markup language (XML).
Browsers may include:	• Firefox • Google Chrome • Internet Explorer

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Lynx • Opera • Safari.

Unit Sector(s)

Web

Custom Content Section

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB303A Produce digital images for the web

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to produce and manipulate images suitable for use in website development.

Application of the Unit

This unit applies to people with responsibility for creating graphics for a web environment.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria

1. Determine client requirements	1.1 Access and interpret ***client*** brief to determine client needs 1.2 Analyse client needs with regard to image content, quality and size
2. Source images	2.1 Research ***appropriate sources*** of images to meet a range of needs 2.2 Source images appropriate to meet needs, taking into consideration ***copyright restrictions***
3. Manipulate images	3.1 Select appropriate ***industry-standard image editing software*** for the purpose 3.2 Create backups of assets to be used 3.3 Use features of the image-editing software to create a range of effects appropriate to client needs and web application 3.4 Edit, resize and slice images for use in ***web applications*** as required to meet client needs
4. Save images	4.1 Save images maintaining individual effects 4.2 Save images in ***appropriate formats*** for use in web applications and appropriate to the client's needs 4.3 Save images in appropriate directory structure

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to clarify requirements
- literacy skills to read and understand client requirements
- research skills to gather information on the internet
- technical skills to:
  - open, edit, save, organise and back up files appropriately
  - operate a computer
  - troubleshoot basic hardware and software issues.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required knowledge

- OHS requirements relevant to the IT industry
- overview knowledge of industry standards and copyright legislation
- sustainability concepts, such as energy and resource conservation.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • analyse client needs • research and source images • manipulate and produce images for use in website development meeting the requirements of the brief.
Context of and specific resources for assessment	Assessment must ensure access to: • image manipulation software, hardware and storage devices currently used in industry • client brief • sources of images • organisational policy and procedures • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of image formats, copyright issues, program features, and web image issues • review of digital images prepared for a website.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the

© Commonwealth of Australia, 2025 Future Skills Organisation

	work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• external organisation • individual • internal department.
Appropriate sources may include:	• CD collections of unrestricted use, copyright and royalty free images • images taken by candidate • internet collections of unrestricted use, copyright and royalty free images.
Copyright restrictions may include:	• authorised use of images • copyright law • use of images that are public domain.
Industry-standard image editing software may include:	• Fireworks • GIMP • Illustrator • PaintShop Pro • Photoshop.
Web applications may include:	• blogs • business website • content management system • e-commerce site • forums • image gallery • informational website • learning management system • multimedia production

© Commonwealth of Australia, 2025 Future Skills Organisation

	• personal web pages • promotional product • social networking sites • wikis.

Appropriate formats may include:	• for client needs:
	  • eps
	  • portable document format (pdf) file
	  • psd
	  • psp
	• for web display:
	  • gif
	  • jpg
	  • png.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB401A Design a website to meet technical requirements

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design a website to specifications within a particular technical and human interface environment.

Application of the Unit

This unit applies to web designers in a broad range of technical and managerial functions who are responsible for analysis, documentation and design, including identifying the technical and human computer interface requirements that drive design.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Define technical environment	1.1 Identify ***business requirements*** 1.2 Identify appropriate ***standards*** required to develop the site 1.3 Identify appropriate ***hardware*** and software required
2. Define human computer interface	2.1 Conduct ***user*** analysis to determine a user profile and user needs 2.2 Determine user content and requirements 2.3 Determine appropriate ***design principles*** for the site 2.4 Identify appropriate ***operating system***
3. Determine site hierarchy	3.1 Identify hierarchy of pages 3.2 Ensure content is logical and accessible to user 3.3 Ensure that navigation between pages is consistent and clear
4. Integrate design components	4.1 Apply appropriate information hierarchy to site design 4.2 Ensure design principles are appropriate to business and user 4.3 Ensure process flow is developed in a logical and simple manner 4.4 Test site against user needs 4.5 Complete and document the ***design structure***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with clients and staff
- literacy skills to interpret standards and requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

- planning and organisational skills to conduct user analysis
- technical skills to:
  - conduct website analysis
  - use site design software.

Required knowledge

- basic information architecture
- business process design
- copyright and intellectual property
- customer and business liaison
- ebusiness sites and corporate strategy
- implications of technology connectivity
- procedures for documenting technical specifications
- relevant World Wide Web Consortium (W3C) standards
- website design methods and standard website structures.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify and select appropriate tools and procedures required to develop a website • analyse user analysis to identify site or design structure required • test website meets the standards required by the user profile or needs.
Context of and specific resources for assessment	Assessment must ensure access to: • analysis software • customer relationship model • ebusiness website • requirements documentation • site server • site server software • web servers

© Commonwealth of Australia, 2025 Future Skills Organisation

	• relevant standards and copyright information • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate selecting software and hardware types and identifying standards to meet business requirements • verbal or written questioning to assess candidate's knowledge of business standards • review of candidate's documented website design.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Business requirements may include:	• external interfacing to the organisation • meeting customer needs • organisational goals • remote access.
Standards may include:	• Institute of Electrical and Electronics Engineers (IEEE) • International Organization for Standardization (ISO)

© Commonwealth of Australia, 2025 Future Skills Organisation

	• web-oriented groups, like Internet Engineering Task Force (IETF) and W3C • Organisation for the Advancement of Structured Information Standards.
Hardware may include:	• modems and other connectivity devices, such as digital subscriber line (DSL) modems • networks • personal computers • remote sites • servers • workstations.
User may include:	• department within the organisation • person within a department • third party.
Design principles may include:	• consistency • ease of learning • familiarity • flexibility • product compatibility • protection • responsiveness • robustness • simplicity • task compatibility • user compatibility • workflow compatibility.
Operating system may include:	• AIX • DEC • Digital Unix • Linux • Mac OS X • Netware • Silicon Graphics IRIX • Sun Solaris, SunOS • VMS • Win 98, NT, 2000, and XP.
Information hierarchy may include:	• content structure • locations and links to other internet resources where appropriate • page layout • secure access provisions • technical specifications.

© Commonwealth of Australia, 2025 Future Skills Organisation

Design structure may include:	• cascading style sheet (CSS) • XHTML.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB402A Confirm accessibility of websites for people with special needs

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to ensure that a website is accessible to users with special needs, including people with auditory, visual, mobility, and cognitive impairments and those people who use assistive technology.

Application of the Unit

This unit applies to frontline technical support personnel responsible for designing, building and testing websites.

Accessibility means that a website can be navigated and read by everyone, regardless of location, experience, or the type of computer technology used.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Identify accessibility standards	1.1 Research and identify specific ***user groups*** with particular accessibility ***requirements***
	1.2 Identify general legislated and industry accessibility ***standards*** and requirements to understand the wider context of accessibility
	1.3 Identify ***web development standards*** and prioritise application
	1.4 Consolidate specific and general standards and requirements into an accessibility checklist for application to website-related work
2. Test for website accessibility	2.1 Select and prepare appropriate automatic ***testing tools*** and ***software***
	2.2 Run automatic testing tools and make document changes based on results
	2.3 Ensure that the text equivalent for every ***non-text element*** is present in the website where feasible
	2.4 Verify that information conveyed with colour is also available without colour
	2.5 Identify changes in the natural language of a document text
	2.6 Check and ensure that document can be read without style sheets
	2.7 Check and ensure that priorities identified in the analysis of web development standards are met and completed
	2.8 Test site with different user groups to ensure that the site transforms successfully and maintains accessibility
3. Test pages	3.1 Check and ensure that pages are not dependent on colour and can operate in a monochrome environment
	3.2 Check and ensure that pages are logical and accessible in a

© Commonwealth of Australia, 2025 Future Skills Organisation

	text-only environment 3.3 Verify that pages operate on text-to-speech ***browser*** 3.4 Ensure that accessibility of website is signed off by appropriate person as meeting web-development standards

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with advocacy groups, business and government
- literacy skills to:
  - document test results
  - interpret standards
- problem-solving skills to accommodate user groups with special needs
- research skills to:
  - develop an accessibility checklist for application to website-related work
  - identify user groups with special needs
- technical skills to:
  - analyse a website
  - analyse the evaluation
  - design and implement technical tests, including accessibility tests
  - develop a website
  - evaluate tests and give feedback on the evaluation.

Required knowledge

- access and equity legislation and principles
- Australian Computer Society Code of Ethics
- business process design
- applicability of copyright and intellectual property to website development
- customer and business liaison
- electronic commerce modelling language
- government, advocacy group and special needs group liaison
- application of privacy principles to website development, user access and user usage
- technical performance measurement

© Commonwealth of Australia, 2025 Future Skills Organisation

- web accessibility initiative (WAI)
- website accessibility, security and equity legislation
- website design methods and standard website structures
- website security
- workload metrics
- World Wide Web Consortium (W3C) standards.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • test a website for accessibility • demonstrate theoretical knowledge of website content creation • communicate and negotiate with user groups, government and industry • undertake website design.
Context of and specific resources for assessment	Assessment must ensure access to: • live website • requirements documentation • customer-relationship model • automatic-accessibility measuring tools • organisational requirements and relevant standards • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate designing and testing accessibility tools • review of candidate's accessibility checklist based on standards and requirements • review of candidate's design of valid accessibility tests • verbal or written questioning to assess candidate's knowledge of accessibility requirements and how to provide them.

© Commonwealth of Australia, 2025 Future Skills Organisation

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

User groups may include:	• auditory impairment • cognitive impairment • mobility impairment • visual impairment.
Requirements may refer to:	• application • business • network • people in the organisation • system.
Standards may include:	• International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) • organisational • project.
Web development standards may include:	• Authoring Tool Accessibility Guidelines (ATAG) • best practice vendor-specific accessibility standards • User Agent Accessibility Guidelines (UAAG) • WAI • Web Content Accessibility Guidelines (WCAG).

© Commonwealth of Australia, 2025 Future Skills Organisation

Testing tools may include:	• Bobby • General Magic's Web-On-Call • Lynx • Opera • PwWebSpeak.
Software may include:	• commercial software applications • in-house or customised software • organisation-specific software • packaged software.
Non-text element may include:	• American Standard Code for Information Interchange (ASCII) art • animations, such as animated graphic interchange formats (GIFs) • applets and programmatic objects • audio tracks of video, and video • frames • graphical buttons • image map regions • images used as list bullets • images, graphical representations of text (including symbols) • scripts • sounds (played with or without user interaction) • spacers • stand-alone audio files.
Browser may include:	• Galleon • Google Chrome • Internet Explorer • Konqueror • Lynx • Mozilla Firefox • Netscape Navigator • Opera • Phoenix.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB403A Transfer content to a website using commercial packages

Modification History

Version	Comments
ICAWEB403A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to transfer content from a remote location to a web server using a range of commercial information technology (IT) products. The end objective is the successful upload of new or revised information on a website.

Application of the Unit

This unit applies to website developers and maintainers who are responsible for updating websites.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes	*Performance criteria describe the*

© Commonwealth of Australia, 2025 Future Skills Organisation

of a unit of competency.	*performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Configure the file transfer protocol client	1.1 Review and select ***file transfer protocol (FTP) client*** based on features and functions 1.2 Ensure that file transfer protocol client is suitable for the technical environment 1.3 Enter ***client*** details, including user ID, password and host name or ID into profile fields to create a permanent profile 1.4 Choose settings such as auto-detect, save profile and password depending on organisational security and ***privacy policy*** and ***organisational guidelines*** 1.5 Test and verify configuration by connecting to the web hosting server
2. Plan and prepare for data transfer	2.1 Prepare data content and back it up on local ***computer*** or ***server*** 2.2 Identify data as compressed or uncompressed with tools available on the server to manage uploaded data 2.3 Ensure files are in appropriate form for recognition and interaction by the ***operating system*** 2.4 Ensure receiving directory structure is applicable for the data to be uploaded
3. Establish connection to server	3.1 Log on to remote server using administrative, guest or anonymous accounts 3.2 Proceed through security layers based on organisational guidelines 3.3 Initiate file transfer protocol client program and locate destination directory
4. Transfer data to remote server	4.1 Select files to be transferred and choose mode (ASCII or binary)

© Commonwealth of Australia, 2025 Future Skills Organisation

	4.2 Run antivirus ***software*** on downloaded files 4.3 Move, rename, copy, and delete files on the server as necessary and as permissions allow 4.4 Store and order files according ***requirements*** and file extensions 4.5 Conduct appropriate steps for downloaded files, such as translation, decompression or de-archival of the files for use 4.6 Confirm data transfer and content functionality and close connection

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with clients and staff
- literacy skills to interpret standards and requirements
- planning and organisational skills to conduct user analysis
- technical skills to:
  - conduct website analysis
  - connect to remote servers
  - manage directory maintenance
  - manage file transfers and backups
  - undertake website publishing.

Required knowledge

- detailed knowledge of:
  - FTP server and client software
  - internet protocols
  - security issues, including denial of service, viruses and hackers
  - server access security procedures
  - server operating systems
  - website server architecture (e.g. Linux, Windows, Unix)
- overview knowledge of:
  - Australian Computer Society Code of Ethics
  - commonwealth Privacy Act 2000
  - copyright and intellectual property information.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • configure an FTP client • prepare content to be transferred • connect to the server • transfer content.
Context of and specific resources for assessment	Assessment must ensure access to: • web servers • ebusiness website • FTP client software • server security password and access procedures • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate using a range of commercial software packages to transfer content to a website • verbal or written questioning to assess candidate's knowledge of transfer protocols and associated security issues • review of candidate's documented website functionality.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate

© Commonwealth of Australia, 2025 Future Skills Organisation

	and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

FTP client may include:	• AxY FTP for Windows, Linux and Unix • cftp for Unix • Curl for Unix supports FTP, HTTP, Telnet • GFTP with GUI for Unix supports FTP, HTTP and SSH • lftp command-line FTP for Solaris, IRIX, HP-UX, Digital Unix and Linux • NcFTP client command-line FTP and HTTP URLs for Solaris FreeBSD, AIX and Linux • NFTP command-line FTP for Windows, Linux, OS/2 • WS_FTP for MS Windows.
Client may include to:	• employee • external organisation • individual • internal department.
Privacy policy may include:	• approved uses and disclosure of information held • how it is collected • information on the types of information held • purpose of holding the information.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular

© Commonwealth of Australia, 2025 Future Skills Organisation

	websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access • virus risk.
Computer may include:	• laptops • other devices • servers • workstations.
Server may include:	• application or web servers • BEA Weblogic servers • email servers • file and print servers • firewall servers • FTP servers • IBM VisualAge and WebSphere • Novell Directory Services (NDS) servers • proxy or cache servers.
Operating system may include:	• Apple • Linux • Windows.
Software may include:	• commercial • customised software • in-house • packaged.
Requirements may relate to:	• application • business • network • people in the organisation • system.

Unit Sector(s)

Web

Custom Content Section

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB404A Maintain website performance

Modification History

Version	Comments
ICAWEB404A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to ensure that a website maintains performance levels during peak traffic times and full use access.

Application of the Unit

This unit applies to information technology (IT) personnel who take responsibility for maintaining website performance.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information*

© Commonwealth of Australia, 2025 Future Skills Organisation

	is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Benchmark website performance	1.1 Review ***client*** performance expectations from ***specifications*** and ***business requirements***
	1.2 Test administration and maintenance ***requirements*** against specifications and business requirements
	1.3 Establish performance benchmarks from specifications and business requirements
	1.4 Ensure performance benchmarks are tested
	1.5 Record measured performance benchmarks against specifications
2. Track website performance	2.1 Measure actual website performance against performance benchmarks in key areas and record outcomes
	2.2 Establish procedures and ***policies*** for maintaining stability of actions and processes related to the website
	2.3 Identify faults or suggest improvements to the website
	2.4 Implement improvements according to business requirements and organisational policy and procedures
	2.5 Establish automatic fault reporting procedures and processes
	2.6 Monitor and maintain website security measures
	2.7 Implement administration and maintenance schedules
	2.8 Establish preventative maintenance and administration indicators and ensure an alert ***system*** is enabled
	2.9 Track user activities and make changes to policies or procedures, depending on findings
3. Tune performance	3.1 Compare actual website performance against benchmarks over an appropriate period and make changes based on inconsistencies
	3.2 Record performance inconsistencies and incorporate learning into revised policy and procedures
	3.3 Use diagnostic and ***software*** tools to identify and

© Commonwealth of Australia, 2025 Future Skills Organisation

	correct website faults 3.4 Plan and action preventative maintenance on a regular basis, to ensure continuous and consistent performance of website 3.5 Complete and record fault correction and maintenance reports
4. Initiate and monitor performance improvement	4.1 Establish a mechanism for capturing client initiatives to assist in identifying maintenance or administration process performance problems 4.2 Review security tools and procedures and conduct improvements where necessary 4.3 Document and implement maintenance schedules 4.4 Review maintenance and administration ***documentation*** according to policy and procedures, in order to identify areas for performance improvement 4.5 Update the website on a regular basis, including information, links, multimedia links and back-end software 4.6 Provide a timely and appropriate response to client to provide improvement or maintenance suggestions

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with clients and staff
- literacy skills to interpret standards and requirements
- numeracy skills to evaluate performance statistics
- planning and organisational skills to:
  - conduct user analysis
  - implement and administer maintenance schedules
  - technical skills to conduct website analysis.

Required knowledge

- detailed knowledge of:
  - security issues, such as denial of service, viruses and hackers
  - website server architecture (e.g. Linux, Windows, Unix)

© Commonwealth of Australia, 2025 Future Skills Organisation

- overview knowledge of:
  - Australian Computer Society Code of Ethics
  - business process design
  - commonwealth Privacy Act 2000
  - impact of copyright and intellectual property requirements on website performance
  - website security protocols
  - workload (web traffic) metrics.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • maintain website performance against benchmarks • ensure that website meets specifications • identify and rectify faults where performance criteria are not met • implement scheduled and non-scheduled maintenance • effectively monitor and tune website performance.
Context of and specific resources for assessment	Assessment must ensure access to: • web servers and websites • technical requirements • web-traffic diagnostic tools, including timing tools to gauge website response times • appropriate learning and assessment support when required. Testing the website under different conditions of load is essential to understanding how it behaves from the client's perspective. Thus, testing tools should include some way of simulating traffic from numerous users. Operations must be according to organisational policy and procedures. Managing the performance of a website should be done under competent supervision where there is a clearly defined range of contexts for ensuring that ongoing demands on the site are met.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of policy and procedures related to website performance, with theoretical knowledge of security issues • observation of candidate maintaining website performance against benchmarks • review of supporting documentation of the candidate's ability to manage website performance.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• employees • external organisations • individuals • internal departments.
Specifications may	• current system functionality

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• technical requirements • user problem statement.
Business requirements may include:	• customer • inventory • payroll • supplier • tax requirements of the organisation.
Requirements may relate to:	• application • business • network • people in the organisation • system.
Policies may include:	• awareness raising policy • forensic procedures • incident response procedures • network intrusion detection systems • training.
System may include:	• hardware • software components that run a computer.
Software may include:	• commercial • customised software • in-house • packaged.
Documentation may follow:	• audit trails • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • naming standards • project management templates • report writing principles • version control.

Unit Sector(s)

Web

Custom Content Section

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB405A Monitor traffic and compile website traffic reports

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to monitor website traffic and compile traffic reports as specified.

Application of the Unit

This unit applies to information technology (IT) personnel responsible for the maintenance of websites.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Select web traffic monitoring tools	1.1 Identify and analyse available site-analysis ***software*** according to ***organisational requirements*** and website architecture 1.2 Choose and install the most suitable site-analysis software or internet service provider, according to vendor requirements 1.3 Identify the required report options according to organisational requirements and website architecture 1.4 Develop a traffic monitoring program
2. Monitor web traffic	2.1 Specify required traffic reports according to ***information requirements*** 2.2 Generate required traffic reports 2.3 Analyse reports to identify improvements to server and site performance 2.4 Apply forecasting methodologies to predict traffic peaks
3. Make recommendations for improvements	3.1 Recommend changes in ***hardware*** and software 3.2 Implement changes as directed 3.3 Continue traffic monitoring program as required

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with clients and staff
- literacy skills to:
  - interpret standards and requirements
  - write technical reports
- numeracy skills to interpret website traffic statistics
- planning and organisational skills to develop a traffic monitoring program

© Commonwealth of Australia, 2025 Future Skills Organisation

- technical skills to use current:
  - webserver logfile analysis software
  - traffic tracking software
  - forecasting methodology for identifying traffic peaks.

Required knowledge

- problems and challenges that arise related to:
  - queues and bottlenecks
  - website security issues
- overview knowledge of:
  - Australian Computer Society Code of Ethics
  - website copyright and intellectual property requirements
  - features and functionality of network device drivers
  - features and functionality of network operating systems
  - queuing systems
  - server design and functionality
  - commonwealth Privacy Act 2000
  - website architecture
  - workload metrics
- features and functionality of commercially available:
  - log file analysis software
  - traffic tracking software.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • select and install site-analysis software or internet service provider (ISP) • generate and analyse traffic reports • recommend and implement changes as required.
Context of and specific resources for	Assessment must ensure access to: • analysis software

© Commonwealth of Australia, 2025 Future Skills Organisation

assessment	• ebusiness website • web server • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate monitoring website traffic • verbal or written questioning to assess candidate's knowledge of policy and procedures related to reporting and understanding website traffic, complex measurements and issues in the internet context • review of candidate's traffic report.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Software may include:	• commercial • customised • in-house • packaged.
Organisational	• preventative maintenance and diagnostic policy

© Commonwealth of Australia, 2025 Future Skills Organisation

requirements may relate to:	• problem-solving processes • roles and technical responsibilities in the IT department • vendor and product service level support agreements • work environment.
Information requirements may include:	• agendas • letters • memos • minutes • other business documents required by the organisation.
Hardware may include:	• digital subscriber line (DSL) modems • modems or other connectivity devices • networks • personal computers • remote sites • servers • workstations.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB406A Create website testing procedures

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design and implement procedures that measure the performance of a website and compare them to the initial design specifications.

Application of the Unit

This unit applies to frontline technical support personnel who are required to confirm the functionality of websites.

Testing involves significant judgement in planning, design, evaluation, technical or leadership and communications functions related to services, operations and processes.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Document and define performance criteria	1.1 Review performance specifications and determine benchmark criteria 1.2 Validate and document performance functions 1.3 Select measurement methodology and test on website 1.4 Validate each performance function separately 1.5 Record and document metric tools using appropriate methodology 1.6 Prepare performance benchmarks and seek agreement on criteria with the ***client***
2. Validate performance measures	2.1 Develop inspection and test plans to validate performance measures throughout the performance cycle 2.2 Test performance functions and record results according to ***technical documentation standards*** 2.3 Compare results of performance function testing to benchmark 2.4 Redesign functions that do not meet appropriate performance benchmarks 2.5 Re-implement functions that have been redesigned in performance testing 2.6 Document benchmarks and obtain sign-off
3. Obtain sign-off	3.1 Validate and document performance standards and benchmarks 3.2 Submit methodology and function testing document and results to client for approval 3.3 Review client comments and make changes as appropriate 3.4 Obtain sign-off for website testing procedure

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business-related matters
- literacy skills to:
  - interpret feedback
  - interpret organisational guidelines
  - record results
- numeracy skills to:
  - take test measurements
  - measure statistics
  - interpret results
  - evaluate performance
- planning and organisational skills to:
  - develop procedures
  - plan, prioritise and monitor own work
- technical skills to:
  - conduct tests
  - design tests
  - evaluate tests
  - interpret design specifications.

Required knowledge

- applicability of copyright and intellectual property to website development
- Australian Computer Society Code of Ethics
- client business domain, including client organisation structure and business functionality
- current industry-accepted hardware and software products
- desktop applications and operating systems as required organisational guidelines
- queuing systems, workload metrics and user request classes
- standard generalised markup language (SGML) and associated standards
- standard web-testing procedures and optimisation tools
- website design methods and standard website structures.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify the critical functions to be tested • develop appropriate metrics for each function and assign benchmarked performance standards • test each performance function and compare against the appropriate benchmarks in order to validate site performance against technical requirements • document results to establish the performance benchmarks for subsequent site development.
Context of and specific resources for assessment	Assessment must ensure access to: • analysis software • ebusiness website • industry standards and organisational guidelines • site design and technical requirements documentation • site-development software and tools • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of candidate selecting and conducting tests in adherence with operational procedures
	• review of candidate's documented procedures that measure the performance of a website
	• verbal or written questioning to assess knowledge of:
	  • validation of performance standards and benchmarks
	  • testing procedures
	  • analysis techniques for results.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level,

© Commonwealth of Australia, 2025 Future Skills Organisation

	language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• external organisations • individuals • internal departments • internal employees • people who may have special needs.
Technical documentation standards may include:	• audit trails • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) • naming standards • organisational standards • policy relating to sign-off, storage, distribution, revision • project management templates • report writing principles • version control.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB407A Conduct operational acceptance tests of websites

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to provide high-level assurance that websites can be effectively and efficiently provisioned and deployed live in a systematic manner.

Application of the Unit

This unit applies to web designers and web developers who are involved in testing the effectiveness of websites.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Prepare test	1.1 Establish and document testing framework and schedule 1.2 Determine processes and functions to be tested and assign quantitative and qualitative performance benchmarks to each process and function 1.3 Benchmark and document page templates, style guides and expected traffic loads 1.4 Determine and document ***test methodology*** 1.5 Assemble and brief the testing panel on the conduct of the test 1.6 Develop ***user*** and installation manuals according to target audience understanding and needs
2. Test individual pages	2.1 Test pages against style guides and templates 2.2 Test pages for consistency in structure and content 2.3 Apply ***automatic testing software*** 2.4 Document page gross statistics of confirmed results of tests
3. Test page relationships against business requirements	3.1 Test installation and examples listed in instruction manual 3.2 Test page navigability using a variety of ***browsers*** 3.3 Test ease of use and functionality against requirements 3.4 Test ***software*** interface points against business and technical requirements 3.5 Test site security and privacy against business requirements 3.6 Test response time against business requirements 3.7 Conduct load simulation testing using single and multiple independent browsers or automated load testing tools
4. Apply and document further tests	4.1 Test website's ability to handle concurrent access 4.2 Test conformance to applicable privacy, accessibility and acceptable usage policy standards 4.3 Apply automatic testing software 4.4 Collect, collate and document results from sample user and

© Commonwealth of Australia, 2025 Future Skills Organisation

	data from automated test
5. Evaluate test results	5.1 Consolidate and compare results to benchmarks 5.2 Identify results that fail to meet benchmarks and conduct site remedial iteration 5.3 Record and document test results as the site performance baseline, against which further development or updating can be measured 5.4 Provide evaluation feedback to ***appropriate person*** 5.5 Ensure appropriate person signs off on site prior to go live date

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with users and website developers
- literacy skills to:
  - document test results
  - document solutions according to organisational guidelines
  - interpret organisational requirements
- numeracy skills to deal with test results
- technical skills to:
  - analyse a website
  - design and implement technical tests
  - evaluate tests and give feedback on the evaluation
  - analyse the evaluation.

Required knowledge

- client business domain
- structure, function and business organisation of client, including business-process design
- organisational policies and procedures that cover routine work processes and the use of:
  - web optimising tools
  - web monitoring tools
  - web testing procedures

© Commonwealth of Australia, 2025 Future Skills Organisation

- technical performance measurement
- website accessibility and equity principles
- website design methods and standard website structures
- website security
- workload metrics.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • prepare an operational acceptance test that measures the independent and integrated structural content and technical components of the site • apply automatic testing software and collect, collate and document results or tests • evaluate and provide feedback on test results.
Context of and specific resources for assessment	Assessment must ensure access to: • web servers • ebusiness website • site server • site server software • analysis software • requirements documentation • organisational requirements • customer relationship model • website manuals and instructions • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate preparing an operational acceptance test • review of candidate's documented test results, particularly the quantitative results and their evaluation against predetermined

© Commonwealth of Australia, 2025 Future Skills Organisation

	benchmarks • verbal or written questioning to assess candidate's knowledge of requirements for high-level assurance of provisioning and deploying of websites.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Test methodology may include:	• background testing • distributed performance testing • error recovery methodologies • exhaustive testing • functional testing • random testing • unattended testing • user acceptance testing.
User may include:	• department within the organisation • person within a department • third party • people who may have special needs.
Automatic testing software may include:	• cascading style sheet (CSS) check, link testers • hypertext markup language (HTML) validator • links • spell check.

© Commonwealth of Australia, 2025 Future Skills Organisation

Browsers may include:	• Galleon • Internet Explorer • Google Chrome • Konqueror • Lynx • Mozilla Firefox • Netscape Navigator • Opera • Phoenix.
Software may include:	• commercial software applications • in-house or customised • organisation-specific • packaged.
Appropriate person may include:	• authorised business representative • client • user • supervisor.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB408A Ensure basic website security

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to provide basic website server and protocol security appropriate to the level required by an organisation.

Application of the Unit

This unit applies to web maintenance staff who are required to ensure that a website meets basic security requirements.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Determine business security requirements	1.1 Identify level of security required based on the business and commercial intent of the website 1.2 Identify whether password protection is needed for the site or part of the site 1.3 Decide minimum or maximum password protection solutions based on ***business requirements***
2. Ensure web server security	2.1 Ensure that web ***server*** password is obscure and non-traceable 2.2 Install and maintain an effective ***intrusion detection system*** according to business requirements 2.3 Ensure that ***user*** accounts have only the required permissions on the server 2.4 Ensure that interpreters' programs that run common gateway interfaces (CGIs) are not stored in the CGI-bin directory 2.5 Ensure that web forms check data before passing it to the server
3. Ensure protocol security	3.1 Protect fixed internet ***connection*** and internet protocol (IP) address 3.2 Protect shared ***network*** resources from intrusion according to business requirements 3.3 Ensure that personal computer (PC) protocols and preferences follow ***security protocols*** 3.4 Disable control protocol or internet protocol (TCP/IP) bindings for file and printer sharing 3.5 Ensure that network basic input/output system (NetBIOS) over TCP/IP is disabled

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business-related matters
- numeracy skills to:
  - take test measurements
  - interpret results
  - evaluate performance
- planning and organisational skills to plan, prioritise and monitor own work
- research skills to interrogate vendor databases and websites
- technical skills to:
  - write hypertext markup language (HTML)
  - write JavaScript and VBScript.

Required knowledge

- client business domain, including client organisation structure and business functionality
- current industry-accepted hardware and software products
- desktop applications and operating systems as required
- firewall functionality
- hypertext transfer protocol (HTTP) daemons
- secure socket layer (SSL) protocol
- security patches
- specific purpose security computers acting as bastion hosts
- web-server operating systems.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify password protection solutions • install and maintain intrusion detection system • manage protocol security.
Context of and specific	Assessment must ensure access to:

© Commonwealth of Australia, 2025 Future Skills Organisation

resources for assessment	• a basic website • web servers • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of candidate installing and testing website security system
	• verbal or written questioning to determine candidate's knowledge of:
	  • client business requirements
	  • industry website security standards
	  • appropriate software and hardware to implement security on a website
	• evaluation of candidate's website security documentation.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Business requirements may refer to:	• application • business

© Commonwealth of Australia, 2025 Future Skills Organisation

	• network • people in the organisation • system.
Server may include:	• application or web servers • building environmental assessment (BEA) weblogic servers • email servers • file and print servers • firewall servers • file transfer protocol (FTP) servers • IBM VisualAge and WebSphere • Novell Directory Services (NDS) servers • proxy or cache servers.
Intrusion detection system may include:	• Cisco • HP • Symantec • Tripwire.
User may include:	• department within the organisation • person within a department • third party.
Connection may include:	• asymmetric digital subscriber line (ADSL) • cable • fixed line.
Network may include:	• data • internet • large and small local area networks (LANs) • national wide area networks (WANs) • private lines • use of the public switched telephone network (PSTN) for dial-up modems only • voice.
Security protocols may include:	• data over cable service interface specification • domain name system security extensions • IEEE 802.11 Protocol standard for secure wireless local area network products • internet protocol security (IPSec) • point-to-point network tunnelling protocol (PPTP)/Layer 2 tunnelling protocol (L2TP) • secure electronic transactions • secure multipurpose internet mail extensions • secure shell • SSL and transport layer security.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB409A Develop cascading style sheets

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop cascading style sheets (CSS) that are attached to a markup language document in order to externally define and control styles to enhance and achieve commonality between web documents.

Application of the Unit

This unit applies to web designers and web developers who are involved in the layout and appearance of web pages.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Format, style and lay out the elements on a web page	1.1 Obtain user requirements 1.2 Style elements of a web page using a CSS 1.3 Apply CSS style sheets to multiple pages in a website 1.4 Position document elements using CSS
2. Test and validate web pages	2.1 Test website in various ***browsers*** 2.2 Validate the CSS against ***industry standards*** 2.3 Report result of tests to ***appropriate person***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to identify appropriate CSS rules to be applied to obtain desired result
- communication skills to liaise with end users
- initiative and enterprise skills to recommend design features
- literacy skills to:
  - follow documented instruction from a supplied guide
  - interpret workplace instructions and other technical documents
- numeracy skills to work with:
  - document element dimensions
  - relative and absolute measurements
- planning and organisational skills to:
  - create the CSS in allocated timeframe
  - plan the layout of the web page
- problem-solving skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - create web pages that function in a variety of screen resolutions
  - resolve browser incompatibilities
- research and literacy skills to keep up-to-date with latest industry guidelines
- technical skills to:
  - produce valid accessible web pages
  - use CSS in the most efficient and effective way.

Required knowledge

- overview knowledge of standard web and CSS design principles
- detailed knowledge of:
  - hypertext transfer protocol (HTTP)
  - markup language (HTML, XHTML)
  - web standards.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop a website styled and formatted using CSS to user requirements • lay out page elements using CSS • test web pages in a variety of browsers • validate the CSS against industry standards.
Context of and specific resources for assessment	Assessment must ensure access to: • a computer • aesthetic presentation brief • variety of browsers • HTML documents to have CSS applied to them • internet access to validate the CSS against the World Wide Web Consortium (W3C) • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of CSS rules and how they affect the document styling and layout • evaluation of candidate's created and modified web pages styled using CSS.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Browsers may include:	• Google Chrome • Firefox • Safari • Internet Explorer • Konqueror • Lynx • Mozilla • Netscape Navigator • Opera.
Industry standards may	• W3C

© Commonwealth of Australia, 2025 Future Skills Organisation

include:	• Web 2.0.
Appropriate person may include:	• client • manager • supervisor.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB410A Apply web authoring tool to convert client data for websites

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use web development software to create website content. The unit is designed to use a web authoring tool to convert text and images to appropriate web protocols.

Application of the Unit

This unit applies web developers who are responsible for developing websites using client data.

Using web authoring to convert data is an appropriate method for rapid data translation and prevents the need for a rewrite.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Create files	1.1 Create files and save in correct location and directory 1.2 Insert and format text content according to ***business requirements*** 1.3 Insert and optimise ***images*** as required
2. Create formatting templates	2.1 Create basic external cascading style sheets (CSS) 2.2 Define styles for the required tags according to business requirements 2.3 Link CSS to the files and display formatting
3. Define library items	3.1 Identify items that recur on several pages and include in library 3.2 Format selected items according to CSS definition 3.3 Check tags of selected items 3.4 Create and clearly name selected library items 3.5 Update items contained in library according to business requirements
4. Develop templates	4.1 Create and save file as template and link with CSS 4.2 Format template and create and name editable regions 4.3 Place generic image icons in page as required by business image 4.4 Save and modify templates
5. Identify authoring requirements	5.1 Select preferred web authoring tool, according to business requirements 5.2 Set preferences for web authoring tool, including site ***file***

© Commonwealth of Australia, 2025 Future Skills Organisation

	transfer protocol (FTP) client 5.3 Customise and navigate the web author tool environment or workspace to meet individual ***requirements*** 5.4 Select buttons and tools, both opened and closed, to access full range of features 5.5 Define and name site and root folder
6. Create simple forms	6.1 Add form elements to page 6.2 Set form element properties for each form element 6.3 Insert additional fields as required for processing form 6.4 Identify availability and location of common gateway interface (CGI) script 6.5 Connect form to a script in a ***server*** CGI bin 6.6 Test form to ensure no errors
7. Create simple navigation	7.1 Create site map to plan navigation 7.2 Create links between pages to reflect content structure using both text and images 7.3 Check links in multiple ***browsers*** for errors 7.4 Check website content across a number of different browsers and browser versions to ensure consistency of presentation, performance and accessibility

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse business requirements
- communication skills to:
  - communicate with clients
  - convey and clarify complex information
  - seek assistance and expert advice
- literacy skills to interpret technical documentation, equipment manuals and authoring specifications
- planning and organisational skills to prioritise and monitor own work
- problem-solving skills to solve operational problems as they arise

© Commonwealth of Australia, 2025 Future Skills Organisation

- safety awareness skills to work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- technical skills to:
  - analyse and interpret technical aspects of implementation
  - design simple forms
  - operate software applications
  - select appropriate authoring tools to meet required specifications
  - write and maintain HTML.

Required knowledge

- Australian Computer Society Code of Ethics
- Authoring Tool Accessibility Guidelines
- standard generalised markup language (SGML) and the associated standards
- standard web and CSS design principles
- website design methods and standard website structures.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop web content using authoring tools to meet specifications • use authoring tools to create cross-browser web documents • create forms • create navigation tools.
Context of and specific resources for assessment	Assessment must ensure access to: • site where web content may be developed using a web authoring tool • site authoring software and tools currently used in industry • business expectations brief • appropriate standards and current legislation • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of web authoring tools • direct observation of candidate using authoring tool to convert client data for website • review of website developed by candidate following business requirements.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Business requirements may relate to:	• customer • inventory • payroll • supplier • tax requirements of the organisation.
Images may include:	• clipart • graphics • pictures.
File transfer protocol	• AxY FTP for Windows, Linux and Unix

© Commonwealth of Australia, 2025 Future Skills Organisation

client may include:	• cftp for Unix • Curl for Unix supports FTP, HTTP and Telnet • GFTP with GUI for Unix supports FTP, HTTP and SSH • lftp command line FTP for Solaris, IRIX, HP-UX, Digital Unix and Linux • Lukemftp command-line FTP supports FTP and HTTP URLs • NcFTP Client command-line FTP and HTTP URLs for Solaris, FreeBSD, AIX and Linux • WS-FTP.
Requirements may refer to:	• application • business • network • people in the organisation • system.
Server may include:	• application and web • building environmental assessment (BEA) weblogic • email • file and print • firewall • file transfer protocol • IBM VisualAge and WebSphere • Novell Directory Services • proxy or cache.
Browsers may include:	• Galleon • Internet Explorer • Konqueror • Lynx • Mozilla • Netscape Navigator • Opera • Phoenix.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB411A Produce basic client-side script for dynamic web pages

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to produce a number of client-side scripts for dynamic web pages, using a range of features from different appropriate languages.

Application of the Unit

This unit applies to those working in web development who are required to produce client-side scripts as a common means of creating interactive websites. These scripts offer an effective simple means of enabling websites to provide greater interaction with clients.

Client side scripting may be used for purposes, such as form validation, but only in areas where they would affect only the document in question and no outside objects.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Analyse requirements for web documents	1.1 Determine necessary dynamic functionality of the ***web document***
	1.2 Determine appropriate ***language*** to achieve that functionality
	1.3 Determine web document requirements
2. Design and produce web documents	2.1 Design web document and embedded scripts to achieve required functionality
	2.2 Write simple hypertext markup language (HTML) considering ***accessibility***
	2.3 Write embedded scripts
3. Test scripts and debug	3.1 Test web document against required functionality, and reiterate until correct
	3.2 Complete ***documentation*** and submit to ***appropriate person*** for approval

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to determine the necessary dynamic functionality of the web document
- communication skills to liaise with end user
- problem-solving skills to review design and functionality conflicts
- technical skills to:
  - debug and handle errors

© Commonwealth of Australia, 2025 Future Skills Organisation

- use a PC and a range of software packages
- use internet protocols
- view the active elements or objects across different platforms.

Required knowledge

- basic knowledge of open platforms
- detailed knowledge of:
  - client-side scripting
  - events and event handlers
  - internet operation related to servers and clients
  - internet protocols incorporating some theoretical concepts
  - security restrictions on servers, incorporating some theoretical concepts
  - server-side and client-side concepts, incorporating standard generalised markup language (SGML) and associated standards types of function, particularly when creating scripts to implement functions.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • produce basic client server-side scripts for dynamic web pages • confirm successful viewing of the active elements or objects across different platforms.
Context of and specific resources for assessment	Assessment must ensure access to: • client requirements • functionality and scope requirements • security policy • web server • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for

© Commonwealth of Australia, 2025 Future Skills Organisation

	this unit:
	• review of candidate's:
	  • client-side script code
	  • subsequent results
	  • performance of real or simulated work
	• observation of candidate's website using client-side scripts
	• verbal or written questioning to determine candidate's knowledge of scripting, including client-side versus server-side scripting.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Web document may include:	• previously created and new HTML documents • saved email files with or without attachments • saved HTML documents.
Language may include:	• ActiveX • dynamic hypertext markup language (DHTML) • JavaScript • VBScript.
Accessibility may relate to:	• cultural awareness • ethnicity • intellectual impairments and remote locations

© Commonwealth of Australia, 2025 Future Skills Organisation

	• physical.
Documentation may follow:	• audit trails • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • naming standards • project management templates • report writing protocols • version control.
Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB412A Produce interactive web animation

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to create advertisements, animated enhancements and animation for web pages.

Application of the Unit

This unit applies to web designers responsible for creating and implementing animated advertisements for website clients, creating animations to enhance a web page message, and visually creating fully animated websites.

Interactive web animation is a powerful visual tool that enables web designers to be creative in designing an enriched experience for website users. Websites are enhanced through the creation of a fully interactive website.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Analyse project requirements	1.1 Determine the necessary dynamic functionality of the animation to be included inside web document 1.2 Determine the appropriate language to achieve that functionality 1.3 Determine web document requirements 1.4 Research and evaluate current requirements for online advertising with major agencies and websites
2. Design web animations	2.1 Design ***web document*** and ***animations*** to enhance the page 2.2 Design ***advertisements*** to promote the web page within a website 2.3 Design advertisements to promote the web page on externally hosted paid advertising 2.4 Design advertisements that meet current website advertising specifications for size, number or loops, sound and buttons 2.5 Design and create gif replacements for animation as per major advertising agency requirements 2.6 Design animations for a website that will add to the overall professionalism or entertainment value of a website
3. Produce animations	3.1 Produce web animations for web pages 3.2 Produce web animations for external advertising 3.3 Produce web animations for internal website advertising 3.4 Produce web animations for a website that enhance the overall professionalism or entertainment value of the website 3.5 Test and debug scripts against required functionality and reiterate until correct

© Commonwealth of Australia, 2025 Future Skills Organisation

4. Publish animations	4.1 Publish animations in acceptable web format 4.2 Incorporate web animations into a hypertext markup language (HTML) page 4.3 Complete documentation and submit to ***appropriate person*** for approval

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - determine functional requirements
  - identify appropriate design elements to match requirements
- communication skills to:
  - create a user-friendly animation
  - create an animation that markets the message effectively
  - liaise with the client
- initiative and enterprise skills to provide feedback and recommend the most appropriate technology solutions
- literacy skills to:
  - create effective marketing dialogue within the animation
  - follow naming conventions
  - interpret workplace instructions and other technical documents
- planning and organisational skills to determine the most appropriate solution
- problem-solving skills to:
  - determine best coding level to maximise the number of possible browser viewing
  - identify and rectify animation functional problems
  - identify and resolve bugs in the code created
  - identify and resolve error messages
  - select the most efficient and effective algorithms
- research skills to:
  - find the best-fit solution to client requirements
  - find solutions to encountered problems
- learning skills to research encountered problems independently
- technical skills to:
  - apply web programming concepts

© Commonwealth of Australia, 2025 Future Skills Organisation

- create HTML and eXtensible hypertext markup language (XHTML) pages with embedded animation
- create animations that are aesthetically pleasing to look at, interesting, entertaining and interactive.

Required knowledge

- web animation programming concepts, including:
  - acceptable formats for importing assets
  - component libraries
  - cross-browser issues
  - importing, exporting libraries
  - inserting the published work to an HTML or XHTML page
  - internet-animation player statistics
  - masking
  - movements and automated movements
  - publishing the finished work to an acceptable web format
  - shape animation and manipulation
  - symbols
  - text manipulation
  - transparencies
- programming control structures, object-oriented programming, including:
  - buttons
  - scripting to go to uniform resource locators (URLs)
  - scripting to jump to different parts of the animation
  - scripting using the programming language
- internet technology to choose the right scripting type to reach a maximum determined audience
- principles of analysis of web parameters and design of suitable animations.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and	Evidence of the ability to: • design and create interactive animation for advertising,

© Commonwealth of Australia, 2025 Future Skills Organisation

evidence required to demonstrate competency in this unit	following current industry standards • design and create interactive animation to enhance the professionalism or entertainment value of a website.
Context of and specific resources for assessment	Assessment must ensure access to: • development environment • internet access • browsers • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to determine candidate's knowledge regarding:
	  • animation techniques
	  • terminology
	  • methods
	• evaluation of the effectiveness of a candidate's design and creativeness of the animation in advertisements and website enhancements
	• review of the candidate's research report of web technology trends, explaining the methods and attributes used and how the animation created enhances the website and entices buyers to click on advertisements.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Web document may include:	• previously created and new HTML documents • saved HTML documents.
Animations may include:	• ActionScript • Silverlight.
Advertisements may include:	• external advertisements promoting a website on another website • internal advertisements promoting products or subjects within a website.
Appropriate person may include:	• advertising agency • client.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB413A Optimise search engines

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to implement search engine optimisation (SEO) techniques.

Application of the Unit

This unit applies to web designers who are responsible for:

- creating and implementing good internet-marketing practices
- optimising pages for search engine optimisation
- introducing web pages to search engines
- monitoring search engine performance
- making recommendations for keyword enhancements
- making recommendations for search engine marketing (SEM)
- making recommendations for social network marketing (SNM).

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Analyse internet-marketing requirements	1.1 Determine main business of the website and ***keywords*** currently used on each page 1.2 Create keyword suggestion list for the website using online tools 1.3 Analyse best keywords for macro and sub keywords 1.4 Create recommendations for improved optimisation for image ***search optimisation*** (ISO), keyword density on web pages, keywords used in headings and heading levels and ***meta-elements*** and page tiles 1.5 Analyse pages and recommend sections for content 1.6 Analyse current website position in ***organic listings*** 1.7 Analyse current success of online advertising 1.8 Analyse current ***traffic analysis reports*** using online tools and web-hosting statistics 1.9 Analyse current success of ***social network marketing*** content
2. Prepare an internet marketing strategy report	2.1 Use detail from analysis to prepare a recommendation report for the client, covering the differences between ***search engine optimisation, search engine marketing*** and social network marketing 2.2 Make recommendations about search engines and social network media to target, based on volume of users 2.3 Make recommendations on a timeframe for expecting improved ***search engine*** results 2.4 Explain ***search terms*** 2.5 Make recommendations for the implementation of search engine optimisation and search engine marketing, including a summary of recommendations on methods to improve search

© Commonwealth of Australia, 2025 Future Skills Organisation

	engine rankings, both organic and ***pay per click*** (PPC)
3. Implement SEO strategy	3.1 Implement macro and sub keywords on pages 3.2 Implement ***keywords*** 3.3 Implement sections for content and back links from quality websites 3.4 Create online profiles for updating search engine data 3.5 Introduce website to major search engines
4. Review SEO	4.1 Determine current website position in organic listings 4.2 Review current success of online advertising with regard to website position 4.3 Evaluate current traffic analysis reports and compare to previous results
5. Prepare a client SEO result report	5.1 Analyse website statistics for ***site reports and listings*** 5.2 Compare current statistics with previous site reports and listings 5.3 Summarise findings and make further recommendations

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to assess current SEO against required results
- communication skills to:
  - create well-structured SEO client reports
  - make recommendations on SEO based on well-founded research
  - understand the client requirements
- literacy skills to:
  - select appropriate keywords
  - understand the underpinning concepts
  - use keywords in a meaningful and structured way related to content
- planning and organisational skills to:
  - analyse current SEO status and make recommendations
  - create a post project analysis report

© Commonwealth of Australia, 2025 Future Skills Organisation

  - implement an SEO strategy
- problem-solving skills to understand the SEO need
- learning skills to research and deploy current methods of SEO
- technical skills to:
  - integrate SEO into web documents
  - use social network media to advantage.

Required knowledge

- internet-marketing concepts, including:
  - search terms
  - keywords
  - keyword density
  - search engine ranking
  - search engine methods of assessing SEO
  - back links
  - social network media in context of SEO.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• successfully optimise pages for search engine optimisation
	• introduce web pages to search engines
	• monitor search engine performance
	• make recommendations for:
	  • keyword enhancements
	  • SEM
	  • social network marketing.

Context of and specific resources for assessment	Assessment must ensure access to: • website files • file transfer protocol (FTP) • internet access • profiling tools

© Commonwealth of Australia, 2025 Future Skills Organisation

	• social network marketing logins • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning regarding internet marketing methods • review of report of internet marketing methods and best practices • analysis of enhancement of internet marketing to a current website.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Keywords may relate to:	• technique used to populate a web page with words used by internet users in search engine search terms
	• use of keywords:
	  • keyword density
	  • macro keywords
	  • sub keywords.

© Commonwealth of Australia, 2025 Future Skills Organisation

Image search optimisation may include:	• alt attribute • image accessibility • image naming • image quality • text around the image.

Meta-elements:	• are HTML and XHTML elements used to provide structured metadata about a web page
	• may include:
	  • keywords
	  • language
	  • page title
	  • robots attribute.

Organic listings may include:	• listings in search engines that are not paid for.
Traffic analysis reports may include:	• Google Analytics • Google Webmaster Tools • traffic statistics found in web server log files.
Social network marketing may include:	• blogs • deviantArt • Facebook • Flickr • LinkedIn • MySpace • Twitter • wikis • YouTube.
Search engine optimisation may include:	• preparing a website so it lists effectively in organic search engine listings.

Search engine marketing may relate to:	• broader search engine marketing activities:
	  • paid advertising
	  • paid inclusion
	  • paid placement of:
	  • banner ads
	  • paid directory listings
	  • sponsored links.

Search engine may include:	• Bing • Google • Open Directory Project (ODP)

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Yahoo.
Search terms may include:	• difference between a macro search and a sub search • how the major search engines rank web pages • website current position in search engine rankings benefit of using online tools to create profiles, such as Google Analytics, Google Webmaster Tools and WebStats for updating search engine data • use of quality back links.
Pay per click (PPC) may include:	• paying the host when ad is clicked • bidding for keywords.
Keywords may include:	• alt tags • web pages • headings and heading levels • metadata and page tiles • section the content and implement section headings as per current HTML specification.
Site reports and listings may include:	• advertising report • social network media access report • traffic analysis reports • website position in organic listings.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB414A Design simple web page layouts

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design and create simple web page layouts.

Application of the Unit

This unit applies to web designers and web developers who are involved in the layout and appearance of web pages.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify main layout sections from design specification	1.1 Identify required sections of the web page 1.2 Create web page structure
2. Lay out web page to match design specification	2.1 Position document elements 2.2 Style web page elements to match design specifications
3. Test and validate layout	3.1 Test website in various ***browsers*** 3.2 Validate web pages against ***industry standards***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to identify appropriate cascading style sheets (CSS) rules to be applied to obtain desired result
- communication skills to liaise with end users
- initiative and enterprise skills to recommend design features
- literacy skills to:
  - follow documented instruction from a supplied guide
  - interpret workplace instructions and other technical documents
- numeracy skills to work with:
  - document element dimensions
  - relative and absolute measurements
- planning and organisational skills to:
  - create the web pages in allocated timeframe
  - plan the layout of the web page
- problem-solving skills to:
  - create web pages to function in a variety of screen resolutions

© Commonwealth of Australia, 2025 Future Skills Organisation

    - resolve browser incompatibilities
- research, literacy and learning skills to keep up-to-date with latest industry guidelines
- technical skills to:
    - produce valid accessible web pages
    - use CSS in the most efficient and effective way.

Required knowledge

- standard web and web scripting design principles
- detailed knowledge of:
    - CSS
    - hypertext transfer protocol (HTTP)
    - markup language, such as hypertext markup language (HTML) or eXtensible hypertext markup language (XHTML)
    - World Wide Web Consortium (W3C) standards.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop a website according to design specifications • lay out page elements • test web pages in a variety of browsers • validate the web pages against industry standards.
Context of and specific resources for assessment	Assessment must ensure access to: • computer • aesthetic presentation brief • variety of browsers • internet access to validate against the W3C • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for

© Commonwealth of Australia, 2025 Future Skills Organisation

	this unit: • evaluation of a newly created or modified website • verbal or written questioning to assess candidate's knowledge of design principles for web pages.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Browsers may include:	• Firefox • Google Chrome • Internet Explorer • Konqueror • Lynx • Mozilla • Netscape Navigator • Opera • Safari.
Industry standards may include:	• W3C • Web 2.0.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB415A Produce server-side script for dynamic web pages

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit defines the outcomes, skills and knowledge required to produce server-side scripts for dynamic web pages, using a range of relevant features from different appropriate languages.

Application of the Unit

This unit applies to web designers who are responsible for implementing dynamic web pages using server-side scripting.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement, but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Analyse requirements for web documents requiring server-side dynamic interaction	1.1 Determine necessary dynamic functionality of the ***web document***
	1.2 Determine appropriate ***language*** to achieve that functionality
	1.3 Determine web document requirements
2. Design server-side scripts	2.1 Design web document and server-side code to interact with an ***external data source***
	2.2 Design web document and server-side code to allow an administrator to insert, update and delete entries to the external data source
	2.3 Implement security features in the web document
3. Produce web documents	3.1 Write eXtensible hypertext markup language (XHTML) considering accessibility
	3.2 Write server-side scripts to current XHTML standards
4. Test scripts and debug	4.1 Test web document against required functionality and reiterate until correct
	4.2 Complete ***documentation*** and submit to ***appropriate person*** for approval
5. Set up security	5.1 Determine necessary permissions to prevent error messages displaying to the public
	5.2 Configure server software to minimise potential database attacks

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- analytical skills to:
  - determine functional requirements
  - identify dynamic server-side requirements
- communication skills to:
  - create a user-friendly web page
  - liaise with the client
- initiative and enterprise skills to provide feedback and recommend the most appropriate technology solutions
- learning skills to research encountered problems independently
- literacy skills to:
  - follow documented instruction from a supplied guide
  - follow server-side naming conventions
  - interpret workplace instructions and other technical documents
  - keep up-to-date with latest industry guidelines
- planning and organisational skills to determine the most appropriate solution
- problem-solving skills to:
  - identify and rectify website functional problems
  - identify and resolve bugs in the code created
  - identify and resolve error messages
  - select the most efficient and effective algorithms
- research skills to find:
  - best-fit solution to client requirements
  - solutions to encountered problems
- technical skills to:
  - apply web-programming concepts
  - create hypertext markup language (HTML) and XHTML pages
  - create software in a variety of server-side languages
  - create web pages that are aesthetically pleasing, logically laid out and user-friendly.

Required knowledge

- server-side technologies and relevant web scripting languages
- server-side web analysis and design parameters
- programming control structures, object-oriented programming
- web-programming concepts:
  - hypertext transfer protocol (HTTP)
  - stateless programming
  - session management
  - authentication and web security.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • create dynamic web pages from a client requirement using server-side scripting to retrieve information from a web-hosted database • create scripts for the quick upload of data to web-hosted databases • create server-side scripts for inserting, updating and deleting data from a web server database • create server-side scripts to encode passwords • create server-side scripts to upload and retrieve images • create server-side scripts to manage sessions and secure login.
Context of and specific resources for assessment	Assessment must ensure access to: • client requirements • functionality and scope requirements • security policy • database server • internet and server access • software development environment • web browsers • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning of candidate regarding server-side scripts • evaluation of a web application using a project-based scenario to demonstrate level of competency.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level,

© Commonwealth of Australia, 2025 Future Skills Organisation

	language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Web document may include:	• previously created and new HTML documents; saved email files with or without attachments • saved HTML documents.
Language may include:	• active server pages (ASP) • .NET • Perl hypertext preprocessor (PHP) • Ruby On Rails.
External data source may include:	• Microsoft Structured Query Language (MS SQL) database • MySQL database • Oracle database • Postgre database • eXtensible markup language (XML).
Documentation may follow:	• audit trails • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • naming standards • project-management templates • report-writing protocols • version control.
Appropriate person may include:	• authorised business representative • client • supervisor.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB416A Customise content management system

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to create a website powered by a content management system using an open-source solution.

Application of the Unit

This unit applies to web developers who are responsible for integrating a website into an open-source content management system.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Analyse specifications and requirements	1.1 Determine required functionality of the website 1.2 Determine appropriate ***server-side language*** that will be used to produce website 1.3 Determine content structure and navigation of the website 1.4 Determine pre-existing restraints that need to be considered when developing website solution
2. Research requirements	2.1 Research appropriate solutions, based on the website requirements, including programming language, ***content management system, licensing structure*** and ***hosting structure*** 2.2 Research techniques, plug-ins and additions to the existing content management system to allow solution to fulfil the needs determined while analysing website requirements
3. Create content-management system powered website	3.1 Install and configure chosen content management system 3.2 Insert and manage website content 3.3 Install and implement appropriate techniques and plug-ins
4. Validate and evaluate final website	4.1 Validate final website markup against current website standards 4.2 Validate content management system performance in different ***browsers***, checking compatibility and core content management system functionality

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- analytical skills to determine uses, audience and document structure and requirements
- communication skills to liaise with end users
- initiative and enterprise skills to recommend design features
- literacy skills to:
  - follow documented instruction from a supplied guide and online documentation
  - interpret workplace instructions and other technical documents
  - keep up-to-date with latest industry guidelines
- problem-solving skills to use server-side and markup languages to troubleshoot problems and client requirements
- technical skills to:
  - configure or manipulate a website hosting environment
  - use a markup language to create the required web page
  - use a server-side programming language.

Required knowledge

- markup language and associated standards
- server-side language and security techniques
- web accessibility.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • create a content management system powered website using an open-source solution that allows an end user without training in a markup language to make modifications to the website's content.
Context of and specific resources for assessment	Assessment must ensure access to: • client requirements and content • text editor • range of browsers • internet for research and code validation • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment

© Commonwealth of Australia, 2025 Future Skills Organisation

	modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of content management system (front and backend) in commonly used browsers to perform basic content manipulation tasks • evaluation of candidate's ability to fulfil client requirements using techniques, plug-ins and additional resources • validation of front-end code markup correctness against standards set by the World Wide Web Consortium (W3C).
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Server-side language may include:	• ASP.NET • Java • Perl hypertext preprocessor (PHP) • Ruby on Rails.
Content management system may include:	• Drupal • Expression Engine • Joomla • Mambo • Open CMS

© Commonwealth of Australia, 2025 Future Skills Organisation

	• PHP Nuke • Radiant CMS • Silverstripe • Typo • Wordpress.
Licensing structure may include:	• commercial • open source.
Hosting structure may include:	• downloads or self-installed • hosted solution.
Browsers may include:	• Firefox • Google chrome • Internet Explorer • Konqueror • Lynx • Mozilla • Opera • Safari.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB417A Integrate social web technologies

Modification History

Version	Comments
ICAWEB417A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge to successfully develop and implement social networking in websites.

Application of the Unit

This unit applies to web developers who are responsible for integrating social networking websites into new or pre-existing websites.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Analyse specifications and requirements	1.1 Evaluate different popular ***social networking websites*** 1.2 Discuss benefits of social networking in websites 1.3 Discuss negative aspects of social networking 1.4 Define goals based on client requirements for a successful social networking integration
2. Develop code and documentation	2.1 Develop guidelines for implementing social networking in a website 2.2 Develop code to integrate a social networking website into a pre-existing website 2.3 Use pre-existing scripts and tools to integrate a social networking website into a pre-existing website
3. Validate integration	3.1 Validate social networking ***integration*** 3.2 Validate social networking integration performance in different ***browsers***, checking compatibility and display

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to determine uses, audience and document structure and requirements
- communication skills to liaise with end users
- initiative and enterprise skills to recommend design features
- literacy skills to:
  - follow documented instruction from a supplied guide and online documentation
  - interpret workplace instructions and other technical documents
  - keep up-to-date with latest industry guidelines
- technical skills to develop social networking integration code.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required knowledge

- detailed knowledge of markup language and associated standards
- basic knowledge of server-side language.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • select an appropriate social networking tool • integrate tool into an existing website.
Context of and specific resources for assessment	Assessment must ensure access to: • client requirements • text editor • range of browsers • internet for research • validation of code • API documentation • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• review of documentation of the advantages and disadvantages of social networking
	• evaluation of:
	  • candidate's integration of a social networking website into a pre-existing website
	  • candidate's additional content management functionality against current programming and security standards
	• validation of frontend code markup correctness against standards set by the World Wide Web Consortium (W3C).

Guidance information	Holistic assessment with other units relevant to the industry

© Commonwealth of Australia, 2025 Future Skills Organisation

for assessment	sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Social networking websites may include:	• Campaign Monitor • Delicious • Digg • Facebook • Flickr • Friendster • Google Applications • Last.fm • LinkedIn • MailChimp • Myspace • Slashdot • Twitter • YouTube.

Integration may relate to:	• using a social networking website application programming interface (API) to
	  • post information from own website to the social networking website (Twitter)
	  • pull and display information onto your own website.

© Commonwealth of Australia, 2025 Future Skills Organisation

Browsers may include:	• Firefox • Google chrome • Internet Explorer • Konqueror • Lynx • Mozilla • Opera • Safari.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB418A Use development software and IT tools to build a basic website

Modification History

Version	Comments
ICAWEB418A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to build a basic website that is consistent with design and technical requirements, and business expectations.

Application of the Unit

This unit applies to web developers responsible for building websites.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Select and analyse website structure and development tools	1.1 Analyse business ***specification*** and select appropriate ***software*** 1.2 Identify technical needs for the website and select appropriate ***software tools*** 1.3 Identify site structure and navigation flow and demonstrate understanding of functionality 1.4 Review design ***documentation*** and integrate design work with site structure and navigation, according to ***web development standards***
2. Begin site construction	2.1 Take action to ensure ***user*** input during website construction 2.2 Validate existing information and basic content when incorporating data on website 2.3 Apply consistent design specifications to all aspects of the website 2.4 Gather feedback from user on web design, content, accessibility and structure, using appropriate feedback mechanism
3. Complete and validate website construction and content	3.1 Undertake an evaluation of the website against technical requirements and design specification 3.2 Test each function and process of the website 3.3 Conduct navigation tests and hypertext markup language (HTML) compliance with website standards 3.4 Stress test the website to meet design criteria and user load 3.5 Record testing results to ensure website meets user requirements 3.6 Obtain sign-off and approval of user

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- analytical skills to:
  - analyse business specification and select appropriate software
  - debug and handle errors
  - troubleshoot basic web links and HTML code errors
- communication skills to liaise with user
- literacy skills to review design documentation and record testing results
- technical skills to:
  - debug and handle errors
  - develop code in HTML
  - identify technical needs and site structure for the website
  - read design specifications and guidelines
  - use appropriate development software and tools.

Required knowledge

- basic knowledge of:
  - design principles
  - issues around accessibility and equity principles when building for diverse users
- detailed knowledge of:
  - appropriate software and tools that meet required technical specifications
  - standard generalised markup language (SGML) and the associated standards
  - website design
  - web-specific technical attributes.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • build a basic website to website specifications • undertake and audit against the business requirements and design needs prior to task completion and sign-off.

© Commonwealth of Australia, 2025 Future Skills Organisation

Context of and specific resources for assessment	Assessment must ensure access to: • basic website specifications and guidelines • website development software and tools • internet server • organisational and industry standards • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of website design and web-specific technical attributes
	• evaluation of candidate's:
	  • code generation and the code results
	  • completed website
	• direct observation of candidate creating website
	• review of candidate's created website and its fulfilment of requirements.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

Specification may include:	• current system functionality • technical requirements • user problem statement.
Software may include:	• Bluefish • commercial software applications • Dreamweaver • Fireworks • Golive • NetObjects Fusion • Notepad • text editors, such as Word pad.
Software tools may include:	• FrontPage • FTP programs • HotDog • Macromedia.
Documentation may follow:	• audit trails • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • naming standards • project management templates • report writing protocols • version control.
Web development standards may include:	• Authoring Tool Accessibility Guidelines (ATAG) • Web Content Accessibility Guidelines (WCAG).
User may include:	• department within the organisation • person within a department • third party.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB419A Develop guidelines for uploading information to a website

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to support the effective operation of a website by establishing content upload guidelines and procedures in the context of site policies.

Application of the Unit

This unit applies to individuals working in the web area who are required to ensure that a website remains operational.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Develop site policies	1.1 Develop and disseminate policies on acceptable usage, security, privacy and copyright issues based on technical security and privacy ***requirements***
	1.2 Develop and disseminate roles and responsibilities for updating and loading ***content*** and removing redundant information
	1.3 Document and disseminate information about the nature of content able to be updated and loaded
	1.4 Establish upload ***documentation*** and disseminate the processes and procedures for update, loading or removal of content on the site
	1.5 Implement automatic and routine updating and archiving procedures
2. Establish updating and loading procedures	2.1 Allocate and make available to contributors directory space to update and load new site content
	2.2 Identify and make available for use authoring guides and resources based on cascading style sheets (CSS) and business style guides
	2.3 Develop and make available new content templates to be applied by authors for use based on CSS parameters
	2.4 Allocate and monitor ***server*** permissions
	2.5 Identify preferred ***file transfer protocol (FTP) client*** based on best fit with technical environment and make available for use
	2.6 Customise FTP client to meet requirements
	2.7 Identify and develop authoring support tools, such as help files and links
	2.8 Disseminate authoring support tools, such as help files and links as necessary
3. Document guidelines	3.1 Develop documentation for loading information, taking into consideration security and privacy
	3.2 Document and make available links to recommended support

© Commonwealth of Australia, 2025 Future Skills Organisation

	tools 3.3 Automate ***details*** of recent updates and loading of information, and document on the site

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise and negotiate with colleagues and clients
- literacy skills to:
  - create procedures
  - interpret legislative and standards requirements
  - interpret organisational policy and requirements
- planning and organisational skills to:
  - allocate roles and responsibilities
  - develop guidelines for uploading website content
  - meet organisational and other requirements for uploading site content
- research skills to locate and evaluate available products and services
- technical skills to:
  - analyse websites
  - archive information
  - locate and use authoring guides
  - maintain and administer a website
  - publish on a website
  - transfer files
  - undertake directory maintenance
  - use CSS and content templates
  - use FTP to move data or other files, such as help files or links
  - use website design software
  - write policy.

Required knowledge

- copyright and intellectual property issues
- information architecture

© Commonwealth of Australia, 2025 Future Skills Organisation

- internet protocols
- procedures for disseminating and documenting technical specifications
- website architecture and business process design and how ebusiness sites fit into corporate strategy.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• develop procedures for uploading and removing website content that:
	  • reflects the strategic intent of the site while maintaining site security and privacy standards
	  • adheres to quality standards for the updating process and data
	  • carries out updates in a secure and convenient manner
	• research and recommend current industry products and services.

Context of and specific resources for assessment	Assessment must ensure access to: • servers • ebusiness website • FTP software • organisational documentation, requirements and guidelines • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate identifying, analysing and evaluating procedures and tools from a variety of sources, such as authoring tools and updating procedures • verbal or written questioning to assess candidate's knowledge of major elements of website design • review of guidelines developed by candidate for uploading content.
Guidance information	Holistic assessment with other units relevant to the industry sector,

© Commonwealth of Australia, 2025 Future Skills Organisation

for assessment	workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Requirements may include:	• application • business • network • people in the organisation • system • advising users of old data being archived and new content that has been posted when updating, loading and removing redundant content.
Content may include information and interactive features, such as:	• background articles • company information • copyright and disclaimer notices • customer only information • customer-specific information • error messages • feedback mechanisms • forms • frequently asked questions • hyperlink titles • instructions • product information • ratings, rankings, testimonials and quotes from reviews

© Commonwealth of Australia, 2025 Future Skills Organisation

	• reference pages • site map • what's new.
Documentation may follow:	• audit trails • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • naming standards • project-management templates • report writing principles • version control.
Server may include:	• application and web servers • BEA Weblogic servers • email servers • file and print servers • firewall servers • FTP servers • IBM VisualAge and WebSphere • Novell Directory Services (NDS) servers • proxy or cache servers.
File transfer protocol client may include:	• AxY FTP for Windows, Linux and Unix • cftp for Unix • Curl for Unix supports FTP, HTTP, and Telnet • gFTP with GUI for Unix supports FTP, HTTP and SSH • lftp command line FTP for Solaris, IRIX, HP-UX, digital Unix and Linux • Lukemftp command-line FTP supports FTP and HTTP URLs • NcFTP client command-line FTP and HTTP URLs for Solaris, FreeBSD, AIX, Linux.
Details may include:	• author • location and title of new files • time of update.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB420A Write content for web pages

Modification History

Version	Comments
ICAWEB420A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to write concise and clear content for web pages on behalf of a client.

Application of the Unit

This unit applies to web developers who are required to develop the content material for web pages.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Prepare to develop content for site	1.1 Identify customer information needs with reference to audience, site functionality and ***client requirements***
	1.2 Confirm site purpose and functionality with reference to ***client*** specification
	1.3 Select content channels and format as part of client requirements
	1.4 Obtain templates and style guides
	1.5 Identify content and analyse with reference to audience needs, maintenance requirements, information architecture, and site design and functionality
	1.6 Negotiate alterations to site design, as required by the content and client requirements
2. Write site content	2.1 Create content according to content and client requirements
	2.2 Establish that content is easily and conveniently accessible and visible and that information is clear, understandable and logical
	2.3 Edit content with reference to audience needs, site functionality, content and client requirements
3. Upload content	3.1 Log into server site using either administrative or anonymous file transfer protocol in preparation for upload
	3.2 Launch transfer ***file transfer protocol (FTP) client*** and navigate to destination directory, either graphically or by using a command line interface
	3.3 Store and order files according to logical design and user needs, using accepted file extension scheme
	3.4 Demonstrate operation in closed contention mode

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required skills

- communication skills to liaise and negotiate with clients and colleagues
- literacy skills to:
  - apply principles of plain English writing for a variety of cultures and people with special needs
  - identify content
  - write for the internet
- planning and organisational skills to:
  - analyse organisational and audience needs
  - determine appropriate content channels and formats
  - identify and understand diverse target audience needs
- technical skills to:
  - create content
  - manage and design the visual composition of the site
  - upload content.

Required knowledge

- content features, including clarity, ease of viewing and readability
- copyright and intellectual property legislation relating to web page content
- document design, web design and usability
- functions and features of:
  - micro-content elements, such as headings, highlighted words and link text
  - style guides, such as cascading style sheets (CSS)
- information architecture
- instructional design principles
- obligations of merchants and service providers
- organisational requirements relating to web page content
- privacy requirements relating to web page content.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for	Evidence of the ability to:

© Commonwealth of Australia, 2025 Future Skills Organisation

assessment and evidence required to demonstrate competency in this unit	• write in a manner that recognises cultural differences, diversity and people with special needs • demonstrate some knowledge of website content creation • develop and upload quality content for a website.
Context of and specific resources for assessment	Assessment must ensure access to: • copy edit resources • culturally reviewed content • style guides and templates • website specifications • word-processing and web development software • organisational documentation and industry requirements • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate loading and removing content on a site • verbal or written questioning to assess candidate's knowledge of site functionality and web design • review of web content developed by candidate.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client requirements may refer to:	• application • business • network • organisational policies • people in the organisation • style • system.
Client may include:	• employee • external organisation • individual • internal department.
File transfer protocol client may include:	• commercial software applications • in-house or customised software • organisation-specific software • packaged software.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB421A Ensure website content meets technical protocols and standards

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to prepare a range of content for a website in accordance with customer specifications while ensuring that content is compatible with appropriate technical and infrastructure protocols.

Application of the Unit

This unit applies to those working in the web development area who are required to populate websites according to standards and protocols.

Website design is important for a range contexts, including security, accessibility and legal, moral and ethical issues.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Confirm that content meets required standards	1.1 Take action to ensure that text-based ***content*** meets client needs and required style ***standards*** 1.2 Confirm multimedia-based content meets the business design standards or overall look of the website 1.3 Check that the mix between multimedia and text-based content provides the required level of interaction identified in the project brief 1.4 Test that content conforms to ***client*** expectations and technology
2. Confirm that technology supports content	2.1 Take action to ensure that the protocols required for multimedia content are available 2.2 Check and confirm that the bandwidth required to support the content is available 2.3 Check and confirm that ***servers*** support the content and levels of interaction 2.4 Check and confirm that plug-ins required to support content are made available 2.5 Test and confirm that compression techniques support delivery of content
3. Test content	3.1 Test and confirm that content displays as intended and according to business ***requirements*** in target ***browsers*** 3.2 Test with beta ***users*** that content encourages interaction and content interaction performs as intended and record results 3.3 Test and confirm that plug-ins download with a minimum of steps, complication and time 3.4 Test that interactive tools are available and provide the

© Commonwealth of Australia, 2025 Future Skills Organisation

	expected results

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with users on technical and content matters
- literacy skills to ensure text-based content meets client needs
- technical skills to:
  - act on protocols required for multimedia content
  - manage file transfer protocols
  - undertake site testing.

Required knowledge

- applicability of copyright, privacy and intellectual property to website development
- common software compression algorithms and associated technologies
- file transfer protocol (FTP) software protocols
- internet protocols
- server access security principles and procedures
- server operating systems
- streaming technologies.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • prepare and integrate a mix of content for a website • use correct streaming and compression techniques.

© Commonwealth of Australia, 2025 Future Skills Organisation

Context of and specific resources for assessment	Assessment must ensure access to: • documents detailing organisational style guide or policies • PC where software installation may be performed • compression and streaming software • internet connection • live network • network components, hardware and software • networked computers • server and workstation hardware and software • style guides and design brief • technical documentation and installation manuals • use of software currently used in industry • vendor hardware and software components • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of the technologies and associated protocols associated with website design • direct observation of candidate managing FTPs and site testing • review of the candidate's active website.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Content may include:	• animation • multimedia content, such as audio and video streaming • sound files • static graphics • text-based documents.
Standards may include:	• International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) • organisational standards • project standards, found on Standards Australia website.
Client may include:	• clubs • external organisations • individuals • internal departments • internal employees.
Servers may include:	• application and web servers • building environmental assessment (BEA) Weblogic servers • email servers • file and print servers • firewall servers • FTP servers • IBM VisualAge and WebSphere • Novell Directory Services (NDS) servers • proxy or cache servers.
Requirements may relate to:	• application • business • network • people in the organisation • system.

© Commonwealth of Australia, 2025 Future Skills Organisation

Browsers may include:	• Galleon • Internet Explorer • Konqueror • Lynx • Mozilla • Netscape Navigator • Opera • Phoenix.
Users may include:	• department within the organisation • person within a department • third party.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB422A Ensure website access and useability

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to ensure that clients with various degrees of disability and with various types of web browsers can access and use a website once a connection has been established.

Application of the Unit

This unit applies to frontline technical support personnel responsible for making sure that a website is available to users.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Design a site user test	1.1 Establish usability test methods 1.2 Identify critical business functions 1.3 Identify full range of ***users*** 1.4 Confirm user expectations through market analysis, business intelligence and customer feedback 1.5 Establish performance potential of the business from ***business requirements*** or other approved sources 1.6 Establish performance measurement and ***success criteria*** to measure actual performance against user expectations 1.7 Test site when ready and record outcomes
2. Conduct user test	2.1 Document process performance indicators and benchmarks and disseminate to sample group of users 2.2 Assemble a full representative range of users and preferred technologies to test site features and functions based on the ***business specification*** 2.3 Ensure maximum user satisfaction through ease of navigation controls and design 2.4 Ensure user and legal, accessibility, privacy and equity ***requirements*** and expectations are met
3. Evaluate user test	3.1 Collate site performance results and measure against performance indicators and benchmarks based on user expectations 3.2 Identify performance shortfalls and ensure acceptable performance solutions are developed according to business requirements 3.3 Establish an evaluation feedback mechanism and provide to users
4. Document results	4.1 Identify ***solutions*** to ***problems*** during the testing phase 4.2 Discuss problems with developers and ensure solutions are continuously refined 4.3 Ensure proposed solutions meet business requirements and user

© Commonwealth of Australia, 2025 Future Skills Organisation

	expectations 4.4 Document final solutions in line with ***organisational guidelines***, and distribute to ***appropriate person***

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with users and website developers
- literacy skills to:
  - document solutions in line with organisational guidelines
  - document test results
  - interpret organisational requirements
- planning and organisational skills to conduct market analysis
- technical skills to:
  - analyse a website
  - analyse the evaluation
  - design and implement technical tests
  - develop a website
  - evaluate tests and give feedback on the evaluation.

Required knowledge

- detailed knowledge of:
  - principles of accessibility and equity in the context of website development
  - technical performance measurement
  - user testing principles and techniques
  - website architecture
  - website privacy
  - website security
  - work load metrics
- overview knowledge of:
  - business process design
  - customer and business liaison
  - electronic commerce modelling language

© Commonwealth of Australia, 2025 Future Skills Organisation

- organisational policy and procedures relating to website functionality.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • research user needs • design a valid usability test • facilitate the test process and document the results • propose solutions to meet user needs and the current and future needs of the business.
Context of and specific resources for assessment	Assessment must ensure access to: • analysis software • ebusiness website • organisational policy and procedures • requirements documentation • site server • site server software • web servers • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate designing and conducting a site user test • review of candidate's documented test performance results measured against performance indicators and benchmarks • verbal or written questioning to assess candidate's knowledge of features of benchmark websites provided by candidate for review.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the

© Commonwealth of Australia, 2025 Future Skills Organisation

	work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Users may include:	• department within the organisation • person within a department • third party.
Business requirements may refer to:	• application • business • network • people in the organisational system.
Success criteria may include:	• cost implications • technical and logistical considerations • timeframe.
Business specification may include:	• current system functionality • technical requirements • user problem statement.
Requirements may refer to:	• application • business • network • people in the organisation • system • implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs.
Feedback mechanism may include:	• interviews • meetings • questionnaires

© Commonwealth of Australia, 2025 Future Skills Organisation

	• surveys.
Solutions may include:	• implementing a new system • new hardware and hardware upgrades • new software and software upgrades • user training.
Problems may refer to:	• application • network • people in the organisation • problems with the business • system.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access • virus risk.
Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB423A Ensure dynamic website security

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to ensure and maintain the security of a dynamic, commercial website.

Application of the Unit

This unit applies to web developers who are required to confirm the security of dynamic websites.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Undertake risk assessment	1.1 Identify functionality and features of the website and confirm with ***client***
	1.2 Identify ***security threats*** with reference to functionality of the site and organisational ***security policy***, ***legislation*** and ***standards***
	1.3 Complete a risk analysis to prioritise security threats and identify system vulnerabilities
	1.4 Identify resource and budget constraints and validate with client as required
	1.5 Source appropriate products, ***security services*** and ***equipment*** according to enterprise purchasing policies
2. Secure operating systems (OS)	2.1 Identify ***OS*** and cross-platform vulnerabilities
	2.2 Make appropriate scripting or configuration adjustments with reference to functionality of the site and the security policy
	2.3 Identify and rectify weaknesses specific to the OS
3. Secure site server	3.1 Configure the web server securely with reference to required functionality and the security policy
	3.2 Review and analyse server-side scripting with reference to required functionality and the security policy
	3.3 Install ***firewalls*** as required
	3.4 Establish access control permissions to ***server*** and ***database***
4. Secure data transactions	4.1 Identify data transactions with reference to functionality and features of website
	4.2 Identify and apply channel protocols related to requirements
	4.3 Install and configure payment systems
5. Monitor and document security framework	5.1 Develop a program of selective independent audits and penetration tests
	5.2 Determine performance benchmarks
	5.3 Implement audit and test programs, and record, analyse and report results

© Commonwealth of Australia, 2025 Future Skills Organisation

	5.4 Make security framework changes based on test results 5.5 Develop the site-security plan with reference to security policy and requirements 5.6 Develop and distribute related policy and procedures to client

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business-related matters
- literacy skills to:
  - collate, analyse and assess importance and relevance of product information
  - summarise and document information
  - write procedures
- numeracy skills to take test measurements, interpret results and evaluate performance
- planning and organisational skills to:
  - develop enterprise policy and procedures
  - plan, prioritise and monitor own work
- research skills to interrogate vendor databases and websites
- technical skills to:
  - configure a web server
  - identify key sources of information
  - see conflicts and integration capabilities between diverse equipment
  - understand specification sheets
  - use auditing and penetration testing techniques.

Required knowledge

- Australian Computer Society Code of Ethics
- client business domain, structure, function and organisation, including organisational issues surrounding security
- copyright and intellectual property as related to website information
- commonwealth Privacy Act 2000
- current industry-accepted hardware and software products
- desktop applications and OS as required

© Commonwealth of Australia, 2025 Future Skills Organisation

- technical knowledge of functions and features of:
  - automated intrusion detection software
  - network address translation (NAT) related to securing internal IP addresses, buffer overruns and stack smashing with reference to operating system deficiencies
  - authentication and access control
  - common stored account payment systems
  - cryptography
  - CGI scripts
  - generic secure protocols
  - stored value payment systems
  - advantages and disadvantages of using the range of security features
  - protocol stack for internet communications
  - physical web server security, particularly remote host security threats.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify potential security threats to a website • develop strategies to secure a dynamic website • implement such strategies.
Context of and specific resources for assessment	Assessment must ensure access to: • dynamic website • security plan • user requirements • relevant legislation, standards and organisational requirements • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of: • client domain

© Commonwealth of Australia, 2025 Future Skills Organisation

	• website security techniques • current website security threats • review of candidate's documented: • risk assessment • performance benchmarks • evaluation of candidate's security framework.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• external organisation • individual • internal department • internal employee.
Security threats may include:	• denial of service and by-pass • eavesdropping • hackers • manipulation and impersonation • penetration • viruses using logging.
Security policy may include:	• audits and alerts • privacy • standards, including archival, backup and network

© Commonwealth of Australia, 2025 Future Skills Organisation

	• theft • viruses.
Legislation may include:	• copyright • liability statements • privacy legislation.
Standards may include:	• International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • organisational standards • project standards.
Security services may include:	• application proxies • authentication and access control • digital certificates • digital signatures • encryption • file access permissions • multi-platform directory services supporting relevant standards • network points and mainframes • packet filters • personnel security • screening routers • servers • secure hypertext transfer protocol (SHTTP) • single stage and dual stage firewalls • smart cards • secure socket layer (SSL) • stored account payment systems • stored value payment systems • support for generalised security services interfaces • trusted hardware and operating systems at selective desktops • trusted systems with C and B assurance levels • virtual private network (VPN) technology.
Equipment may include:	• hard drives • hubs • modems and other connectivity devices, including digital subscriber line (DSL) modems • monitors • other peripheral devices • personal computers (PCs) • personal digital assistants (PDAs) • printers • switches

© Commonwealth of Australia, 2025 Future Skills Organisation

	• workstations.
OS may include:	• Mac OS 8 or above • Linux 6.0 or above • Windows XP or above.
Firewalls may include:	• hardware appliances • individual PC solution; varying functionality, including network address translator (NAT) and IP masquerading, routing to specific machines • proxy servers.
Server may include:	• application or web servers • BEA Weblogic servers • email servers • file and print servers • file transfer protocol (FTP) servers • firewall servers • IBM VisualAge and WebSphere • Novell Directory Services (NDS) servers • proxy or cache servers.
Database may include:	• commercial off-the-shelf (COTS) database packages • object-relational databases • proprietary databases • relational databases.
Requirements may refer to:	• application • business • network • people in the organisation • system.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB424A Evaluate and select a web hosting service

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to evaluate and select an appropriate hosting service for current and future business needs.

Application of the Unit

This unit applies to information technology (IT) personnel who take responsibility for comparing and evaluating internet service provider (ISP) services.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Select ISP	1.1 Review comparable ***characteristics*** of a range of hosting services 1.2 Review client usage and ensure that email and mailing list services are flexible enough to meet current and future business needs 1.3 Review support service standards to ensure they meet business needs 1.4 Ensure ISP hosting service has sufficient data capacity to cover partial outages 1.5 Determine availability of ***security technologies*** 1.6 Determine availability of ***scripting languages*** 1.7 Evaluate optional ***server applications*** for advanced web business functions 1.8 Confirm client selection criteria and select ISP hosting service that best matches the criteria
2. Ensure guarantee of permanent online presence	2.1 Establish that web-hosting service has systems in place to monitor ***server*** performance and availability 2.2 Negotiate escalation procedures and performance standards with ISP 2.3 Establish that security and backup procedures are articulated and meet business needs
3. Ensure that web host meets technical requirements	3.1 Take action to ensure that ***operating system*** supports the preferred business development software, applications, extensions and ***databases*** 3.2 Establish that web-host servers support dynamic websites using the preferred business technologies 3.3 Establish that web host provides current and future disk space requirements 3.4 Establish that site-analysis reports are available and flexible enough to meet business needs 3.5 Establish that security systems and payment technologies meet business and customer expectations and requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

4. Benchmark performance and test against specified criteria	4.1 Test performance of the ISP during on and off peak times and record outcomes 4.2 Establish that email and mailing services have backup procedures in place and are protected from damage, erasure or unwanted damage 4.3 Take action to ensure support services perform according to business needs

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - determine appropriate pricing and services plan for the business
  - evaluate and compare web-hosting services
- communications skills to:
  - establish client requirements
  - negotiate escalation procedures and performance standards with ISP
- numeracy skills to assess pricing plans
- planning skills to identify future business needs
- technical skills to assess security systems and technical requirements.

Required knowledge

- different web hosting service provision options and their scalability
- internet security issues
- operating systems used by ISPs
- performance expectations from customers and end users
- server technologies
- web hosting services and performance benchmarks.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• assess client needs and select ISP that meets the current and future needs of the business
	• evaluate web hosting service:
	  • ensure price meets client's budgetary requirements
	  • ensure security systems and technical requirements of the business are met
	• monitor the performance of the ISP during on and off peak times.

Context of and specific resources for assessment	Assessment must ensure access to: • hosting plans, prices and service agreements • use of current technology underpinning the ISP and services offered • business plan outlining future directions for the business • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of candidate:
	  • evaluating web-hosting services
	  • benchmarking and testing ISP
	• verbal or written questioning to assess candidate's knowledge of:
	  • user requirements
	  • criteria for selecting an ISP
	• review of reports prepared by candidate showing the results of ISP testing.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support.

© Commonwealth of Australia, 2025 Future Skills Organisation

	In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Characteristics may include:	• data transfer
	• functionality
	• hosting plans, such as:
	  • common gateway interface (CGI) access
	  • colocation of servers
	  • dedicated servers
	  • disk storage
	  • ebusiness hosting
	  • post office protocol (POP) accounts
	  • scripts
	• level of service
	• pricing plans
	• web-hosting facilities.

Security technologies may include:	• payment gateways • public key infrastructure (PKI) • secure socket layer (SSL).
Scripting languages may include:	• Perl • PHP and Python • VB.NET • JavaScript • VBScript.
Server applications may include:	• database and data warehousing • directory services • file sharing • line-of-business applications • management • messaging

© Commonwealth of Australia, 2025 Future Skills Organisation

	• network and remote access • printer sharing • terminal services • web services.
Server may include:	• Apache HTTP server • email servers • FTP servers • IBM VisualAge and WebSphere • iPlanet-Enterprise • Lotus Domino • Microsoft Internet Information Server • NetDynamics • Netscape Enterprise server, Netscape-FastTrack, Netscape-Commerce • Sun Microsystems iPlanet web server • Sun Microsystems Java web server.
Operating system may include:	• Mac • Linux • Windows.
Databases may include:	• Microsoft SQL (MS SQL) server • MySQL • Oracle • Postgre Structured Query Language (Postgre SQL) • SQL.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB425A Apply structured query language to extract and manipulate data

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to produce structured query language (SQL) statements to work with server-side scripts enabling web designers to interact with web server databases.

Application of the Unit

This unit applies to web designers responsible for creating server-side interaction with dynamic web pages using SQL as a means of communicating with the database.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Identify SQL requirements from the specification documentation	1.1 Determine information to be used from ***database*** 1.2 Identify tables that hold this information 1.3 Identify primary keys in these tables 1.4 Identify relationships between these tables, including foreign keys
2. Create a relational database	2.1 Create tables in a database using ***SQL statements*** 2.2 Identify primary and foreign keys for database table 2.3 ***Manipulate data*** in a database using SQL statements 2.4 Query the database using SQL statements 2.5 Write SQL statements to retrieve information from database
3. Test SQL results	3.1 Construct test data to test SQL statements 3.2 Construct expected results to verify SQL statements 3.3 Verify result of the constructed SQL statements against expected results

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to determine the elements of the SQL statement
- communication skills to:
  - document the code
  - understand the client requirements
- learning skills to research encountered problems independently
- literacy skills to create an SQL statement using syntax

© Commonwealth of Australia, 2025 Future Skills Organisation

- planning and organisational skills to write an SQL statement that is cross-browser compatible
- problem-solving skills to translate the required outcomes from the database into SQL statements
- technical skills to:
  - apply programming concepts
  - integrate SQL statements into a variety of server-side languages.

Required knowledge

- features and application of:
  - aggregate functions:
    - MIN
    - MAX
    - SUM
    - AVG
    - COUNT
    - COUNT(*)
  - clause:
    - GROUP BY
    - HAVING
    - ORDER BY
  - dates and times
  - SQL data types
  - numbers
  - text
  - SQL syntax:
    - SELECT
    - FROM
    - WHERE
    - LIKE
    - DISTINCT
    - CREATE
    - ALTER TABLE
    - INSERT INTO
    - UPDATE
    - DELETE
    - DROP
- combining condition and Boolean operators:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - IN and BETWEEN conditional operators
  - mathematical operators
- table joins.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to use SQL to: • create databases and tables • query one or more tables to provide required data • add, modify and delete records from tables • drop databases and tables.
Context of and specific resources for assessment	Assessment must ensure access to: • development environment • server access • database server • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of SQL statements and procedures • review of project-based SQL application prepared by candidate.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined

© Commonwealth of Australia, 2025 Future Skills Organisation

	with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Database may include:	• Access • Informix • Microsoft Structured Query Language (MS SQL) • MySQL • Oracle • Postgre • Sybase.
SQL statements may include:	• aggregate functions • conditions and Boolean operators • conditional operators • mathematical operators • table joins.
Manipulating data may include:	• creating tables and rows • deleting tables and rows • adding and altering data • retrieving data.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB429A Create a markup language document to specification

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design, create and save a markup language document to a given specification using a text editor rather than an authoring tool.

Application of the Unit

This unit applies to web designers and developers responsible for the creation of web pages using a markup language.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Analyse specifications and requirements	1.1 Determine uses and audience of the document 1.2 Determine appropriate ***markup language*** based on document uses and audience and current industry best practice 1.3 Determine document structure
2. Create document structure	2.1 Create and assign basic elements of the document, taking into account ***accessibility*** 2.2 Mark up sections of the document to describe the ***structure***
3. Incorporate web page components	3.1 Identify ***web page components*** 3.2 Evaluate suitable web page components 3.3 Include required web page components
4. Validate documents	4.1 Validate markup language document against specifications and record outcomes 4.2 Validate markup language document in different ***browsers*** for compatibility and record outcomes

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to determine uses, audience and document structure
- communication skills to liaise with end users
- initiative and enterprise skills to recommend design features
- literacy skills to:
  - follow documented instruction from a supplied guide

© Commonwealth of Australia, 2025 Future Skills Organisation

  - interpret workplace instructions and other technical documents
  - keep up-to-date with latest industry guidelines
- problem-solving skills to use markup language and troubleshoot problems
- technical skills to use a markup language to create the required web page.

Required knowledge

- markup language and associated standards
- range of available browsers' web accessibility.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design, create and save a markup language document using a markup language without the automated generation of code.
Context of and specific resources for assessment	Assessment must ensure access to: • organisational style guide or policy • user requirements • text editor • range of browsers • internet to validate markup • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation web pages prepared by candidate using a text editor • evaluation of candidate's validated markup code results in commonly used browsers • validation of candidate's markup correctness against

© Commonwealth of Australia, 2025 Future Skills Organisation

	standards set by the World Wide Web Consortium (W3C).
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Markup language may include:	• dynamic hypertext markup language (DHTML) • hypertext markup language (HTML) • standard generalised markup language (SGML) • virtual reality modelling language (VRML) • eXtensible hypertext markup language (XHTML) • eXtensible markup language (XML).
Accessibility may be related to:	• browser software, user agent and versions • cultural awareness • ethnicity • physical impairments • remote locations.
Structure may include elements such as:	• headings • lists • paragraphs.
Web page components may include:	• flash movies • images • links

© Commonwealth of Australia, 2025 Future Skills Organisation

	• lists • tables.
Browsers may include:	• Firefox • Google chrome • Internet Explorer • Konqueror • Lynx • Mozilla • Opera • Safari.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB501A Build a dynamic website

Modification History

Version	Comments
ICAWEB501A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to analyse, design, build and test a dynamic website to meet technical requirements.

Application of the Unit

This unit applies to web developers responsible for the analysis, design and implementation and testing of websites.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information*

© Commonwealth of Australia, 2025 Future Skills Organisation

	is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Define and analyse technical requirements	1.1 Identify business requirements and appropriate standards 1.2 Determine and ***document*** the purpose, expectations and functionality of the website 1.3 Analyse the user-interface design requirements, including user needs, design principles and operating systems
2. Produce software design specifications	2.1 Produce a hierarchy of the website showing navigation 2.2 Ensure content is logical and accessible to user 2.3 Produce ***prototype*** of the user interface 2.4 Determine and document the ***architectural requirements*** 2.5 Design ***data storage*** requirements
3. Develop website to the specified design	3.1 Create software ***components*** of the website 3.2 Test components of the website 3.3 Integrate components to produce the web application
4. Test web application	4.1 Test website against the requirements 4.2 Complete and document the ***design structure*** 4.3 Obtain client feedback and adjust web applications as appropriate

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

    - determine functional requirements
    - identify dynamic client and server-side requirements
- communication skills to liaise with the client
- initiative and enterprise skills to provide feedback and recommend the most appropriate technology solutions
- literacy skills to:
    - follow documented instruction from a supplied guide
    - interpret workplace instructions and other technical documents
    - keep up-to-date with latest industry guidelines
- planning and organisational skills to plan and organise the most appropriate solution
- problem-solving skills to:
    - identify and rectify website functional problems
    - identify and resolve bugs in the code created
    - select the most efficient and effective algorithms
- research skills to:
    - find solutions to encountered problems
    - keep up-to-date with industry trends
- technical skills to:
    - apply web programming concepts
    - create HTML and XHTML pages
    - create software in a variety of languages, including client and server-side languages
    - create aesthetically pleasing web pages
    - understand hypertext transfer protocol (HTTP).

Required knowledge

- features of internet technology
- principles of analysis and design
- programming control structures and object-oriented programming
- web programming concepts, including:
    - authentication and web security
    - HTTP
    - session management
    - stateless programming.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • analyse, design, implement and test a website to meet technical requirements • create efficient and effective code to meet technical requirements.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • development environment • server access • database server • browsers.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of documentation and code of an implemented and tested web application prepared by candidate • evaluation of candidate's completed website.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Document may include:	• software requirement specifications • unified modelling language (UML) diagrams • wireframes.
Prototype may be in the form of:	• images of sample web pages • non-functional static website to demonstrate what the site will look like.
Architectural requirements may be in reference to:	• classes required to build the application • configuration • operating system • software.
Data storage may include:	• database • files, such as eXtensible markup language (XML).
Components may include:	• classes required to build the application • flash movies • JavaScript • jQuery • shopping cart • web user controls.
Design structure may include:	• cascading style sheet (CSS) • eXtensible hypertext markup language (XHTML).

Unit Sector(s)

Web

Custom Content Section

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB502A Create dynamic web pages

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to build active or dynamic web pages.

Application of the Unit

This unit applies to web developers responsible for creating dynamic pages to provide interaction between the user and the website.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify client and server-side dynamic content	1.1 Review technical requirements 1.2 Identify sections of the website requiring client-side dynamic content 1.3 Identify sections of the website requiring server-side dynamic content 1.4 Select appropriate ***languages*** and technology to meet the requirements
2. Create dynamic content	2.1 Create pages using appropriate languages 2.2 Ensure code conforms to current industry best practice and standards
3. Test dynamic pages	3.1 Test website in a variety of ***browsers*** 3.2 Ensure required dynamic content functions according to specified requirements

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - determine functional requirements
  - identify dynamic client and server-side requirements
- communication skills to liaise with the client
- initiative and enterprise skills to provide feedback and recommend the most appropriate technology solutions
- literacy skills to:
  - follow documented instructions
  - interpret workplace instructions and other technical documents
  - keep up-to-date with latest industry guidelines

© Commonwealth of Australia, 2025 Future Skills Organisation

- problem-solving skills to:
  - identify and rectify website functional problems
  - identify and resolve bugs in the created code
  - select the most efficient and effective algorithms
- research skills to:
  - find solutions to encountered problems
  - keep up-to-date with industry trends
- technical skills to:
  - apply basic hypertext transfer protocol (HTTP)
  - apply web programming concepts
  - create hypertext markup language (HTML) and eXtensible hypertext markup language (XHTML) pages
  - create software in a variety of languages, including client and server-side languages
  - create aesthetically pleasing web pages.

Required knowledge

- web-programming concepts, including:
  - authentication and web security
  - HTTP
  - session management
  - stateless programming
- detailed knowledge of:
  - internet technology
  - programming control structures
  - object-oriented programming.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • produce dynamic web pages that include both client and server-side dynamic content • create efficient and effective code to meet technical requirements.

© Commonwealth of Australia, 2025 Future Skills Organisation

Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • development environment • server access • database server • browsers.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of dynamic web applications that include both client and server-side coding • written or verbal questioning to assess knowledge and skills of internet technology.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Languages may include:	• active server pages (ASP) • active server pages .net (ASP.NET) • Coldfusion • JavaScript • Perl

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Perl hypertext preprocessor (PHP) • VBScript.
Browsers may include:	• Firefox • Google Chrome • Internet Explorer • Konqueror • Lynx • Mozilla • Netscape Navigator • Opera • Safari.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB503A Create web-based programs

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop web applications.

Application of the Unit

This unit applies to web developers responsible for implementing the code required to create web applications.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Explain the hypertext transfer protocol (HTTP) and its implications when developing web applications	1.1 Describe the HTTP 1.2 Describe the limitations it has when developing web applications 1.3 Identify the advantages of HTTP in developing web applications
2. Implement session management	2.1 Create ***code*** to handle ***session management*** 2.2 Create code that retains the user's interaction with the website 2.3 Review and debug code
3. Develop applications in a stateless environment	3.1 Develop web applications that keep track of data between browser requests 3.2 Document web application with particular reference to its management of statelessness

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - determine functional requirements
  - identify dynamic client and server-side requirements
- communication skills to liaise with the client
- initiative and enterprise skills to provide feedback and recommend the most appropriate technology solutions
- literacy skills to:
  - follow documented instruction from a supplied guide
  - interpret workplace instructions and other technical documents
  - review latest industry guidelines

© Commonwealth of Australia, 2025 Future Skills Organisation

- planning and organisational skills to plan and organise the most appropriate solution
- problem-solving skills to:
  - identify and rectify website functional problems
  - identify and resolve bugs in the code created
  - select the most efficient and effective algorithms
- research skills to:
  - keep up-to-date with industry trends
  - find solutions to encountered problems
- technical skills to:
  - apply web programming concepts
  - create hypertext markup language (HTML) and eXtensible hypertext markup language (XHTML) pages
  - create software in a variety of languages, including client and server-side languages
  - create aesthetically pleasing web pages.

Required knowledge

- internet technology
- principles of web analysis and design
- programming control structures and object-oriented programming
- web programming concepts:
  - authentication and web security
  - HTTP
  - session management
  - stateless programming.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • obtain requirements • develop web applications that keep track of user data between browser requests • document web applications.

© Commonwealth of Australia, 2025 Future Skills Organisation

Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • development environment • server access • database server • browsers.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to test candidate's knowledge of the HTTP, session management and stateless programming • evaluation of a web application that handles session management.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Code may include:	• active server pages (ASP) • active server pages. net (ASP.NET) • Coldfusion • Java server pages (JSP) • Perl hypertext preprocessor (PHP)

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Ruby on Rails.
Session management may include:	• authentication • shopping carts.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB504A Build a document using eXtensible markup language

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design and build a valid eXtensible markup language (XML) document to suit a specified requirement.

Application of the Unit

This unit applies to those in a development role in a variety of information technology areas who are required to use XML to build documents.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Plan process	1.1 Review specified requirements 1.2 Produce a plan to analyse the specified requirements 1.3 Plan the design and build of valid ***XML*** documentation allowing for iterative development
2. Analyse specified requirements	2.1 Determine and document the purpose, expectations and functionality of the XML document 2.2 Determine the ***hardware***, ***software*** and ***tools*** needed to design the document 2.3 Determine the requirements for the document 2.4 Determine appropriate design methodologies, including using software engineering life cycle
3. Design and develop document	3.1 Decide on document type definition (DTD), if required 3.2 Define required entities, elements and their attributes 3.3 Produce the document following appropriate ***standards*** and declaring DTD, required entities, elements and their attributes, including associated graphics or sounds
4. Test document	4.1 Test document off-line against specifications and confirm document's validity 4.2 Test, where appropriate, the document online against specifications and with a representative audience 4.3 Analyse test results and confirm document’s validity

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- analytical skills to analyse document requirements and data environment
- communication skills to liaise with clients
- literacy skills to read required documents
- problem-solving skills to address issues in design
- technical skills to:
  - collect and disseminate data
  - use XML during development.

Required knowledge

- Copyleft and Free Software Foundation
- copyright and intellectual property
- document object model
- introductory knowledge of business process and information modelling
- meta-modelling
- standard generalised markup language (SGML)
- United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) modelling methodology
- unified-modelling language
- web technologies
- XLT and XSLT.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • respond to requirements • produce a valid XML document • test the XML document • evaluate the test results.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • client or business requirements • XML parser or IE5

© Commonwealth of Australia, 2025 Future Skills Organisation

	• XML authoring tool.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of candidate's XML document • review of candidate's test results and test analysis • verbal or written questioning to determine candidate's knowledge of requirements, XML and testing.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

XML may include:	• electronic business using eXtensible markup language (ebXML).
Hardware may include:	• modems and other connectivity devices, such as asymmetric digital subscriber line (ADSL) modems • networks • personal computers • remote sites • servers • workstations.
Software may include:	• commercial software applications • in-house or customised software

© Commonwealth of Australia, 2025 Future Skills Organisation

	• organisation-specific software • packaged software.
Tools may include:	• Easy XML 1.0 • eXml Editor • QuickSilver 1.0 XML Suite • XML Bean Suite • XML Pro 2.0.
Standards may include:	• W3C DOM specification, XML 1.0 (current edition), W3C XML instances, W3C XML DTDs, W3C XML DTDs, and ISO SGML meta-DTDs • ebXML repository and registry specification • ebXML requirements specification version 1.0 • ebXML technical architecture specification • ebXML transport, routing and packaging specification • ISO 10646 Character encoding • ISO 11179/3 Metadata repository • ISO 8601:2000 Date/time/number data typing • ISO/IEC 14662 Open-Edi Reference Model • OASIS registry/repository technical specification • RFC 2119 Keywords for use in RFCs to indicate requirement levels • UN/CEFACT modelling methodology (UMM) • W3C XML v1.0 second edition specification.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB505A Develop complex web page layouts

Modification History

Version	Comments
ICAWEB505A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design and create a web page layout to an advanced level.

Application of the Unit

This unit applies to web designers and web developers who are involved in the layout and appearance of web pages.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information*

© Commonwealth of Australia, 2025 Future Skills Organisation

	is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Build a web page according to the design prototype	1.1 Identify main sections of the web page layout 1.2 Create web page structure 1.3 Position web page elements to achieve design specification
2. Ensure web page is validated and tested in major browsers	2.1 Validate cascading style sheet (CSS) against ***industry standards*** 2.2 Correct ***browser*** incompatibilities using the most robust techniques 2.3 Test website in various browsers
3. Ensure website is accessible	3.1 Check website is ***accessible*** to ensure it can be viewed 3.2 Check website sections to ensure accessibility 3.3 Check web page elements to ensure accessibility

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to identify appropriate CSS rules to be applied to obtain desired result
- communication skills to liaise with end users
- initiative and enterprise skills to recommend design features
- literacy skills to:
  - follow documented instruction from a supplied guide
  - interpret workplace instructions and other technical documents
  - keep up-to-date with latest industry guidelines
- numeracy skills to:
  - work with document element dimensions
  - work with relative and absolute measurements

© Commonwealth of Australia, 2025 Future Skills Organisation

- planning and organisational skills to:
  - create the CSS in allocated timeframe
  - plan the layout of the web page
- problem-solving skills to:
  - create web pages that will function in a variety of screen resolutions
  - resolve browser incompatibilities
- research skills to identify latest industry guidelines
- learning skills to keep up-to-date with industry guidelines and make recommendations
- technical skills to:
  - produce valid accessible web pages
  - use CSS in the most efficient and effective way.

Required knowledge

- overview knowledge of design principles
- detailed knowledge of:
  - hypertext markup language (HTML) and eXtensible hypertext markup language (XHTML)
  - CSS
  - hypertext transfer protocol (HTTP)
  - World Wide Web Consortium (W3C) standards
  - techniques to correct browser incompatibilities.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop a complex website layout • layout page elements to suit a variety of devices • test web pages in a variety of browsers • validate the pages against industry standards.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required

© Commonwealth of Australia, 2025 Future Skills Organisation

	• modified equipment for people with special needs • computer • aesthetic presentation brief • variety of browsers • internet access to validate web pages against W3C.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • evaluation of newly created or modified complex web page layouts • verbal or written questioning to assess candidate's knowledge and skills.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Industry standards may include:	• W3C • Web 2.0.
Browser may include:	• Firefox • Google Chrome • Internet Explorer

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Konqueror • Lynx • Mozilla • Netscape Navigator • Opera • Safari.
Accessible may relate to:	• enabling web pages to be used in text browsers • making sure web pages can be viewed in a variety of platforms, including mobile devices • making sure website content is accessible to people with visual impairment.

Unit Sector(s)

Web

Custom Content Section

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB506A Develop complex cascading style sheets

Modification History

Version	Comments
ICAWEB506A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop complex cascading style sheets (CSS) that are attached to a mark-up language document.

Application of the Unit

This unit applies to web designers and web developers who are involved in the layout and appearance of web pages.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information*

© Commonwealth of Australia, 2025 Future Skills Organisation

	is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Determine requirements and develop CSS	1.1 Obtain user requirements for style 1.2 Develop CSS to match user requirements
2. Use advanced CSS techniques to create web pages	2.1 Style elements of a web page using ***advanced CSS*** techniques 2.2 Position document elements using advanced CSS 2.3 Apply style sheets to multiple pages in a website
3. Ensure web page and CSS are validated and tested in all major browsers	3.1 Validate CSS against ***industry standards*** 3.2 Test website in various ***browsers*** 3.3 Rectify browser differences to ensure website is accessible

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to identify appropriate CSS rules to be applied to obtain desired result
- communication skills to liaise with end users
- initiative and enterprise skills to recommend design features
- literacy skills to:
  - follow documented instruction from a supplied guide
  - interpret workplace instructions and other technical documents
- numeracy skills to work with:
  - document element dimensions
  - relative and absolute measurements
- planning and organisational skills to:
  - create the CSS in allocated timeframe
  - plan the layout of the web page

© Commonwealth of Australia, 2025 Future Skills Organisation

- problem-solving skills to:
  - create web pages that will function in a variety of screen resolutions
  - resolve browser incompatibilities
- research skills to identify latest industry guidelines and make recommendations
- learning and literacy skills to keep up-to-date with industry guidelines
- technical skills to:
  - produce valid accessible web pages
  - use CSS in the most efficient and effective way.

Required knowledge

- overview knowledge of design principles
- detailed knowledge of:
  - hypertext markup language (HTML) and eXtensible hypertext markup language (XHTML)
  - CSS
  - hypertext transfer protocol (HTTP) protocol
  - World Wide Web Consortium (W3C) standards
  - techniques to correct browser incompatibilities.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop a complex website styled and formatted using CSS • create a complex page layout using CSS • test web pages in a variety of browsers • validate the CSS against industry standards.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • computer • aesthetic presentation brief

© Commonwealth of Australia, 2025 Future Skills Organisation

	• HTML documents to have CSS applied to them • internet access to validate the CSS against the W3C • variety of browsers.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of CSS rules and how they affect the document styling and layout • evaluation of newly created or modified web pages styled using CSS.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Advanced CSS may relate to:	• application of browser-specific rules • application of layering to achieve desired design • application of transparency • attribute selectors • fluid page layouts • new release of CSS rules.
Industry standards	• W3C

© Commonwealth of Australia, 2025 Future Skills Organisation

may include:	• Web 2.0.
Browsers may include:	• Firefox • Google Chrome • Internet Explorer • Konqueror • Lynx • Mozilla • Netscape Navigator • Opera • Safari.

Unit Sector(s)

Web

Custom Content Section

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB507A Customise a complex IT content management system

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to customise an IT content management system (CMS).

Application of the Unit

This unit applies to web developers responsible for integrating and customising a content management system into a website.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
unit of competency.	*knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Analyse specifications and requirements	1.1 Determine the required functionality of the website as per client requirements 1.2 Determine the appropriate ***server-side language*** and ***hosting environment*** 1.3 Determine additional functionality that the CMS will not be able to handle 'out of the box' 1.4 Determine how client's additional functionality is required to function 1.5 Determine any pre-existing restraints that need to be considered when developing the website solution
2. Develop customisation	2.1 Plan and outline requirements of the additional functionality 2.2 Create and develop plug-in, extension or new functionality to the CMS to meet client requirements
3. Create CMS powered website	3.1 Install and configure chosen ***content management system*** 3.2 Install and integrate new CMS functionality
4. Validate and evaluate	4.1 Validate final website markup against current website standards 4.2 Validate CMS performance in different ***browsers***, checking compatibility and core CMS functionality 4.3 Validate the developed additional functionality against client requirements

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

- analytical skills to determine uses, audience and document structure and requirements
- communication skills to liaise with end users
- initiative and enterprise skills to recommend design features
- literacy skills to:
  - follow documented instruction from a supplied guide and online documentation
  - interpret workplace instructions and other technical documents
  - keep up-to-date with latest industry guidelines
- problem-solving skills to:
  - plan and develop new functionality to a core CMS package
  - use server-side and markup languages to troubleshoot problems and client requirements
- technical skills to:
  - configure or manipulate a website hosting environment
  - use a markup language to create the required web page
  - use server-side programming language to code functionality.

Required knowledge

- content management systems
- markup language and associated standards
- server functionality
- server-side language and security techniques
- web accessibility.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • create a CMS-powered website using an open source with additional custom functionality that is not available ‘out of the box’ that meets client requirements.
Context of and specific resources for assessment	Assessment must ensure access to: • client requirements and content • text editor

© Commonwealth of Australia, 2025 Future Skills Organisation

	• range of browsers • internet for research, validation of code and programming documentation • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of:
	  • developed CMS (front and backend) in commonly used browsers to perform basic content manipulation tasks
	  • content management additional functionality against current programming and security standards
	  • ability to fulfil client requirements by programming custom functionality into the pre-existing core CMS
	• validation of front-end code markup correctness against standards set by the World Wide Web Consortium (W3C).

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Server side language may include:	• ASP.NET • Java • PHP

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Ruby on Rails.
Hosting environment may include:	• Linux • Windows.
Content management system may include:	• Drupal • Expression Engine • Joomla • Mambo • Open CMS • PHP Nuke • Radiant CMS • Silverstripe • Typo • Wordpress.
Browsers may include:	• Firefox • Google Chrome • Internet Explorer • Konqueror • Lynx • Mozilla • Opera • Safari.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB508A Develop website information architecture

Modification History

Version	Comments
ICAWEB508A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop information architecture for a complex website that meets current and future business requirements.

Application of the Unit

This unit applies to web developers and designers responsible for the navigation and hierarchy of a website.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

	italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify content needs	1.1 Identify strategic intent of website from business ***requirements*** and ***client*** expectations 1.2 Develop information requirements based on the website intent, intended audiences, types of client interactions, and long and short-term goals for the site 1.3 Identify required information and group into business schemes related to the business structure 1.4 Determine ***content*** requirements for each process 1.5 Identify any ***security*** access requirements
2. Plan content structure	2.1 Cluster and document information in related topics 2.2 Develop a hierarchy and site map of information 2.3 Check data to confirm sequence of hierarchy 2.4 Ensure that labels are clear, consistent, coherent and relatively intuitive for client to access
3. Develop navigation system	3.1 Build navigation system for overall website based on business requirements 3.2 Ensure ease of navigation on the site and provide different ways of searching, while providing feedback to client 3.3 Ensure navigation is ***accessible***
4. Test and sign off	4.1 Construct prototype of information architecture design 4.2 Arrange for a subset of the client to test the prototype for usability to determine if architecture meets client expectations 4.3 Ensure site content will format in the business and client technical environment 4.4 Adjust architecture based on client feedback 4.5 Sign off prototype to confirm current and future

© Commonwealth of Australia, 2025 Future Skills Organisation

	business requirements are met

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with client
- literacy skills to:
  - document technical specifications
  - interpret client business requirements
- planning and organisational skills to design website navigation
- problem-solving skills to resolve technical problems
- technical skills to:
  - conduct user analysis
  - integrate online processes
  - undertake website analysis
  - use site design software.

Required knowledge

- client and business liaison and understanding how ebusiness sites fit into corporate strategy
- CSS
- hypertext markup language (HTML) and eXtensible hypertext markup language (XHTML)
- hypertext transfer protocol (HTTP)
- implications of technology connectivity and documentation of technical specifications
- World Wide Web Consortium (W3C) standards
- website architecture and business process design and linkages between processes.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	

© Commonwealth of Australia, 2025 Future Skills Organisation

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop and design the information architecture of a complex website that meets current business requirements.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • web server • requirement specifications • integrated development environment (IDE) capable of creating web pages and server-side code • current web development technology.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of:
	  • a complex website to test the access path to all sections of the website
	  • a site map outlining the navigation hierarchy of a complex website.
	The assessments should be tested in a range of current browsers.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Requirements may relate to:	• application • business • network • people in the organisation • system.
Client may include:	• employees • external organisations • individuals • internal departments.
Content may include:	• background articles • copyright and disclaimer notices • customer-only information • customer-specific information • error messages • feedback mechanisms • forms • frequently asked questions (FAQs) • hyperlink titles • information and interactive features, such as product information • instructions • organisational information • ratings, rankings, testimonials and quotes from reviews • reference pages • site map • what's new.
Security may include:	• authentication requirements • protected pages.
Accessible may relate to ability of people:	• to access and navigate the website without the need to install additional plug-ins or software • with current browsers to access and navigate all sections of the website • with disabilities to browse and access all sections of the

© Commonwealth of Australia, 2025 Future Skills Organisation

	website.

Unit Sector(s)

Web

Custom Content Section

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB509A Use site server tools for transaction management

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use site server tools to build, host, track and monitor transactions on an ebusiness site.

Application of the Unit

This unit applies to those working in a web environment who are responsible for using site server tools to maintain the integrity of an ebusiness site.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of*

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Confirm and document task requirements	1.1 Confirm ***task requirements***, features and functionality of site with ***client*** as required 1.2 Confirm ***platform*** or ***software*** related to business systems 1.3 Confirm ***integration requirements*** of site with client 1.4 Confirm standards relevant to the task and site functionality 1.5 Document current and proposed configuration 1.6 Document and validate client task requirements, performance criteria and scope of work with client 1.7 Confirm available resources and budget with client
2. Select tools	2.1 Identify relevant site ***server tools*** with reference to requirements 2.2 Review and evaluate tools with reference to task requirements and required site functionality 2.3 Load and configure server tools according to vendor guidelines and client requirements 2.4 Use server tools to test equipment
3. Use tools	3.1 Use server tools to maintain or update relevant functionality 3.2 Coordinate and implement ***procedures*** 3.3 Use server tools according to vendor guidelines to achieve relevant task requirements
4. Review server tools and task requirements	4.1 Monitor, analyse and evaluate organisational procedures 4.2 Review site server configuration related to client task requirements and make adjustments to configuration 4.3 Review server tools according to client task requirements 4.4 Use ***site-analysis software*** to validate server outcomes 4.5 Create and use reports and other documentation for record keeping and auditing

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to evaluate and select products to suit a given business profile
- communication skills to:
  - communicate with clients
  - convey and clarify complex information
- literacy skills to:
  - interpret technical documentation, equipment manuals and specifications
  - write reports and related documentation
- planning and organisational skills to:
  - plan approaches to technical problems and management requirements
  - prioritise and monitor own work
- problem-solving skills to solve operational problems as they arise
- technical skills to:
  - analyse and interpret technical aspects of implementation
  - analyse structured query language (SQL)
  - select appropriate site server tools to meet required specifications
  - use site-analysis software
  - use site server tools associated with relevant site server.

Required knowledge

- business site features related to choice of tools
- functions and features of tools relevant to:
  - firewalls and proxy servers as required
  - hypertext transfer protocol (HTTP) servers as required
  - search engines as required
- security measures as required by site functionality
- tools and products in relation to site construction
- role of protocols related to features and functionality
- site-building considerations in relation to new versus established business.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • select and use appropriate website server tools to maintain expected business performance and technical standards in an ebusiness environment.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • server hardware • site server tools currently used in industry • existing ebusiness website • business expectations brief • appropriate standards and current legislation.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of functions and features of site server tools • direct observation of candidate using site server tools to build, maintain and monitor transactions on an ebusiness site • review of reports and documentation prepared by candidate.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Task requirements may relate to:	• building • customer tracking and profiling • database connectivity • ensuring secure transactions on a business site • hosting • monitoring • payment and delivery systems.
Client may include:	• employees • external organisations • individuals • internal departments.
Platform may include:	• Berkeley Software Distribution (BSD) • Linux • Windows server's WebSphere.
Software may include:	• commercial software applications • in-house or customised software • organisation-specific software • packaged software.
Integration requirements may include:	• data synchronisation • database implementation • hosting services • migration • monitor transactions • site server tools.
Server tools may include:	• development • disaster recovery • disk management • firewalls • maintenance • network management • proxy servers • purchasing and payment • search engines

© Commonwealth of Australia, 2025 Future Skills Organisation

	• security • server benchmark • storage and backup • user management.
Procedures may include:	• check points and sign-offs with documented procedures and templates • dispute resolution and modification procedures • implementation of financial control mechanisms • communication with stakeholders • processes for determining size and cost.
Site-analysis software may include:	• AccessWatch • CyberSpyder • InContext WebAnalyzer • Linkbot Pro • WebCounter • WebTrends Log Analyzer.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB510A Analyse information and assign meta-tags

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to analyse material and assign meta-tags to ensure the accurate and consistent retrieval of information by users.

Application of the Unit

This unit applies to individuals in a range of information and communications technology (ICT) areas who are required to allocate appropriate meta-tags to information.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

Element	Performance Criteria
	and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify requirements for meta-tags	1.1 Identify scope and uses of material from previous and existing business and ***stakeholder*** requirements process 1.2 Determine appropriate type and structure of meta-tags, taking into account identified ***client*** needs, requirements and expectations 1.3 Identify and incorporate new or contemporary client requirements and expectations
2. Analyse material	2.1 Use analysis and description tools, standards, precedents and techniques that are appropriate, given the nature of the material 2.2 Ensure analysis of subject content of the material reflects expected client usage requirements 2.3 Clearly distinguish significant information from minor information 2.4 Ensure concepts derived from analysis of material are appropriate to the business requirements and intended use
3. Create meta-tags	3.1 Develop meta-tags using appropriate ***software*** 3.2 Ensure meta-tags represent concepts appropriately, depending on the overall purpose and intended use of the material 3.3 Ensure meta-tags conform to general conventions and business rules 3.4 Develop reference structure of descriptors, where required to display relationships to assist clients 3.5 Enhance meta-tags to meet identified client needs
4. Test and monitor meta-tagging practices and procedures	4.1 Test meta-tagging of material and make changes, if necessary 4.2 Regularly review meta-tagging practices and procedures to ensure that client needs are being met 4.3 Regularly review industry developments in meta-tagging

© Commonwealth of Australia, 2025 Future Skills Organisation

	and take appropriate action to improve practices 4.4 Check meta-tags regularly for internal consistency and compliance with established structure, rules and authorities

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse materials for subject content
  - interpret client requirements
- communication skills to liaise with clients and staff
- planning and organisational skills to:
  - evaluate business requirements
  - improve meta-tagging practices over time in line with industry developments
- technical skills to:
  - conduct modelling of data processes
  - use analysis and description tools
  - use meta-tagging tools
  - write hypertext markup language (HTML).

Required knowledge

- business operating systems
- client business domain
- data modelling
- database management system (DBMS) fundamentals
- decision support systems
- document indexing and search engines
- functions and features of databases
- meta-standards, including Dublin core and simple HTML ontology extensions
- OHS principles and responsibilities.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • use appropriate techniques to analyse materials for meta-tagging • use software to create meta-tags • enhance and update meta-tags in line with client needs and industry developments.
Context of and specific resources for assessment	Assessment must ensure access to: • information and materials • business requirements • metadata software • project-related documentation • OHS information • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of candidate creating meta-tags, and testing them
	• verbal or written questioning to assess candidate's knowledge of:
	  • general conventions and business rules for meta-tagging
	  • how reference structure of descriptors can assist clients
	• review of meta-tags.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support.

© Commonwealth of Australia, 2025 Future Skills Organisation

	In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Stakeholder may include:	• development team • project team • sponsor • user.
Client may include:	• external organisation • individual • internal department • internal employee.
Software may include:	• Meta Builder 2 • Tag master.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB511A Implement quality assurance process for websites

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop and conduct a planned and systematic pattern of actions required to provide adequate confidence that websites conform to relevant standards and fulfil client expectations.

Application of the Unit

This unit applies to individuals in the web area who are required to ensure the quality of websites.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria

1. Establish standards	1.1 Identify appropriate regulatory, accessibility, industry and organisational compliance standards 1.2 Develop, quantify, document and disseminate measurable ***performance standards***, from those standards, for all documents 1.3 Establish a centralised, distributed or combined quality assurance methodology 1.4 Determine the specification from which the website was developed 1.5 Establish guidelines for controlling, updating and loading new ***content*** onto the website
2. Apply standards and track performance	2.1 Apply all processes as an integral part of the website development process 2.2 Validate site, updates and new content against performance standards, using a wide variety of ***browsers*** and ***tools*** 2.3 Document and disseminate results 2.4 Provide feedback to web authors, ***users*** and administrators on a routine and regular basis
3. Develop and apply continuous improvement process	3.1 Provide performance standards feedback to developers, maintainers and administrators 3.2 Identify below-average or unacceptable performance standards and apply appropriate measures in order to improve performance 3.3 Provide channels for interaction, feedback and suggestions from site users, administrators, developers and maintainers 3.4 Conduct responses to interaction, feedback and suggestion providers 3.5 Develop procedures to identify whether feedback and suggestions are applied and acted upon 3.6 Conduct regular benchmark reviews based on improved performance and disseminate revised benchmarks
4. Document quality assurance practices	4.1 Document quality assurance procedures and processes 4.2 Document quality assurance results 4.3 Document and control changes to procedures, processes and results

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse websites for compliance to legislation and best practice
- communication skills to communicate with clients and web developers
- literacy skills to read standards and produce reports
- technical skills to:
  - develop websites
  - test website design to improve the design and maintenance processes and to ensure that all the client's elements are incorporated into the design
  - test website implementation.

Required knowledge

- business process design and customer and business liaison
- copyright and intellectual property relating to websites
- provisions of privacy legislation relating to websites
- website accessibility and equity legislation
- website architecture and website security
- workload metrics and technical performance measurement.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify, establish and implement appropriate quality assurance standards to the website • develop and implement a continuous improvement process • develop quantitative standards • document quality assurance standards.

© Commonwealth of Australia, 2025 Future Skills Organisation

Context of and specific resources for assessment	Assessment must ensure access to: • web servers • ebusiness website • analysis software • automatic testing software • documentation for appropriate regulatory, industry compliance and accessibility standards • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess knowledge of:
	  • quality assurance
	  • industry website standards
	• review of candidate's performance benchmarks
	• evaluation of documented processes and procedures.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Performance standards	• content accuracy and consistency • response time and latency

© Commonwealth of Australia, 2025 Future Skills Organisation

may include:	• server response time • structural quality • time lines.
Content may include:	• background articles • company information • copyright and disclaimer notices • customer only information • customer-specific information • error messages • feedback mechanisms • forms • frequently asked questions • hyperlink titles • information • instructions • interactive features • product information • ratings, rankings, testimonials and quotes from reviews • reference pages • site map • what's new.
Browsers may include:	• Galleon • Internet Explorer • Konqueror • Lynx • Mozilla • Netscape Navigator • Opera • Phoenix.
Tools may include:	• cascading style sheet (CSS) check • hypertext markup language (HTML) validating • link checking software • spell check.
Users may include:	• person within a department • department within the organisation • third party.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB512A Administer business websites and servers

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to maintain and manage business websites and associated servers.

Application of the Unit

This unit applies to middle managers, such as multimedia developers, web strategists or project managers, responsible for managing business websites and associated servers.

They provide technical advice, guidance and leadership in resolution of specified problems and their role may involve responsibility for others.

The role involves leading development of strategic reviews, and preparing a security plan, as well as preparing for future growth and requirements. Related tasks include evaluating and testing security website metrics and performance indicators.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Maintain business website and contents	1.1 Establish personnel policy and procedures for managing access and changes to aspects of the business website 1.2 Design and start a training program for teaching staff how to use procedures and policies as well as making changes to the business website 1.3 Evaluate and test site-analysis software on a non-live ***server*** to verify features and functions are safe for use on a live server 1.4 Generate site summary reports in line with the organisational quality management program or guidelines 1.5 Review reports found to have generated security flaws 1.6 Check links for functionality and ongoing relevance 1.7 Modify web pages according to changing business requirements and analysis of site summary report 1.8 Maintain and debug ***database*** information according to site and information requirements
2. Maintain business security of the website	2.1 Establish a security response procedure to control information placed on the business website by developers, designers and end users 2.2 Develop a ***security plan*** 2.3 Test site security according to organisational requirements of the security plan 2.4 Maintain site security using information from security vendors and technical media outlets
3. Monitor business website performance	3.1 Select ***server analysis tools*** with reference to organisational requirements and the range of functionalities requiring monitoring 3.2 Determine business website load metrics and performance

© Commonwealth of Australia, 2025 Future Skills Organisation

	indicators in line with organisational requirements 3.3 Measure business website server performance with server analysis tools 3.4 Identify and document business options for performance improvement 3.5 Submit website server performance reports to ***client***
4. Undertake capacity planning	4.1 Determine future peak volumes by measuring page usage and volume access 4.2 Develop an upgrade program to deal with increasing load and performance issues 4.3 Set performance benchmarks to take into consideration possible future scenarios for each load metric 4.4 Determine options for upgrade path for ***equipment*** needs based on research and business website performance growth forecasting

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - evaluate site-analysis software
  - select server analysis tools according to organisational requirements
- communication skills to:
  - facilitate training programs for staff
  - liaise with vendors
- literacy skills to write reports and planning documentation
- planning skills to forecast business website-performance growth
- technical skills to:
  - use:
    - current forecasting methodology for identifying traffic peaks
    - current site server
    - integrity-checking software
    - intrusion-detection software
    - traffic-tracking software
    - web server log-file analysis

© Commonwealth of Australia, 2025 Future Skills Organisation

- maintain:
  - firewalls
  - virtual private network (VPN) gateways
- respond to request for proposals (RFPs).

Required knowledge

- bottlenecks and methods of correction
- electronic commerce modelling language (ECML)
- queuing systems
- standard generalised markup language (SGML) and associated standards
- user request classes
- website architecture
- website security issues
- workload metrics.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • evaluate and test site-analysis software • maintain site security • monitor website performance • develop upgrade program to cater for business website performance growth.
Context of and specific resources for assessment	Assessment must ensure access to: • site servers and web servers where tasks may be performed • business website • site server and analysis software currently used in industry • requirements and business-planning documentation • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for

© Commonwealth of Australia, 2025 Future Skills Organisation

	this unit: • direct observation of candidate testing site security according to security plan • verbal or written questioning to assess candidate's knowledge of features of website architecture and security issues • review of documentation prepared by candidate, including security plan, training program, website server performance reports and upgrade program.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Server may include:	• Apache HTTP server • email servers • file and print servers • file transfer protocol (FTP) servers • IBM VisualAge and WebSphere • iPlanet-Enterprise • Lotus Domino • Microsoft Internet Information Server (Microsoft IIS) • NetDynamics • Netscape Enterprise server, Netscape FastTrack, Netscape eBusiness • proxy servers

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Sun Microsystems iPlanet web server • Sun Microsystems Java web server • Zope.
Database may include:	• DB2 • Informix • Ingres • Microsoft SQL (MS SQL) server • Mini SQL (mSQL) • MySQL • Oracle • Sybase.

Security plan may include:	• alerts relating to the security objectives of the organisation
	• audits
	• privacy
	• standards:
	  • archival
	  • backup
	  • network
	• theft
	• viruses.

Server analysis tools may include:	• Apache Jmeter • Apache JSSI.
Client may include:	• employee • external organisation • individual • internal department.
Equipment may include:	• hard drives • hubs • modems or other connectivity devices, including digital subscriber line (DSL) modems • monitors • other peripheral devices • personal computers • personal digital assistants (PDAs) • printers • switches • workstations.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB515A Implement and use web services

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to implement and use web services.

Application of the Unit

This unit applies to software developers responsible for implementing and supporting web services for building distributed applications.

It relates to the specialist skills and knowledge specific to the implementation and consumption of web services, the related communications protocols and the associated XML technologies used in web services. This unit does not address the specialist programming skills or knowledge required for web services, these are addressed in other units of competency.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Use eXtensible markup language (XML) to provide information	1.1 Create ***XML data structures*** from ***various data sources*** 1.2 Manipulate XML data structures using a ***common application programming interface*** (API) 1.3 Use namespaces to scope elements from multiple XML documents 1.4 Validate XML data structures using a ***schema*** 1.5 ***Map and transform*** an XML document from one schema to another
2. Use the web service description language (WSDL) to promote a web service	2.1 Understand the purpose of the WSDL 2.2 Identify the ***three main elements*** that comprise the web service description language 2.3 Build a WSDL file 2.4 Provide web access to a WSDL file via a uniform resource locator (URL)
3. Use universal description, discovery, and integration (UDDI) to locate and retrieve information about a public web service	3.1 Identify the purpose of UDDI 3.2 Understand the differences between public, extra-enterprise and intra-enterprise UDDI registry deployments 3.3 Locate and retrieve information about a ***public web service*** using UDDI 3.4 Identify the relationship between WSDL and UDDI
4. Access web services using the simple object access protocol (SOAP)	4.1 Identify the purpose of SOAP 4.2 Determine the relationship between UDDI and SOAP 4.3 Identify the basic structure and processing of a SOAP message 4.4 Retrieve an XML document from a public web service using SOAP

© Commonwealth of Australia, 2025 Future Skills Organisation

5. Implement a web service	5.1 Outline a basic web service architecture 5.2 Implement, test and ***publish*** a web service 5.3 Incorporate and test a web service into an application

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse functional requirements
  - assess proposed web service architectures within the context of existing enterprise technologies, infrastructure and industry standards
  - determine appropriate enabling technologies required to implement a web service's functional requirements
  - determine appropriate web service architectures as prescribed by the selected proprietary or industry standards
  - determine development environments appropriate to planned web service architectures and functionality
- communication skills to:
  - describe and evaluate web service architectures with system analysts and enterprise architects
  - negotiate enterprise web service requirements with clients
  - negotiate resource requirements, project timeframes and project deliverables
  - propose web service functionality to meet the business needs of clients
- learning skills to:
  - acquire the skills and knowledge required for the implementation of web services
  - stay at the cutting edge of industry developments and industry standards
- literacy skills to:
  - interpret associated industry and web service standards
  - interpret existing enterprise technology infrastructure documentation
  - write functional requirement specifications for a web service
- planning and organising skills to:
  - plan an effective solution for a web service
  - organise resources, documentation and infrastructure elements required for the implementation of a web service
- problem-solving skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

  - debug code, identify code bugs and resolve all code exceptions
  - identify and implement solutions to problems with web service architecture and functionality
  - identify problems with XML document schemas and implement solutions
  - recommend solutions to problems or deficiencies associated with the implementation of web services
- research skills to:
  - enhance knowledge of industry standards and trends related to web service architectures and enabling technologies
  - identify and locate sources of information that provide solutions to technical problems
  - identify sources of information and documentation required to plan and implement a web service
- technical skills to:
  - implement complex code algorithms required for web service functionality
  - implement exception handling routines in code
  - re-factor code to improve the efficiency of the code
  - use an integrated development environment to build web service components
  - write code to implement a web service.

Required knowledge

- integrated-development environments
- web development technologies
- web-service architecture.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • transform data from relational or other native data sources into XML • validate an XML document using a predefined schema • provide access to business functionality via a WSDL file • locate a public web service business function and include it in a website using UDDI and SOAP • implement a web service:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• according to business requirement specifications • that adheres to industry standards.

Context of and specific resources for assessment	Assessment must ensure access to:
	• web service business requirement specifications
	• industry standards published by the W3C
	• platform-specific documentation and help files describing the syntax and use of proprietary technologies
	• a simulated development environment incorporating the following elements:
	  • relational database server
	  • integrated development environment (IDE), including related frameworks, APIs and associated proprietary classes required to implement web services and their enabling technologies
	  • web server
	  • web browsers
	  • XML editors
	  • XPath testing utilities
	• appropriate learning and assessment support when required
	• modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• written or verbal questioning to assess candidate's knowledge of XML data structures, syntax and validation techniques
	• observation of candidate demonstrating:
	  • data transformation from relational data to validated XML
	  • the use of XPath queries to extract information from XML or transform XML data structures
	• evaluation of candidate's project incorporating all elements of this unit of competency, including both web service publication and web service consumption.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined

© Commonwealth of Australia, 2025 Future Skills Organisation

	with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

XML data structures may include:	• electronic business XML (ebXML) • XML 1.0 specification produced by the world wide web consortium (W3C).

Various data sources may include:	• comma separated value files
	• native data sources, such as ASCII or the Java-type system
	• object linking and embedding (OLE) DB data sources, such as spreadsheet files
	• relational database management systems, such as:
	  • IBM DB2
	  • Microsoft Structured Query Language (MS SQL) server
	  • Microsoft Access
	  • MySQL
	  • Oracle
	  • Ingres.

Common application programming interface may include:	• ASP.Net and MSXML and associated APIs • Java XML API (JAXP) • simple API for XML (SAX) • document object model as described by W3C recommendation.
Schema may include:	• document type definition (DTD) schema file • XML schema definition (XSD) file as described by W3C recommendation • XML-data reduced (XDR) schema definition file.
Map and transform may include:	• eXtensible stylesheet language transformations (XSLT) • XLink • XPath 1.0 and XPath 2.0 queries • XPointer • XQuery.
Three main elements	• contents and data types of web service messages

© Commonwealth of Australia, 2025 Future Skills Organisation

may include identifying:	• operations of web service messages • protocols of web service messages.
Public web service may include:	• public web services located through UDDI registries.
Publish may include:	• limiting access to the web service to a local intranet • making the web service available to the internet via a public UDDI registry • simulating the publication of the web service through a virtual machine infrastructure.

Unit Sector(s)

Web

© Commonwealth of Australia, 2025 Future Skills Organisation

ICAWEB516A Research and apply emerging web technology trends

Modification History

Version	Comments
ICAWEB516A	This version first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to keep up-to-date with and apply emerging web technology.

Application of the Unit

This unit applies to web developers and designers who are responsible for implementing the most up-to-date web application.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold*

© Commonwealth of Australia, 2025 Future Skills Organisation

	italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1. Identify emerging web technology trends and their uses	1.1 Review new developments in web technology 1.2 Identify appropriate web technology to meet the needs of the web application
2. Implement new web technology trends in a portfolio	2.1 Create ***code*** to apply the web technology 2.2 Test web application in a variety of ***browsers*** and rectify problems that arise

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - determine functional requirements
  - identify dynamic client and server-side requirements
- communication skills to liaise with the client
- initiative and enterprise skills to provide feedback and recommend the most appropriate technology solutions
- literacy skills to:
  - follow documented instruction for new technology
  - interpret workplace instructions and other technical documents
- problem-solving skills to:
  - identify and rectify website functional problems
  - identify and resolve bugs in the created code
  - select the most efficient and effective algorithms
- research skills to:
  - find solutions to encountered problems
  - keep up-to-date with industry trends
- technical skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

- apply web programming concepts
- create hypertext markup language (HTML) and eXtensible hypertext markup language (XHTML) pages
- create software in a variety of languages, including client and server-side languages
- create aesthetically pleasing web pages.

Required knowledge

- internet technology
- principles of analysis and design
- programming control structures, object-oriented programming
- web programming concepts, including:
  - hypertext transfer protocol (HTTP)
  - stateless programming
  - session management
  - authentication and web security
  - client-side programming.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • research, investigate and apply emerging web technology trends to a web application.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • development environment • server access • database server • internet access • browsers.

© Commonwealth of Australia, 2025 Future Skills Organisation

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning regarding web technology trends • research report of web technology trends • review of the candidate explaining the latest web technology trends and their application to a client • evaluation of a web application using web technology trends.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Code may include:	• active server pages (ASP) • active server pages. net (ASP.NET) • Coldfusion • JavaScript • jQuery • Java server pages (JSP) • Perl hypertext preprocessor (PHP) • Ruby on Rails.

© Commonwealth of Australia, 2025 Future Skills Organisation

Browsers may include:	• Firefox • Google Chrome • Internet Explorer • Konqueror • Lynx • Mozilla • Netscape Navigator • Opera • Safari.

Unit Sector(s)

Web

Custom Content Section

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBCMM101A Apply basic communication skills

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to develop communication skills in the workplace. It covers gathering, conveying and receiving information, along with completing assigned written information under direct supervision. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit applies to individuals developing basic skills and knowledge of workplace communication in preparation for working in a broad range of settings.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Identify workplace communication procedures	1.1. Identify organisational communication requirements and ***workplace procedures*** with assistance from ***appropriate people*** 1.2. Identify appropriate ***lines of communication*** with supervisors and colleagues 1.3. Seek advice on the ***communication method***/***equipment*** most appropriate for the task
2. Communicate in the workplace	2.1. Use effective questioning, and active listening and speaking skills to gather and convey information 2.2. Use appropriate non-verbal behaviour at all times 2.3. Encourage, acknowledge and act upon constructive feedback
3. Draft written information	3.1. Identify relevant procedures and formats for written information 3.2. Draft and present assigned ***written information*** for approval, ensuring it is written clearly, concisely and within designated timeframes 3.3. Ensure written information meets required ***standards*** of style, format and detail 3.4. Seek assistance and/or feedback to aid communication skills development

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• communication skills to identify lines of communication, to request advice, to effectively question, to follow instructions, to receive feedback, and to convey messages clearly and concisely • culturally appropriate communication skills to relate to people from diverse backgrounds and to people with diverse abilities • literacy skills to identify work requirements, to draft written information and to process basic, relevant workplace documentation • problem-solving skills to solve routine problems related to the workplace, under direct supervision.
Required knowledge
• key provisions of relevant legislation from all forms of government that may affect aspects of business operations, such as privacy laws • organisational policies, plans and procedures.

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • clear, concise and correct verbal and written communication • promptly and appropriately following instructions • knowledge of relevant legislation.
Context of and specific resources for assessment	Assessment must ensure: • access to an actual workplace or simulated environment • access to office equipment and resources • access to examples of documents relating to

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	workplace communication policies and procedures.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • analysis of responses to case studies and scenarios • demonstration of techniques • observation of presentations • oral or written questioning to assess knowledge of organisational policies, plans and procedures • review of written information.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • general administrationunits.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace procedures may include:	• answering telephone calls • following instructions • informal discussions • requests from colleagues • using internet and email • using voice mail • workplace procedures related to specific tasks
Appropriate people may include:	• colleagues • other staff members • supervisors, mentors, trainers or assessors

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
Lines of communication may include:	• formal and informal means • verbal or written
Communication method/equipment may include:	• computer network systems • facsimile machines • personal computer equipment including hardware, keyboards, software and communication packages • telephones
Written information may include:	• electronic mail • facsimiles • general correspondence or standard/form letters and memos • handwritten and printed materials • telephone messages or general messages
Standards may include:	• organisational policies • standards set by workgroup

Unit Sector(s)

Unit sector	

Competency field

Competency field	Communication - Interpersonal Communication

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

© Commonwealth of Australia, 2025

BSBCRT401A Articulate, present and debate ideas

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to articulate, present and debate ideas. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit applies to individuals who need to present and debate ideas in a work or broader life context. While the unit shares some similarities with units such as BSBCMM401A Make a presentation or BSBRES401A Analyse and present research information, the focus is quite different. This unit focuses on the creative ways in which ideas can be presented to provoke response, reaction and critical debate. Risk taking, storytelling and participation in critical debate are key features of the unit. Ideas might be quite complex in nature and relate to new products, services, creative works or new ways of doing things.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units	

© Commonwealth of Australia, 2025 Future Skills Organisation

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Analyse ideas for communication to others	1.1. Distil ***key themes***, ***messages and positions*** to aid in clarity of thought and presentation 1.2. Reflect on ***different ways of communicating ideas*** for different purposes and to different people 1.3. Identify the enabling skills and attributes of ***individuals*** who can effectively participate in discussions about ideas
2. Provoke response and reaction	2.1. Explore and use ***different techniques to engage***, ***fascinate and involve others*** in the process of communication and exchange 2.2. Explore the ways that storytelling can be used to communicate ideas 2.3. Create ***innovative approaches to different communication challenges*** 2.4. Be prepared to take ***risks*** in the way ideas are

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	presented 2.5. Identify ***specific ways to provoke and encourage response*** in particular individuals or groups
3. Debate and discuss ideas	3.1. Present and argue ***substantiated positions*** on ideas 3.2. Be open to critical analysis of own ideas and to the ideas of others 3.3. Identify and participate in conversations that challenge and explore different concepts and approaches, and generate new ideas 3.4. Respond to questions about ideas with confidence and relevant information 3.5. Reflect on and appraise the views of others, and use to refine ideas and to embrace new ideas

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to present ideas in ways that engage and provoke response, and to debate and discuss potentially complex concepts
- creative thinking skills to develop responses and new ideas in response to feedback
- learning and self-management skills to actively seek feedback and to learn from others
- literacy skills to develop and interpret information dealing with complex ideas.

Required knowledge

- creative and different ways of expressing and communicating ideas, and of making an opportunity pitch
- different ways in which individuals receive and respond to ideas and information, and what influences their response
- nature and role of risk taking in the presentation and debate of ideas
- role of storytelling in communicating ideas and key storytelling techniques
- techniques to tailor comments to particular audiences.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • creative and articulate presentations that provoke interest and response • active and confident participation in critical debate and discussion of ideas.
Context of and specific resources for assessment	Assessment must ensure: • presentations to others about ideas • discussion and debate with others about ideas.
Method of assessment	A range of assessment methods should be used t assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • direct observation of candidate participation in presentations and debates • evaluation of candidate's skills in responding to new and different communication situations • evaluation of candidate telling a story, making a pitch or presenting ideas to complete strangers in 'different' environments (e.g. in a restaurant, in the corridor, on a bus, in a lift).
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

Range Statement

RANGE STATEMENT
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Key themes, ***messages and positions*** may relate to:	• essence of the idea • influences on the idea • relationship of idea to established tradition or practice • relationship of idea to new and emerging technology • problems and challenges with the idea • reasons why the idea should be supported • selling a creative team • selling creative ideas • selling self as a creative person • way the idea was developed • who had developed the idea and why
Different ways of communicating ideas may be:	• aural • group presentation/pitch • in a forum • in elevators • one-on-one discussion • on planes • oral • remote (e.g. video conferencing) • visual
Individuals may be:	• colleagues • community members • friends • gallery owners • interviewers (media) • investors • mentors • panels • peers • students • supervisors or managers
Different techniques to engage, ***fascinate and involve others*** may include:	• blogging • media releases • multimedia presentations • music

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• photography • storytelling • viral marketing • visual depictions
Innovative approaches to communication challenges may involve ability to:	• get across all key messages in a short time • present on unfamiliar topic • respond to impromptu situations • structure information quickly and effectively
Specific ways to provoke and encourage response may include:	• use of engaging objects to explain idea
Risks may involve:	• acknowledging own limits and difficulties • asking for help • breaking out of accepted norms • divulging personal information or vulnerabilities • failing and learning from it • incorporating humour • taking a fun approach with a potentially serious audience
Substantiated positions may be positions which are:	• grounded in appropriate research • result of rational and logical thought • subjected to the analysis of others (e.g. peer review) • supported by relevant information

Unit Sector(s)

Unit sector	

Competency field

Competency field	Creativity and Innovation - Creative Thinking

© Commonwealth of Australia, 2025 Future Skills Organisation

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBCRT501A Originate and develop concepts

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to originate and develop concepts for products, programs, processes or services to an operational level. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit applies to individuals who originate and develop concepts of some complexity and progress that concept to the point where it can be implemented. Individuals may be employed by organisations, be sub contractors or consultants brought in by companies to work on specific projects, or be individuals or part of a team working independently. Concepts could be developed for any business or community activity or process such as marketing campaigns, staff development programs, information technology and communication systems. This unit is also highly relevant to practitioners in the creative industries who develop products such advertising campaigns, radio and television programs, entertainment events, films, exhibitions and digital media products. A person undertaking this role would operate with a high degree of autonomy and at a senior level if working within an organisation. However, the process of generating concepts and ideas is collaborative in nature. Skills associated with writing proposals to support concept development are covered in BSBWRT401A Write complex documents.

© Commonwealth of Australia, 2025 Future Skills Organisation

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Evaluate and explore needs and opportunities	1.1. Research and evaluate ***existing information that informs new concept development*** 1.2. Where appropriate, identify and use gaps in current range of ***products***, ***programs***, ***processes or services*** as the catalyst for generating new ideas or concepts 1.3. Expand the potential of new ideas through ***exploration of opportunities beyond the obvious***

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	1.4. Identify ***factors*** that could have an impact on ideas or concepts to be developed, including potential for commercialisation 1.5. Determine whether other players are filling identified gaps or investigating similar opportunities 1.6. Develop preliminary ideas on innovative and different ways to address needs and opportunities 1.7. In consultation with ***relevant stakeholders***, agree on broad parameters for developing ideas and concepts to meet market requirements
2. Develop a range of creative approaches	2.1. Use a range of ***creative thinking techniques*** to generate innovative and creative concepts to address identified needs 2.2. Challenge, test and experiment with different concepts and ideas as part of a collaborative process 2.3. Evaluate concepts in terms of their suitability for the target audience or purpose, their feasibility and their commercial potential 2.4. Take account of social, ethical and environmental issues as concepts and ideas are generated and discussed 2.5. Identify ***resources*** required to achieve desired creative and innovative outcomes 2.6. Evaluate the effectiveness of different strategies for achieving desired outcomes 2.7. Select concepts or approaches that achieve required outcomes in an innovative and feasible way 2.8. Present proposed concepts or approaches in an appropriate ***format***
3. Refine concepts	3.1. Ensure concept development process is open to ongoing refinement and testing 3.2. Seek input and feedback on concepts from relevant stakeholders 3.3. Seek specialist advice on creative and technical aspects of proposals as required 3.4. Compare concepts with best practice examples of similar products, programs, processes or services 3.5. Use a range of ***creative and practical criteria*** to determine the advantages and disadvantages of different concepts 3.6. Evaluate ***constraints*** on the realisation of concepts or ideas

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	3.7. Refine proposals based on analysis and feedback
4. Develop concepts to an operational level	4.1. Use refined concepts as the basis for developing detailed ***implementation specifications***
	4.2. Present specifications to relevant parties for approval, funding or endorsement
	4.3. Reflect on methodology used to generate concepts and ideas and note ways of improving this in the future

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication and teamwork skills to work collaboratively on ideas and to articulate the rationale for concepts in ways that promote constructive discussion with others
- creative thinking skills to generate a range of innovative concepts and ideas, to use lateral thinking and to take a visionary approach to developing concepts and ideas
- initiative and enterprise skills to pro-actively identify market requirements
- planning and organising skills to take account of practical issues for concept implementation
- self-management skills to meet deadlines.

Required knowledge

- broad context in which concepts are being developed
- cultural, social and environmental issues and impacts to be considered in developing new concepts
- issues and requirements to commercialise the concept
- legal requirements that affect work in a given industry context
- practical and operational issues to be considered in a specific work or community context
- range of broad practical and operational issues that determine whether a concept can be implemented (in any context)
- techniques for generating creative ideas and solutions, and for translating these ideas into workable concepts.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • development of at least two concepts, substantiated and supported with sufficient information to allow for implementation to occur • generation of concepts and ideas that provide innovative solutions to identified issues • knowledge of legal requirements that affect work in a given industry context.
Context of and specific resources for assessment	Assessment must ensure: • access to the full range of background information required to evaluate the operational factors that will affect the implementation of concepts • interaction with others to reflect the collaborative nature of the concept development process.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • evaluation of concepts generated by the candidate, of the processes used to generate and test the ideas and the material developed to support the concept • debate and discussion with the candidate to assess knowledge of the operational context and the broader factors that impact on concept development • evaluation of presentation or 'pitch' made by the candidate in relation to a particular concept • oral or written questioning to assess knowledge of cultural, social and environmental issues and impacts to be considered in developing new concepts.
Guidance information for assessment	

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Existing information that informs new concept development may include:	• creative brief • market research • organisational vision • personal vision and creative aspiration
Products, ***programs***, ***processes or services*** may include:	• art and craft works • advertising campaigns • business services and processes • designs • festivals • films • interactive digital media products • live entertainment productions or events • manufactured products • marketing and promotional campaigns • museum and gallery exhibitions • photoimaging services • radio or television programs
Exploration of opportunities beyond the obvious may involve:	• challenging existing assumptions and preconceptions • considering radical change to the way things are done • exploring practice in a totally different industry context • investigating the use of new media • making connections between seemingly unrelated activities
Factors may include:	• codes of practice • content • cost effectiveness • features of interactive digital media products:

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• delivery platform • level of interactivity • look and feel • navigation • Indigenous laws and protocols • length of program or film • level of skill and understanding required for implementation • nature and size of target audience • organisational charter and policies • purpose: • advertising or marketing • commercial • educational • entertainment • game • information • relevant legislation, such as: • copyright and intellectual property • privacy • results of market research • revenue raised by existing market share • technical feasibility
Relevant stakeholders may include:	• administrative staff • clients/customers • designers and other creative personnel • directors • external suppliers • information technology personnel • management • program producers • technical specialists • writers
Creative thinking techniques may include:	• brainstorming: • bulletin board • buzz session • computer-aided • sequencing • stop and go

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

	• Edward de Bono's six thinking hats
	• ego alter or heroes
	• graphic organisers:
	  • concept fans
	  • visual maps
	  • webbing
	• lateral thinking games
	• making associations
	• mind mapping
	• morphological analysis
	• sub-culture surfing
	• trigger words
	• use of metaphors and analogies
	• vision circles
	• word salads
	• visualisation

Resources may include:	• computer hardware and software • facilities • printed material • specialist equipment • specialist staff • training
Formats may include:	• application forms to funding bodies or sponsors • briefs for consultants • concept maps • electronic presentations to promote the concept • in-house proposal forms
Creative and practical criteria may include:	• cost-effectiveness • evaluation against competing priorities • fit with personal vision and aspirations • fit with strategic directions of organisation • fit with target market needs • how innovative the concept is • level of risk • potential benefits • technical feasibility • time to realise the concept
Constraints may include:	• availability of resources and equipment

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• availability of skilled experts and personnel • cost • level of technical difficulty • limited funding sources • limited potential for commercialisation • time
Implementation specifications may include:	• briefs for work • detailed specification of concept including purpose and content • operational plan with responsibilities and time lines • resources breakdown (financial, human and physical)

Unit Sector(s)

Unit sector	

Competency field

Competency field	Creativity and Innovation - Creative Thinking

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBEBU401A Review and maintain a website

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to undertake data analysis, review website content and update and maintain a website. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit applies to individuals who have knowledge of the relationship between web-sites and the core functions of an organisation. They also have working knowledge and skills of performing basic updates to web site content. They may provide administrative support within an organisation or be other individuals who have been delegated this responsibility.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Review website content and use	1.1. Monitor and analyse customer and user feedback in accordance with organisational timelines 1.2. Analyse automatically collected website data and identify trends 1.3. Make recommendations on changes to the website and its content in response to ***feedback and data analysis*** and approve changes scheduled for implementation 1.4. Review cost implications of the recommended changes to determine their viability
2. Update website	2.1. Replace superseded and inaccurate information with current information and add additional material in accordance with organisational requirements 2.2. Follow protocols for ensuring the accuracy and authenticity of information 2.3. Remove services no longer available or required and add new ones in accordance with organisational requirements 2.4. Check ***off-line information*** against that posted on the website and rectify discrepancies in accordance with organisational timelines 2.5. Follow ***security procedures*** for updating the website
3. Carry out non	3.1. Analyse user feedback to confirm that faults have

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
technical site maintenance	resulted from the site and are not user problems 3.2. Rectify faults and make improvements to the site in response to user feedback approved by the organisation 3.3. Add new web pages and/or active links and remove redundant pages and links in accordance with organisational requirements 3.4. Make site changes in response to changes in marketing strategy in accordance with organisational requirements and consideration of cost benefits

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- literacy skills to interpret policies and procedures, provide recommendations to others and to draft text in a logical sequence and structure appropriate for an online format
- numeracy skills for basic statistical analysis of website usage data
- communication skills for consultation with users and customers.

Required knowledge

- identification and overview knowledge of key provisions of relevant legislation from all levels of government that may affect aspects of business operations, such as:
  - anti-discrimination legislation
- ethical principles
  - codes of practice
  - privacy laws
  - Occupational Health and Safety
- basic principles of website design and maintenance
- online security issues.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • website and its content continues to meet the requirements of the business after maintenance changes • identification and resolution of faults, errors and/or complaints with website.
Context of and specific resources for assessment	Assessment must ensure: • access to an actual workplace or simulated environment • access to office equipment and networked computers • documentation relating to analysis and strategies/policies for implementation.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • review of authenticated documents from the workplace or training environment • demonstration of techniques in a workplace or simulated environment.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • marketing units • other information and communications technology units.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	

Feedback and data analysis may include:	• feedback in relation to content, ease of navigations and appropriateness/usefulness of content
	• statistical data in relation to usage, including;
	  • hits
	  • page views
	  • visits

Offline information may include:	• information available in other forms, such as; • brochures • databases • knowledge management systems • news letters • records systems
Security procedures may include:	• access protocols • password protected areas

Unit Sector(s)

Unit sector	

Competency field

Competency field	Information and Communications Technology - E Business

© Commonwealth of Australia, 2025 Future Skills Organisation

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBEBU501A Investigate and design e business solutions

Modification History

Release	Comments
Release 2	New release of this Qualification released with *version 6 of BSB07* Business *Services Training Package*. • Amend e-business to ebusiness throughout

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to evaluate e business models and strategies, and to incorporate the results of these evaluations into the design of an e business solution.

Application of the Unit

This unit applies to individuals who possess skills and knowledge in a specialist business area, as well as knowledge of software and other technologies. They apply these skills and knowledge in the evaluation, selection and implementation of new strategies for business, which incorporate e business solutions. They may be managers responsible for overseeing these tasks as well as technical or other knowledge experts.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Pre-Requisites

Not applicable

Employability Skills Information

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Investigate e business opportunities	1.1. Undertake a competitive analysis to determine the likely impact ***new capabilities*** will have on industry sectors and competitors 1.2. Complete and assess ***value chain analysis*** to identify ***processes and relationships*** that may benefit from the adoption of ebusiness solutions 1.3. Identify ***threats and opportunities*** to ebusiness implementation and evaluate potential ***contributions to the business*** 1.4. Conduct resource analysis to identify cost and revenue implications in developing opportunities 1.5. Identify and evaluate legal and ethical issues relating to ebusiness opportunities
2. Evaluate e business models	2.1. Identify and analyse ***business-to-business***, ***business-to-consumer***, intra-organisational ebusiness applications and ***ebusiness models*** 2.2. Rank compatible ebusiness models in terms of their strengths and weaknesses, considering resourcing, technical and security requirements of each 2.3. Assess cost implications of implementation of ebusiness models 2.4. Determine an ebusiness model most appropriate in relation to business plan
3. Design an e business	3.1. Formulate purpose, objectives and values for the ebusiness 3.2. Identify target market, and value chain structure in accordance with chosen ebusiness model 3.3. Identify and obtain ***technical needs and expertise*** required to implement ebusiness model

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	3.4. Investigate and develop plan to address culture change issues to manage transition to an ebusiness
4. Implement an e business strategy	4.1. Develop ***policies and guidelines*** to support customers, supply chain and staff to ensure successful implementation 4.2. Monitor performance of business goals and adjust policies and procedures to respond to changing needs of customers, staff and supply chain 4.3. Review ebusiness systems and models, seeking feedback from users and personnel responsible for ebusiness implementation 4.4. Incorporate evaluation results and feedback to improve future ebusiness strategies

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical and problem-solving skills to assess information and apply to identified business needs
- communication skills to collaborate with technical experts and other staff
- literacy skills to identify and interpret market and product information.

Required knowledge

- features of a range of software and hardware systems
- key provisions of relevant legislation from all forms of government that may affect aspects of business operations, such as:
  - anti-discrimination legislation
  - ethical principles
  - codes of practice
  - privacy laws
  - copyright
  - occupational health and safety
- organisational policies and procedures relating to the systems, products and/or service being worked with.

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • evaluation of ebusiness opportunities involving new business models and not simply electronic versions of existing businesses • rationale and supporting evidence for choice of ebusiness solution • knowledge of relevant legislation.
Context of and specific resources for assessment	Assessment must ensure: • access to an actual workplace or simulated environment • access to office equipment and networked computers • documentation relating to analysis and strategies/policies for implementation.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • review of authenticated documents from the workplace or training environment • demonstration of techniques in a workplace or simulated environment.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • BSBEBU502A Implement ebusiness solutions • IT use units.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

New capabilities may include:	• 24-hour operation • automated marketing efforts • communication • distribution channel • global reach • online customer service • online inventory • online payments • online purchasing • online sales systems • supply chain

Value chain analysis may include:	• an analysis of a series of primary activities, such as:
	  • inbound logistics
	  • marketing and sales
	  • operations
	  • outbound logistics
	  • service support
	• and their support activities, such as:
	  • business infrastructure
	  • human resources management
	  • procurement
	  • technological development

Processes and relationships may include:	• customer service • delivery of core services • delivery of government services • delivery of products • development of new products, services and markets • organisational structures • trading communities
Threats and opportunities may include:	• business to government (B2G) opportunities where ebusiness is conducted between an enterprise and the government

© Commonwealth of Australia, 2025 Future Skills Organisation

	• business-to-business (B2B) opportunities where ebusiness is conducted between companies • business-to-consumer (B2C) opportunities where ebusiness is conducted between an enterprise and a customer • competition legislation • disintermediation threats/opportunities where the role of 'middlemen' or other middle supply chain elements is reduced or made redundant as newer more efficient supply chain technologies are implemented • infrastructure requirements: disaster recovery, failsafe systems • internal business opportunities that improve productivity utilising ebusiness development • re-intermediation opportunities, where ebusiness creates new value between producers and consumers • risk management: payments, fraud etc.

Contributions to the business may include:	• effect on:
	  • customer satisfaction ratings
	  • growth
	  • market share
	  • profitability
	  • return on investment
	  • sales
	  • staff morale i.e. using efficient technologies to enhance workplace
	  • staff productivity and professional development

Business-to-business may include:	• involves ebusiness between organisations • may be B2G (business to government)
Business-to-consumer may include:	• involves ebusiness between an enterprise and a customer
E-business models may include:	• aggregator models • collaboration partners • competitor cooperation model • e-auction • e-government • e-mall • e-office

© Commonwealth of Australia, 2025 Future Skills Organisation

	• e-procurement • e-shop/e-tailing • information brokers • micro-payments business model • multilevel marketing • portal • tender services • third party marketplaces • trust services • value chain integrators • value chain service providers • virtual community • web rings
Technical needs and expertise may include:	• advice on existing business strategy and base business versus growth business • advice on staffing arrangements • advice on technology issues/compatibility • banking information for electronic funds transfer • contact person • feedback loops • new protocols relating to legal or security issues for ebusiness • open and international standards e.g. EAN.UCC or UN/EDIFACT • personal identification and password for online access to business processes e.g. purchasing or supply
Policies and guidelines may include:	• business ethics • confidentiality • electronic communication • fraud prevention and detection • human resources management • information management • intellectual property • legal issues e.g. jurisdiction, contract validity, taxation • outsourcing • performance management • privacy • risk management • security

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Information and Communications Technology - E Business

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBINN601B Manage organisational change

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to determine strategic change requirements and opportunities; and to develop, implement and evaluate change management strategies. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit applies to managers with responsibilities that extend across the organisation or across significant parts of a large organisation. They may have a dedicated role in human resources management, human resources development, or work in a strategic policy or planning area. The unit takes a structured approach to change management and applies to people with considerable work experience and organisational knowledge.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Identify change requirements and opportunities	1.1. Identify ***strategic change needs*** through an analysis of organisational objectives 1.2. Review existing policies and practices against strategic objectives to identify change requirements 1.3. Monitor trends in the ***external environment*** to identify events or trends that impact on the achievement of organisation's objectives 1.4. Identify major operational change requirements due to performance gaps, business opportunities or threats, or management decisions 1.5. Review and prioritise change requirements or opportunities with ***relevant managers*** 1.6. Consult specialists and experts to assist in the identification of major change requirements and opportunities
2. Develop change management strategy	2.1. Undertake cost-benefit analysis for high priority change requirements and opportunities 2.2. Undertake risk analysis, identify ***barriers to change***, and agree and record mitigation strategies 2.3. Develop change management project plan 2.4. Obtain approvals from relevant authorities to

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	confirm the change management process 2.5. Assign ***resources*** to the project and agree reporting protocols with relevant managers
3. Implement change management strategy	3.1. In consultation with relevant groups and individuals, develop communication or education plan to promote the benefits of the change to the organisation and to minimise loss 3.2. Arrange and manage activities to deliver the communication or education plans to relevant groups and individuals 3.3. Consult with relevant groups and individuals for input into the change process 3.4. Identify and respond to barriers to the change according to risk management plans 3.5. Action ***interventions and activities*** set out in project plan according to project timetable 3.6. Activate strategies for embedding the change 3.7. Conduct regular evaluation and review, and modify project plan where appropriate to achieve change program objectives

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- high level interpersonal and leadership skills to obtain acceptance of change processes and to inspire trust
- innovation skills to think laterally and to develop creative means to enable people to accept change positively
- learning skills to enable openness to new ideas and techniques which could contribute to ongoing organisational improvement
- planning and organising skills to sequence events and to enable staff to be clear in times of change or turbulence
- problem-solving skills to identify and respond to barriers to the change and analyse risks
- project management skills to implement the change management strategy
- teamwork skills to consult with relevant groups and individuals for input to the

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
change process • verbal communication skills to consult with relevant stakeholders and promote the change management plan
Required knowledge
• change management process or cycle • components of a change management project plan • impact of the external environment on change strategies • organisational behaviour • potential barriers to change • range of strategies for embedding change

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • development of a change process that detailsrationale for the change and its objectives • implementation of a change process • critical evaluation of how the change process was managed • demonstration of techniques for responding to resistance to change.
Context of and specific resources for assessment	Assessment must ensure access to appropriate documentation and resources normally used in the workplace.
Method of assessment	The following assessment methods are appropriate for this unit: • analysis of responses to case studies and scenarios around change management • assessment of reports on change management • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance by the candidate • review of change management project plan and communication

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	or education plans • review of records outlining consultation with relevant groups and individuals for input to the change process • oral or written questioning to assess knowledge of change management strategies.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Strategic change needs may include:	• actions arising from strategic planning activities to bring about major change in the organisation, which may relate to: • people • processes • technology • structure.
External environment may refer to factors that are:	• consumer-driven • ecological • economic • ethical • global • legal • political • social • technological • the drive to corporate sustainability • the move to a knowledge economy • workforce-driven.
Relevant managers may	• affected by the change

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
include those:	• holding a leadership position in the organisation • participating in the change project.
Barriers to change may include:	• challenges to group norms or established roles • existing organisational culture • existing reward systems • fear of loss of status, security, power or friends • interdepartmental rivalry or conflict • lack of involvement in the change • low morale • vested interests.
Resources may include:	• contractors • employees and managers • external and internal consultants • financial and budget allocation • hardware and software • physical assets.
Interventions and activities may include:	• action research • career planning • job redesign • sensitivity training • succession planning • surveys (with feedback) • team building • termination or redeployment • training • transition analysis.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Creativity and innovation - innovation

© Commonwealth of Australia, 2025 Future Skills Organisation

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBIPR301A Comply with organisational requirements for protection and use of intellectual property

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to assist with the protection and lawful use of an organisation's intellectual property and to avoid intellectual property infringement. It focuses on supporting the maintenance of an organisation's policies and procedures for the protection of intellectual property and avoidance of intellectual property infringement. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit applies to individuals who operate in a broad range of work roles and contexts. Their role may include assisting the organisation to comply with intellectual property requirements for the protection and use of intellectual property.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Identify organisational expectations for complying with intellectual property requirements	1.1. Identify the various types of existing and potential ***intellectual property*** within the organisation 1.2. Identify and access the organisation's intellectual property ***policies***, ***procedures and information*** 1.3. Identify ***own role*** in protecting the organisation's intellectual property, using intellectual property and avoiding intellectual property ***infringement*** 1.4. Provide information and advice to relevant ***internal and external stakeholders*** about how the organisation's intellectual property policies and procedures operate, within limits of job role
2. Support policies and procedures for the protection and use of intellectual property	2.1. Assist with the development and/or implementation of policies and procedures for the ***protection and use*** of the organisation's intellectual property according to the type of protection required 2.2. Assist with the development and/or implementation of policies and procedures to prevent infringement of

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	others' intellectual property 2.3. Assist in the maintenance of intellectual property policies and procedures 2.4. Contribute to the identification of ***potential problems*** and opportunities for improvement in the operation of the intellectual property policies and procedures and make recommendations to ***appropriate personnel*** for action
3. Contribute to recommendations about non-compliance issues with intellectual property requirements	3.1. Contribute to the identification of any potential ***non-compliance*** or intellectual property infringement issues, either internally or externally 3.2. Contribute to recommendations to appropriate personnel about ***actions*** to overcome non-compliance issues 3.3. Alert appropriate personnel to areas of potential intellectual property infringement or risk

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• communication skills to provide information to relevant personnel about intellectual property • problem solving skills to identify intellectual property compliance issues • literacy skills to read and interpret procedures and other relevant documentation
Required knowledge
• basic knowledge of types of intellectual property and the key characteristics of each • relevant organisational policies and procedures in relation to intellectual property • the range of intellectual property residing with the organisation • basic knowledge of relevant legislative requirements as they apply to the job role

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • identification of the different types of intellectual property within the organisation • identification, use and/or maintenance of an organisation's intellectual property policies and procedures • identification of potential non-compliance issues in an organisation
Context of and specific resources for assessment	Assessment must ensure: • access to relevant information about an organisation's intellectual property policies and procedures if applicable, or opportunity to contribute to the development of the policies and procedures
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of a portfolio of evidence • oral or written presentation to stakeholders outlining the organisation's approach to intellectual property protection and infringement avoidance • analysis of case studies identifying potential intellectual property issues and proposed actions
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • other administrative units from BSB07

Range Statement

RANGE STATEMENT

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	

Intellectual property refers to:	• the output of the mind or intellect rather than tangible objects. It includes:
	  • copyright
	  • trade marks
	  • patents
	  • designs
	  • plant breeder's rights
	  • circuit layout rights
	  • confidential information/trade secrets

Policies, ***procedures and information*** may include:	• intellectual property policy • licensing agreements • procedures for ensuring copyright protection • procedures for registering intellectual property rights • register of intellectual property assets
Own role may include:	• checking that other areas of the organisation are compliant • communicating policy and procedure changes to others • ensuring fees are paid • entering data as it arises • updating schedules and documents as requested e.g. register of intellectual property • keeping up to date with intellectual property issues through subscriptions to intellectual property services, e.g. IP Australia News Alert
Infringement refers to:	• deliberate or inadvertent misuse or non-compliance with legislation, regulation, policy, codes of conduct etc. in relation to intellectual property
Internal and external stakeholders may include:	• internal stakeholders: • other people within the organisation who may be affected by intellectual property, e.g. designers, writers, trainers, marketing staff, researchers whose efforts may

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	produce intellectual property • all employees, who need to be aware of the importance of, and procedures for, intellectual property protection and avoidance of intellectual property infringement • external stakeholders: • contractors • service providers
Protection and use may include:	• copyright for original works under the Copyright Act 1968 • patents for inventions and innovations under the Patents Act 1990 • protection from misleading packaging, advertising, misuse of power in the marketplace etc. under the Trade Practices Act 1974 • registration of business names under Business Names legislation • registration of trade marks under the Trade Marks Act 1995 • registration of new or original designs under the Designs Act 2003 • registration of domain names • licences, agreements or other instruments for the protection or use of intellectual property
Potential problems may include:	• changes to legislation or regulations • aspects of intellectual property not covered by existing procedures • fees not paid by own or external organisation • out of date communication about intellectual property within organisation • expiry of protection period • inappropriate or illegal use of someone else's intellectual property
Appropriate personnel may include:	• manager • supervisor • person in organisation designated as responsible for intellectual property
Non-compliance issues may include:	• required fees not being paid, both to or from another body, e.g. for a licence agreement or for renewal of registered rights

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• material being copied by other employees, e.g. from the internet or copying software, which could have potential copyright issues • evidence of unlawful access to computer files • marketing material being produced using images and other material which could breach copyright • unlawful use of music or sound recordings
Actions may include:	• reporting non-compliance issues to supervisor • taking administrative action within job role, e.g. paying relevant fees • ensuring a copyright notice is placed on all publications (e.g. the copyright symbol Â©, name of the copyright owner, year of creation or first publication)

Unit Sector(s)

Unit sector	

Competency field

Competency field	Regulation, Licensing and Risk - Intellectual Property

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBMGT608C Manage innovation and continuous improvement

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to sustain and develop an environment in which continuous improvement, innovation and learning are promoted and rewarded. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit applies to people with managerial responsibilities, including for building a better and more effective work environment. Continuous improvement and innovation have links with the model of the learning organisation and people working at this level play an important role in building the culture, values and attitudes of the organisation. Links may be made between continuous improvement and formal quality systems, such as International Organization for Standardization (ISO) or quality software. However it is not assumed that formal quality systems or software are in the workplace. Innovation is seen as an important attitude and set of practices, which should be fostered by people working at this level in teams and across the organisation.

Licensing/Regulatory Information

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Review programs, systems and processes	1.1. Establish strategies to monitor and evaluate performance and ***sustainability*** of key systems and processes 1.2. Undertake detailed analyses of ***supply chains***, and operational, product and service delivery systems 1.3. Identify performance measures, and assessment tools and techniques, and evaluate their effectiveness 1.4. Analyse ***performance reports*** and variance from plans for key result areas of the organisation 1.5. Identify and analyse changing trends and opportunities relevant to the organisation 1.6. Seek advice from specialists, where appropriate, to identify technology and electronic commerce opportunities

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
2. Develop options for continuous improvement	2.1. Brief groups on performance improvement strategies and innovation as an essential element of competition 2.2. Foster creative climate and organisational learning by promoting interaction within and between work groups 2.3. Encourage, test and recognise new ideas and entrepreneurial behaviour where successful 2.4. Accept failure of an idea during trialling, and recognise, celebrate and embed success into systems 2.5. Undertake risk management and cost-benefit analysis for each option or idea approved for trial 2.6. Approve innovations through agreed organisational processes
3. Implement innovative processes	3.1. Promote continuous improvement and sustainability as essential to doing business 3.2. Address impact of change and consequences for people, and implement transition plans 3.3. Ensure objectives, timeframes, measures and communication plans are in place to manage implementation 3.4. Implement contingency plans in the event of non-performance 3.5. Follow up failure by prompt investigation and analysis of causes and manage emerging challenges and opportunities effectively 3.6. Ensure that learnings from activities are captured and managed to inform future work 3.7. Regularly evaluate continuous improvement systems and processes 3.8. Communicate costs and benefits of innovations and improvements to relevant groups and individuals

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

• analytical skills to identify improvement opportunities in relation to:
  • concepts and ideas developed
  • services or products delivered
• flexibility and creativity skills to think laterally
• learning skills to develop options for continuous improvement
• teamwork and leadership skills to foster a commitment to quality and an openness to innovation

Required knowledge
• cost-benefit analysis methods • creativity and innovation theories and concepts • organisational learning principles • quality management and continuous improvement theories • risk management • sustainability practices

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • demonstration of consultation processes to introduce or evaluate an existing continuous improvement process or system, including suggested actions or an action plan • generation of an idea or concept that exhibits creative thinking and offers the possibility of benefiting the organisation • demonstration of how the concept or idea was introduced, tested and evaluated,which does not have to have been shown to work or to be adopted by the business • application of knowledge of quality management and continuous improvement theories.
Context of and specific resources for assessment	Assessment must ensure access to appropriate documentation and resources normally used in the workplace.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
Method of assessment	The following assessment methods are appropriate for this unit: • analysis of responses to case studies and scenarios • assessment of reports • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance by the candidate • observation of presentations • oral or written questioning to assess knowledge of creativity and innovation theories and concepts • evaluation of strategies established to monitor and evaluate performance of key systems and processes • review of briefing of groups on performance improvement strategies and innovation • review of documentation communicating costs and benefits of innovations and improvements to relevant groups and individuals.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Sustainability may include:	• addressing environmental and resource sustainability initiatives, such as environmental management systems, action plans, green office programs, surveys and audits • applying the waste management hierarchy in the workplace • complying with regulations and corporate social responsibility considerations for sustainability to enhance the organisation's standing in business and community environments • determining organisation's most appropriate waste treatment, including waste to landfill, recycling, re-use,

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	recoverable resources and wastewater treatment • implementing ecological footprint • implementing environmental management systems, e.g. ISO 14001:1996 Environmental management systems life cycle analyses • implementing government initiatives, e.g. Australian government's Greenhouse Challenge Plus • improving resource and energy efficiency • initiating and maintaining appropriate organisational procedures for operational energy consumption • introducing a green office program - a cultural change program • introducing green purchasing • introducing national and international reporting initiatives, e.g. Global Reporting Initiative • introducing product stewardship • reducing emissions of greenhouse gases • reducing use of non-renewable resources • referencing standards, guidelines and approaches, such as sustainability covenants and compacts or triple bottom line reporting • supporting sustainable supply chain.
Supply chains include:	• network of facilities that procures raw materials, transforms them into intermediate products or services and then finished goods or service, and delivers them through a distribution system • procurement, production and distribution, viewed as interlinked not as discrete elements.
Performance reports may include:	• budget or cost variance • customer service • environmental • financial • OHS • quality • other operating parameters.

Unit Sector(s)

Unit sector	

© Commonwealth of Australia, 2025 Future Skills Organisation

Competency field

Competency field	Management and leadership - management

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBOHS201A Participate in OHS processes

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to participate in workplace occupational health and safety (OHS) processes to protect workers own health and safety, and that of others. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit applies to individuals who require a fundamental knowledge of OHS to carry out their own work which may be in a defined context under direct supervision or with some individual responsibility. This unit has broad applicability across industries and workplace contexts.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Work safely	1.1. Follow established ***safety procedures*** when conducting work 1.2. Carry out pre-start systems and equipment checks in accordance with workplace procedures
2. Implement workplace safety requirements	2.1. Identify ***designated persons*** for reporting queries and concerns about safety in the workplace 2.2. Identify existing and potential ***hazards*** in the workplace, report them to designated persons and record them in accordance with workplace procedures 2.3. Identify and implement workplace procedures and work instructions for controlling risks 2.4. Report ***emergency incidents*** and injuries to designated persons
3. Participate in OHS consultative processes	3.1. Contribute to workplace meetings, inspections or other consultative activities 3.2. Raise OHS issues with designated persons in accordance with organisational procedures 3.3. Take actions to eliminate workplace hazards or to reduce ***risks***
4. Follow safety procedures	4.1. Identify and report emergency incidents 4.2. Follow organisational procedures for responding to emergency incidents

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE This section describes the skills and knowledge required for this unit.
Required skills
• literacy skills to interpret safety signs, symbols and notices • problem-solving skills to analyse options in an emergency situation.
Required knowledge
• responsibilities of employers and employees under relevant health and safety legislation • emergency procedures including procedures for fires and accidents • commonly used hazard signs and safety symbols.

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • accurately following all relevant safety procedures • identifying and reporting hazards to designated personnel • knowledge of relevant health and safety legislation • knowledge of relevant materials, equipment and work processes.
Context of and specific resources for assessment	Assessment must ensure: • safety processes, hazards and risk are relevant to the area of work
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	• analysis of responses to case studies and scenarios • demonstration of techniques • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • review of documentation identifying and reporting emergency incidents
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • other units related to the work environment

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	

Safety procedures may include:	• completing required documentation
	• local, state and federal legislation
	• Materials Safety Data Sheets (MSDSs)
	• National Health and Medical Research Council guidelines
	• following OH&S guidelines relevant to workplace
	• maintenance and use of cleaning apparatus in a work environment, such as;
	  • disposing of spilled substances, dangerous products, 'sharps' and waste correctly
	  • maintaining stocks of cleaning equipment (eg. disposable gloves, liquid repellent aprons, disinfectant)
	  • sterilising and/or disposing of cleaning equipment
	  • using appropriate cleaning equipment to clean spillages and breakages

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

	• wearing protective clothing, protective eye wear when in contact with body fluids or chemicals that may splash
	• using and storing toxic and hazardous materials correctly
	• keeping workplace clean and tidy
	• office practice manual
	• displaying health and safety brochures, magazines and other material
	• undergoing operator training when using new equipment or processes
	• special guidelines in a medical setting:
	  • RACGP Code of Practice for the Management of Health Information in General Practice
	  • RACGP Entry Standards for General Practices
	  • RACGP Sterilisation/Disinfection guidelines for General Practice

Designated persons may include:	• designated health and safety officers • health and safety representatives • supervisors • managers • team leaders • other persons authorised or nominated by the enterprise or industry

Hazards may include anything which is a source of:	• potential harm in terms of human injury or ill health
	• damage to property
	• damage to the environment
	• potential harm in terms of human injury or ill health including:
	  • toxic or hazardous materials
	  • hazardous work processes
	  • unsafe work practices
	  • hazardous equipment
	  • unstable personnel
	• potential harm in a medical setting:
	  • blood
	  • breakage / spillage

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• drug hold-ups • needle sticks • medical emergencies (eg. Falls, bleeding, seizures, fainting, collapses, panic attack, psychosis) • spread of infection • potential sources of infection: • breakages • contaminated waste • patients with colds, flu and other infectious diseases • sharps (eg. needles, scalpel blades) • spillage • used dressings, bandages and equipment • unsterilised/poorly sterilised equipment and work surfaces • unwashed hands
Risk is:	• the chance of something occurring that will result in injury or damage
Emergency incidents may include:	• accidents • emergency situations • fire • flood • sudden illness • incidents • external threats

Unit Sector(s)

Unit sector	

Competency field

Competency field	Regulation, Licensing and Risk - Occupational Health and Safety

© Commonwealth of Australia, 2025 Future Skills Organisation

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBOHS302B Participate effectively in OHS communication and consultative processes

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to participate in workplace occupational health and safety (OHS) consultative processes. Consultative arrangements, also referred to as participative arrangements, inform those involved in OHS matters, seek their input and provide opportunity for stakeholders to participate in decisions that may impact on the OHS of the workplace. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit applies to individuals who assist OHS specialists in relation to OHS issues. Steps to resolve OHS issues are covered in BSBOHS305B Contribute to OHS issue resolution.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Contribute to establishing consultative processes within the workplace	1.1. Apply knowledge of relevant OHS laws, policies and procedures to contribute to the development of ***consultative*** and ***participative OHS arrangements*** in the workplace 1.2. Identify, record and address ***barriers*** to the successful functioning of OHS consultative processes 1.3. Contribute recommendations for those involved in OHS 1.4. Identify and record responsibilities of ***relevant personnel*** in the consultation process
2. Contribute to obtaining and providing information about OHS issues	2.1. Contribute to establishing a systematic approach to managing OHS by using ***systems and procedures*** to gather information on OHS issues 2.2. Utilise ***tools and techniques*** to source information from others about OHS issues and hazards 2.3. Identify and access ***sources of OHS information and data***

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	2.4. Communicate relevant issues to others using appropriate ***communication methods***
3. Raise OHS issues with others	3.1. Raise relevant OHS issues in meetings and record relevant aspects of discussion in accordance with workplace procedures 3.2. Follow-up outstanding issues from meetings in a timely manner 3.3. Communicate outcomes to others

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- culturally appropriate communication skills to relate to people from diverse backgrounds and people with diverse abilities
- literacy skills to speak, listen, read and write effectively to consult on and present OHS issues
- interpersonal skills to support others to raise OHS issues
- information management skills to store and retrieve relevant documents.

Required knowledge

- roles and responsibilities of OHS personnel
- relevant OHS legislation, codes of practice, agreements, industry standards, workplace policies and procedures
- organisational procedures for information sourcing and dissemination, and available communication channels and methods
- organisational procedures and protocols for record keeping, and information retrieval and management.

Evidence Guide

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • contribution to consultative arrangements for managing OHS in a workplace • knowledge of relevant OHS legislation, codes of practice, agreements, industry standards, workplace policies and procedures.

Context of and specific resources for assessment	Assessment must ensure:
	• access to relevant information on compliance requirements such as:
	  • organisational policies, standard operating procedures, procedures and plans
	  • relevant legislation, regulations, licensing requirements, codes of practice, standards
	• access to relevant internal and external OHS data files
	• access to appropriate office equipment and resources.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • analysis of responses to case studies and scenarios • demonstration of the application of OHS legislation when consulting with people in the workplace on OHS issues • direct questioning combined with review of portfolios of evidence and third party reports of on-the-job performance by the candidate • oral or written questioning to assess knowledge of roles and responsibilities of OHS personnel • review of records of meeting where OHS issues were raised and discussed • evaluation of communication with others about outcomes of OHS issues raised.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • other OHS units.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	

Consultative OHS arrangements may include:	• arrangements to meet workplace consultation obligations specified in relevant state, territory and commonwealth OHS legislation, including:
	  • OHS and other consultative and planning committees
	  • health and safety and other employee representatives such as deputy OHS representatives
	  • employee and supervisor involvement in OHS activities such as inspections and audits
	  • procedures for reporting hazards, raising awareness and addressing OHS issues
	  • employee and workgroup meetings
	• the formal and informal processes in place for the exchange of information and views on OHS hazards, risks and risk controls

Participative OHS arrangements may include processes that:	• inform employees and other stakeholders of OHS matters • seek input and offer the opportunity for stakeholders to participate in decisions that may impact on the OHS of the workplace
Barriers to consultation may include:	• access to technology or information • an unsupportive workplace culture • cultural differences arising from ethnic diversity • geographic dispersal of employees • issues arising around the workplace and specific disabilities • lack of a systematic approach to managing OHS in the workplace

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• lack of support from key management • language and literacy levels of the workforce • remote locations or worksites • rosters or shift work • unrealistic timeframes

Relevant personnel may include:	• managers and supervisors
	• OHS representatives and committee members
	• OHS specialists such as:
	  • ergonomists
	  • health professionals
	  • injury management advisors
	  • occupational hygienists
	• OHS technical advisors such as:
	  • engineers (design, acoustic, safety, mechanical and civil)
	  • maintenance and tradespeople
	  • safety representatives
	• self
	• unions
	• workplace assessors with experience in language or disability issues

Systems and procedures may include:	• methods of information collection and reporting, including:
	  • surveys
	  • checklists
	  • audits
	  • interviews
	  • inspections
	  • registers
	  • record keeping
	• planning and consultation systems including:
	  • OHS committee
	  • meetings with health and safety representatives
	• written communication systems, such as use of intranet, emails, memos, reports, newsletters

Tools and techniques may include:	• body mapping • employee concerns identified through a hazard reporting system

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

	• examination of relevant information and data
	• formal or informal meetings
	• hazard identification checklists
	• interviews with workers
	• job and systems analysis
	• material safety data sheets (MSDSs)
	• plant and equipment maintenance records
	• reviews of:
	  • investigation reports
	  • OHS records
	  • registers of hazardous substances and dangerous goods
	  • reported hazards and incidents
	• surveys and suggestion boxes
	• workplace processes such as 'walk through' surveys and inspections

Sources of OHS information and data may include:	• audits • employer groups • first aid records • hazard, incident and investigation reports • industry bodies • legislation, standards, manufacturers' manuals and specifications available at the workplace • minutes of meetings from incident investigations • MSDSs and registers • OHS professional bodies • OHS specialists • other manufacturers' manuals and specifications • regulatory authorities (for codes of practice, legislation) • reports • standards, from Australia or overseas • unions • websites, journals and newsletters • workplace inspections
Communication methods may include:	• audit and inspection records • emails, memos and other agreed forms of communication

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• group and individual meetings • presentations • risk registers • using interpreters and translators

Unit Sector(s)

Unit sector	

Competency field

Competency field	Regulation, Licensing and Risk - Occupational Health and Safety

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBOHS402B Contribute to the implementation of the OHS consultation process

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to contribute to the promotion of consultative arrangements in the workplace by communicating, influencing and consulting as part of a systematic approach to managing occupational health and safety (OHS). No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit applies to individuals with supervisory responsibilities for implementing and monitoring the organisation's OHS policies, procedures and programs in a work area. It addresses the formal and informal processes of ensuring people in the organisation are informed about OHS and have opportunities to effectively participate in OHS processes. This unit will involve working with individuals and working with groups.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units	

© Commonwealth of Australia, 2025 Future Skills Organisation

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Contribute to procedures to raise OHS issues or request information and data	1.1. Identify ***strategies and tools*** for individuals or groups to raise OHS issues or request information and data 1.2. Implement and communicate to ***stakeholders*** and ***interested parties*** procedures for individuals and groups to raise OHS issues or request information and data 1.3. Identify ***barriers*** to individuals or groups seeking OHS information and data or raising issues 1.4. Make recommendations to address any identified barriers
2. Contribute to procedures for communicating OHS information and data	2.1. Identify with stakeholders, needs for ***OHS information and data***, communication and consultation, including relevant ***legislative requirements***

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	2.2. Provide information and data about OHS to key personnel on a regular basis, in a readily accessible manner and appropriate to the target group 2.3. Use formal and informal ***communication processes*** to provide information and data about OHS 2.4. Identify any barriers to individuals or groups gaining information and data about OHS 2.5. Make recommendations to address any identified barriers 2.6. Monitor and evaluate the effectiveness of actions taken to remove barriers to individuals or groups accessing information and/or data about OHS
3. Communicate OHS information, data and advice effectively to influence management decision making and action	3.1. Provide timely and appropriate OHS information, data and advice to stakeholder groups and individuals 3.2. Make OHS-related contributions in the form of ideas, information and solutions to influence management decision making and action 3.3. Use awareness of the organisation's cultural and industrial environments when dealing with OHS issues
4. Contribute to maintaining OHS arrangements	4.1. Provide support and advice to those involved in ***OHS consultative arrangements*** 4.2. Support the OHS issue resolution process to facilitate timely and equitable resolution of OHS issues 4.3. Facilitate OHS consultative processes to meet legislative and workplace requirements 4.4. Monitor the effectiveness of OHS consultative and participative arrangements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• conflict management skills to address small disputes relating to OHS implementation issues

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• culturally appropriate communication skills to relate to people from diverse backgrounds and people with diverse abilities across all levels of an organisation • interpersonal skills to establish and build relationships with internal and external stakeholders • literacy skills to prepare reports for a range of target groups • organisational and time management skills to sequence tasks, meet timelines and run efficient formal and informal meetings • technology skills to use a range of communication media.
Required knowledge

• internal and external sources of OHS information and data
• organisational policies and procedures for OHS
• legislative requirements for:
  • consultation and communication
  • information and data collection
  • notification of incidents
  • record keeping
  • reporting of incidents
• organisational policies and procedures for managing OHS in the workplace
• principles and practices of systematic approaches to managing OHS
• principles relating to:
  • hazard identification
  • hierarchy of control
  • risk management
  • systematic approaches to OHS
• range of communication strategies to communicate effectively with people at all levels of the organisation
• relevant state/territory and commonwealth OHS legislation, codes of practice and standards
• roles and responsibilities of personnel as specified in relevant OHS legislation
• sources of OHS data.

Evidence Guide

EVIDENCE GUIDE
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • development and use of a product or products when contributing to the implementation of OHS processes • knowledge of relevant state/territory and commonwealth OHS legislation, codes of practice and standards.
Context of and specific resources for assessment	Assessment must ensure: • access to office equipment and resources • access to relevant legislation, standards, codes of practice and guidelines • access to workplace documentation access to workplace documentation and personnel.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • analysis of responses to case studies and scenarios • demonstration of techniques used to manage OHS in the workplace • demonstration of the application of OHS legislation in implementing a systematic approach to managing OHS • direct questioning combined with review of portfolios of evidence and third party reports of on-the-job performance by the candidate • observation of implementation of consultative techniques • observation of presentations • oral or written questioning to assess knowledge of communication strategies used to communicate effectively with people at all levels of the organisation • review of recommendations made to address any barriers to people raising OHS issues or requesting information and data • evaluation of support and advice provided to people involved in OHS consultative arrangements.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	• other OHS units.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Strategies and tools may include:	• employee meetings • hazard alerts • informal discussions with team members • input to safety audits, hazard identification and risk assessment processes • intranet or email systems • meetings with health and safety, and employee representatives • OHS committees • suggestion boxes and processes • surveys, checklists • toolbox meetings
Stakeholders may include:	• employees • health and safety, and other employee representatives • managers • OHS committees • supervisors
Interested parties may include:	• clients • community • contractors • visitors
Barriers may include:	• contractual arrangements • language • literacy and numeracy • shift work and rostering arrangements • specific needs of employees

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• timing of information provision • workplace culture related to OHS • workplace organisational structures (for example geographic, hierarchical)
OHS Information and data may include:	• access to training information and data • hazards that exist in the workplace • manufacturers' manuals and specifications • OHS consultation and participation processes • OHS legislation, codes of practice and guidelines • rights and responsibilities • risk assessments • risk control strategies • safe work procedures • workplace OHS policies and procedures
Legislative requirements may include:	• freedom of information (FOI) legislation • OHS legislation, regulations and codes of practice • workplace equity, diversity and privacy legislation
Communication processes may include:	• audio-visual media, for example video • emails, letters, minutes, memos, reports • group and individual meetings • interviews • newsletters • noticeboards • photographs, maps and plans • signs, posters and brochures
OHS consultative arrangements may include:	• employee and supervisor involvement in OHS activities such as inspections and audits • employee and workgroup meetings • health and safety representatives, and other employee representatives • OHS and other consultative and planning committees • procedures for reporting hazards, and raising and addressing OHS issues

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Unit sector	

Competency field

Competency field	Regulation, Licensing and Risk - Occupational Health and Safety

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBOHS509A Ensure a safe workplace

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to establish, maintain and evaluate the organisation's occupational health and safety (OHS) policies, procedures and programs in the relevant work area in accordance with OHS legal requirements. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	Managers play an important role in ensuring the safety of the workplace and the wellbeing of their staff. This unit applies to managers working in a range of contexts. It takes a systems approach and ensures compliance with relevant legislative requirements. All those who have, or are likely to have, a management responsibility for OHS should undertake this unit. It is relevant for those with managerial responsibilities, either as an owner or employee-manager of a business.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Establish and maintain an OHS system	1.1. Locate and communicate OHS policies which clearly express the organisation's commitment to implement relevant ***OHS legislation*** in the enterprise 1.2. Define OHS responsibilities for all workplace personnel in accordance with OHS policies, procedures and programs 1.3. Identify and approve financial and human resources for the effective operation of the OHS system
2. Establish and maintain participative arrangements for the management of OHS	2.1. Establish and maintain participative arrangements with employees and their representatives in accordance with relevant OHS legislation 2.2. Appropriately resolve issues raised through participative arrangements and consultation 2.3. Promptly provide information about the outcomes of participation and consultation in a manner accessible to employees
3. Establish and	3.1. Develop procedures for ongoing hazard

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
maintain procedures for identifying hazards, and assessing and controlling risks	identification, and assessment and ***control of associated risks*** 3.2. Include hazard identification at the planning, design and evaluation stages of any change in the workplace to ensure that new hazards are not created by the proposed changes 3.3. Develop and maintain procedures for selection and implementation of risk control measures in accordance with the hierarchy of control 3.4. Identify inadequacies in existing risk control measures in accordance with the hierarchy of control and promptly provide resources to enable implementation of new measures 3.5. Identify intervention points for expert OHS advice
4. Establish and maintain a quality OHS management system	4.1. Develop and provide an OHS induction and training program for all employees as part of the organisation's training program 4.2. Utilise system for ***OHS record keeping*** to allow identification of patterns of occupational injury and disease in the organisation 4.3. Measure and evaluate the OHS system in line with the organisation's quality systems framework 4.4. Develop and implement improvements to the OHS system to achieve organisational OHS objectives 4.5. Ensure compliance with the OHS legislative framework so that legal OHS standards are maintained as a minimum

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• analytic skills to analyse relevant workplace data in order to identify hazards, and to assess and control risks • communication skills to consult with staff and to promote a safe workplace • problem-solving skills to deal with complex and non-routine difficulties • technology skills to store and retrieve relevant workplace data.

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
Required knowledge
• application of the hierarchy of control (the preferred order of risk control measures from most to least preferred, that is, elimination, engineering controls, administrative controls, personal protective equipment) • hazard identification and risk management • relevant legislation from all levels of government that affects business operation, especially in regard to OHS and environmental issues, equal opportunity, industrial relations and anti-discrimination • reporting requirements.

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • detailed knowledge and application of all relevant OHS legislative frameworks • establishment and maintenance of arrangements for managing OHS within the organisations' business systems and practices • identification of intervention points for expert OHS advice • principles and practice of effective OHS management in a small, medium or large business.
Context of and specific resources for assessment	Assessment must ensure: • access to appropriate documentation and resources normally used in the workplace.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • analysis of responses to case studies and scenarios • assessment of written reports • demonstration of techniques

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	• direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • review of OHS policies, information provided on the OHS system, information about the outcomes of participation and consultation provided to employees • oral or written questioning to assess knowledge of OHS and OHS legislation • evaluation of OHS induction and training • review of OHS record keeping system.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • other OHS units • units from the Diploma of Management.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
OHS legislation will depend on state/territory legislation and requirements, and will include:	• common law duties to meet general duty of care requirements • regulations and approved codes of practice relating to hazards in the work area • requirements for establishment of consultative arrangements including those for health and safety representatives, and health and safety committees • requirements for effective management of hazards • requirements for provision of information and training including training in safe operating procedures, procedures for workplace hazards, hazard identification, risk assessment and risk control, and emergency and evacuation

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	procedures • requirements for the maintenance and confidentiality of records of occupational injury and disease
Control of associated risks may include:	• administrative • counselling/disciplinary processes • elimination • engineering • housekeeping and storage • issue resolution • OHS records maintenance and analysis • personal protective equipment • purchasing of supplies and equipment • workplace inspections including plant and equipment
Organisational health and safety record keeping may relate to:	• audit and inspection reports • workplace environmental monitoring records • consultation e.g. meetings of health & safety committees, work group meeting agendas including OHS items and actions • induction, instruction and training • manufacturers' and suppliers' information including dangerous goods storage lists • hazardous substances registers • plant and equipment maintenance and testing reports • workers compensation and rehabilitation records • first aid/medical post records

Unit Sector(s)

Unit sector	

© Commonwealth of Australia, 2025 Future Skills Organisation

Competency field

Competency field	Management and Leadership - Management

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBREL701A Develop and cultivate collaborative partnerships and relationships

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to establish collaborative partnerships and relationships with business and industry stakeholders to promote and advance learning programs. The unit also covers communicating to influence others, cultivating new and existing partnerships, establishing positive collaborative relationships, leading the establishment of a partnership program and establishing reporting mechanisms. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit applies to leaders or managers working in either an educational organisation or a non educational enterprise where learning is used to build capabilities. It includes forming partnerships or other collaborative arrangements to achieve improved learner, community, career, or work outcomes. Educational leaders gain the respect of colleagues, contacts, clients and the community through demonstrating professionalism in all aspects of their work; this professionalism is underpinned by their educational expertise and effective interpersonal and communication skills. In the vocational education and training sector, learning leaders and managers must build partnerships and lead in a collaborative manner to ensure learning has a strategic role in the ever changing context, and in the face of complex influences that affect learning.

© Commonwealth of Australia, 2025 Future Skills Organisation

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Communicate to influence relevant individuals and stakeholders	1.1. Generate trust, confidence and support from ***relevant individuals***, other ***stakeholders*** and ***potential learners*** by demonstrating a high standard of personal performance and conduct 1.2. Implement ***communication strategies*** to represent the organisation positively to media, local community and stakeholders

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	1.3. Make decisions in consultation with relevant stakeholders and relevant individuals where appropriate 1.4. Use a range of ***influencing strategies*** to increase commitment from staff and stakeholders to achieve organisational requirements and to contribute to desired culture 1.5. Undertake selected community and/or professional engagements that project a positive image of the organisation to the broader community and stakeholders
2. Cultivate new and existing partnerships with stakeholders	2.1. Establish outcomes to be achieved from a learning ***partnership*** 2.2. Analyse models for effective consultation and collaboration within a partnership 2.3. Cultivate ***collaborative communities*** and partnerships through application of a range of learning and communication solutions 2.4. Forge relationships, collaborative communities or partnerships between a ***training and assessment organisation*** and a ***public or private sector enterprise*** 2.5. Consult stakeholders to establish vocational education and training ***partnership learning programs***
3. Establish positive collaborative relationships	3.1. Establish processes that contribute to the creation and maintenance of a positive culture that embraces collaboration 3.2. Establish processes to ***resolve conflict in a fair, equitable and collaborative manner*** 3.3. Organise and allocate work activities in a cost effective and equitable manner with clear, quantifiable and agreed ***performance standards*** 3.4. Encourage staff to embrace a learning culture and to undertake activities that develop their personal competence and performance 3.5. Empower individuals to develop their own ways of working within agreed boundaries of competence, cultural, ***diversity*** and ***organisational and legal requirements*** 3.6. Establish ***indicators*** and ***feedback processes*** that can be used to evaluate the health of the work environment

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
4. Lead establishment of a partnership program	4.1. Identify and address ***relevant organisational policies and procedures*** in partnership learning program plans 4.2. Identify and incorporate relevant legal requirements into planning of learning programs established in a community or partnership setting 4.3. Form partnership learning programs in collaborative and consultative processes involving public or private sector enterprises 4.4. Plan and allocate ***resource requirements*** to accomplish a partnership learning program 4.5. Establish relevant organisational policies and procedures relating to partnerships, and training and assessment services
5. Establish reporting mechanisms for partnership program	5.1. Establish ***reporting systems*** for ***reporting results***, that meet ***reporting requirements***, against planned partnership outcomes 5.2. Implement ***reporting systems*** to map learner progress against partnership outcomes

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- analysis and interpretation skills to:
  - evaluate organisational information management systems, policies and procedures
  - select relevant evaluation information and documentation
  - identify any potential and current non-compliance
  - access and interpret organisation's standards and values
  - analyse records or notes of the evaluation process
- initiative and enterprise skills to establish collaborative partnerships and relationships
- interpersonal and communication skills to negotiate, to question, to listen and investigate, to network and clarify issues
- planning and organising skills to:
  - research and evaluate validation processes, and to determine and implement

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
improvements to these processes • develop and establish agreement to plans • problem-solving skills to review feedback and to plan improvements • teamwork skills to lead and motivate a team in establishing productive networks, partnerships and other relationships.
Required knowledge
• relevant legislation that affects the business operation, especially in regard to OHS and environmental issues, equal opportunity and anti-discrimination, industrial relations • organisation mission, purpose and values • organisation objectives, plans and strategies • leadership styles • personal development planning methodologies • data collection methods • external environment scanning relating to social, political, economic and technological developments • emotional intelligence and its relationship to individual and team effectiveness • organisational transformation and the management of the stages of change • organisational design and building in responsiveness of operations to change in customer or market conditions.

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • demonstrated capacity to foster learning partnerships, conduct stakeholder consultation and use strategic and personally enhancing communication skills • developing collaborative approaches to enhance individual, team and organisational outcomes • initiating and implementing learning program partnerships in line with relevant regulatory, employment and organisational requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	• knowledge of relevant policy, legislation, codes of practice and national standards.
Context of and specific resources for assessment	Assessment must ensure: • competence is consistently demonstrated over time, and over a range and variety of situations • access to required assessment facilities and resources.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • review of applied projects or learning activities, especially relating to formation of professional networks and stakeholder consultation in relation to forming partnerships for vocational education and training programs • direct observation of contextual application of skills • submission of a portfolio of evidence including previous work forging partnerships • oral or written questioning to assess knowledge of development of industry learning partnerships.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • BSBLED702A Lead learning strategy implementation • BSBLED707A Establish career development services • BSBLED709A Identify and communicate trends in career development • PSPMNGT614A Facilitate knowledge management.

Range Statement

RANGE STATEMENT
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Relevant individuals may include:	• employees • employers • government agencies and departments • learners/students • industry associations, employer bodies, professional associations • industry representatives • national Industry Skills Councils • people working in the roles targeted by training • regulatory and licensing authorities • research agencies • state/territory industry training advisory bodies • subject or technical specialists or experts • unions • universities
Stakeholders may include:	• administrative and regulatory bodies • coordinators, teachers, assessors, coaches, mentors and support staff • employees • industry, employee, employer, professional and peak bodies or associations • learners/students • other training and assessment organisations • public or private sector enterprise
Potential learners may include:	• apprentices and trainees • current or ongoing learners and clients • existing industry and enterprise employees • individuals changing careers • individuals learning new skills and knowledge • individuals or groups meeting licensing or other regulatory requirements • individuals seeking to upgrade competencies • individuals who are unemployed • individuals who have a disability • members of target groups such as Aboriginal and Torres Strait Islander communities

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• overseas learners and international students • potential learners and clients • recent migrants and people from culturally and linguistically diverse backgrounds • school leavers, new entrants to the workforce
Communication strategies may include:	• conducting presentations • developing and applying interview and interpersonal communication protocols • developing and circulating marketing materials • developing promotional materials and course outlines • initiating and conducting a public communication strategy
Influencing strategies may include:	• debate • dialogue • discussion • formal and informal techniques • levels of participation • moderated negotiations • networking • strategies applied face-to-face or collectively (e.g. in a learning community or community of practice)
Partnerships may:	• be informal • be physical or virtual (e.g. online) • involve a formal agreement • involve one or more enterprises, and training and assessment organisations • involve one or more learning programs
Collaborative communities may include:	• communities of practice • formal or informal relationships • informal and formal groups in collaborative relationships • knowledge communities • knowledge networks • learning communities • physical or virtual relationships • supply chain communities • virtual circles
Training and assessment	• organisation that delivers non-recognised

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
organisation may include:	vocational education and training • organisation working in a partnership arrangement with an RTO to deliver recognised vocational education and training • RTO delivering recognised vocational education and training services such as TAFE institutes, private commercial colleges and organisations, enterprises, community organisations, group training companies and secondary schools
Public or private sector enterprises may include:	• community bodies • government agencies • privately owned companies
Partnership learning program may include:	• accredited course which includes Training Package outcomes • community education program • nationally endorsed qualification from a Training Package or accredited course • part of a VET in Schools program • part of an apprenticeship or traineeship • professional development program • short course or non-recognised vocational program • short-term development plan • short-term induction program • subset of a learning strategy • traineeship or apprenticeship • workplace learning program
Resolving conflict in a fair, equitable and collaborative manner may include:	• adherence to relevant legislative, legal, workplace requirements • application of organisational complaints procedures • internal or external specialists
Performance standards may be based on:	• personal or task outcomes • span short- or long-term outcomes • strategic, operational outcomes
Diversity includes difference in:	• age • belief systems and values • culture • expertise, experience and working styles • gender

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• interpersonal style • interests • language, literacy and numeracy • physical differences • politics • race • religion • sexual orientation • thinking and learning styles
Organisational and legal requirements may include:	• collaborative and partnership arrangement agreements such as memoranda of understanding • confidentiality and privacy requirements • licensing requirements • requirements for initial and continuing registration as defined in the AQTF Standards for Registered Training Organisations and state/territory legislation and regulations governing provider registration and course accreditation • requirements of awards and enterprise bargaining agreements • requirements of endorsed Training Packages • requirements of other relevant commonwealth and state/territory legislation, for example relating to matters such as OHS, anti-discrimination, workplace and industrial relations, workers compensation, apprenticeships and traineeships • requirements set by professional associations • requirements set by quality systems

Indicators may include:	• formal human resources and related indicators to provide benchmark, comparative measures on:
	  • average hours in relation to output per employee
	  • down-time
	  • related operational and planning indicators
	  • revenue per employee/team
	  • staff absenteeism
	  • staff satisfaction

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• staff turnover • training hours
Feedback processes include:	• formal complaints or suggestions procedures • formal-informal • independent audits • management audits/workplace checks • surveys • virtual or physical • whistleblower policy

Relevant organisational policies and procedures may include:	• access and equity
	• assessment procedures and options
	• client services
	• confidentiality requirements
	• ethical standards
	• fees and payment schedule
	• grievance and appeals processes
	• learner selection, enrolment, induction and orientation procedures
	• mutual recognition obligations
	• policies and procedures being available to all personnel, learners, clients and candidates
	• staff recruitment, induction and ongoing development and monitoring
	• support services available
	• human resources policies and procedures and legal requirements including anti-discrimination, equal employment, OHS
	• administrative and records management systems, for example that relating to:
	  • contract manager
	  • document version control
	  • maintenance, retention, archiving, retrieval, storage and security of training and assessment information and records
	  • personnel responsible for analysing statistics and data to ensure organisation complies with relevant standards across all of its operations and training and assessment activities
	  • privacy and access to training and assessment information and records

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• reporting and recording requirements and arrangements • supervisors and managers • union and employee representatives • users of training information such as finance personnel, human resources personnel, employers
Resource requirements may include:	• additional staff • distribution costs • equipment • production costs • promotional costs • research and development • re-tooling • staff training
Reporting systems for reporting results may include:	• arrangements for the issuing of Australian Qualifications Framework (AQF) qualifications and Statements of Attainment • arrangements for recognising and recording current competencies • electronic student management system which complies with AVETMISS or other reporting or statistical collection requirements • internal organisational recording and reporting systems • record keeping policies and procedures
Reporting results may include:	• Australian Apprenticeship Centre forms and letters such as for incentives and completions • availability of all reports and records for audit and monitoring purposes • enrolment forms • financial reporting for funding and payments from funding body • OHS incident reporting systems • performance agreements • reporting for apprenticeship and traineeship program delivery • reporting for in-house or internal program delivery • Training Contract and RTO notifications
Reporting requirements may	• AQTF Standards for Registered Training

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
include those specified in:	Organisations • AVETMISS process documentation • organisational documentation

Reporting systems to map learner progress against partnership outcomes may include:	• electronic systems including those using business technology such as:
	  • computers
	  • hardware
	  • software
	  • telephone networks
	• physical systems such as face-to-face and print communications

Unit Sector(s)

Unit sector	

Competency field

Competency field	Stakeholder Relations - Relationship Management

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBSUS201A Participate in environmentally sustainable work practices

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to effectively measure current resource use and to carry out improvements including reducing the negative environmental impact of work practices. This unit requires the ability to access industry information, and applicable legislative and occupational health and safety (OHS) guidelines. While no licensing, legislative, regulatory or certification requirements apply holistically to this unit at the time of publication, relevant national, state and territory legislation, regulations and codes of practice impact upon this unit.

Application of the Unit

Application of the unit	This unit applies to operators/team members under supervision or guidance, who are required to follow workplace procedures and instructions, and to work in an environmentally sustainable manner. It covers: efficient resource use potential environmental hazards regulatory compliance improving environmental performance (within the scope of competency, authority and own level of responsibility). It addresses the knowledge, processes and techniques necessary to participate in environmentally sustainable work practices.

© Commonwealth of Australia, 2025 Future Skills Organisation

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Identify current resource use	1.1. Identify workplace ***environmental and resource efficiency issues*** 1.2. Identify resources used in own work role 1.3. Document and measure current usage of resources using ***appropriate techniques*** 1.4. Record and file documentation measuring current usage, using technology (such as software systems) where applicable 1.5. Identify and report workplace environmental

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	hazards to appropriate personnel
2. Comply with environmental regulations	2.1. Follow workplace procedures to ensure ***compliance*** 2.2. Report breaches or potential breaches to appropriate personnel
3. Seek opportunities to improve resource efficiency	3.1. Follow ***organisational plans*** to improve environmental practices and resource efficiency 3.2. Work as part of a team, where relevant, to identify possible areas for improvements to work practices in own work area 3.3. Make ***suggestions*** for improvements to workplace practices in own work area

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to comply with all relevant legislation associated with job specifications and procedures
- communication and problem-solving skills to question, seek clarification and make suggestions relating to work requirements and efficiency
- communication and teamwork skills to recognise procedures; to follow instructions; to respond to change, such as current workplace environmental/sustainability frameworks; and to support team work and participation in a sustainable organisation
- literacy, numeracy and technology skills to interpret workplace information in relation to work role, and to document and measure resource use
- technology skills to select and use technology appropriate for a task.

Required knowledge

- environmental and resource hazards/risks
- environmental or sustainability legislation, regulations and codes of practice applicable to own work role
- OHS issues and requirements
- organisational structure, and reporting channels and procedures
- relevant environmental and resource efficiency systems and procedures
- sustainability in the workplace
- terms and conditions of employment including policies and procedures, such as

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
daily tasks, employee and employer rights, equal opportunity.

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • accessing, interpreting and complying with a range of environment/sustainability legislation and procedural requirements relevant to daily responsibilities • accurately following organisational information to participate in and support an improved resource efficiency process and reporting as required • developing and/or using tools such as inspection checklists, to collect and measure relevant information on organisation resource consumption, within work role • identifying organisational improvements by applying efficient resource use to daily activities • knowledge of environmental and resource hazards/risks.
Context of and specific resources for assessment	Assessment must ensure: • access to an actual workplace or simulated environment • evidence is relevant to the particular workplace role, including work area, equipment, systems, and documentation • review of current work area directly relating to own work, to assess measurement of resources used, hazards and compliance • individual or team discussion about potential for increased resource efficiency within current work area • access to workplace documents, information and resources (such as compliance obligations, enterprise

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	plans, work responsibilities).
Method of assessment	A range of assessment methods should be used t assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • observation of demonstrated techniques over time and in a range of situations • analysis of responses to case studies and scenarios • review of documentation measuring current resource usage • evaluation of techniques used to document and measure current usage of resources • review of identified and reported workplace environmental hazards • evidence of active participation in organisational plans to improve environmental practices and resource efficiency.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • BSBINN201A Contribute to workplace innovation • BSBSMB301A Investigate micro business opportunities • BSBWOR202A Organise and complete daily work activities.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Environmental and resource	• maximising opportunities to improve business environmental performance

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
efficiency issues may include:	• minimising environmental risks • promoting more efficient production and consumption of natural resources, for example minimising waste by participating in or using a waste management system • using resources efficiently such as material usage, energy usage (seeking alternative sources of energy or energy conservation) or efficient water usage
Appropriate techniques may include:	• examining and documenting resources in work area • examining invoices from suppliers • examining relevant information and data • measuring resource usage under different conditions • reports from other parties involved in the process of identifying and implementing improvements

Compliance may include:	• meeting relevant laws, by-laws and regulations or best practice to support compliance in environmental performance and sustainability at each level as required (such as Environmental Protection or Biodiversity Conservation Act):
	  • international
	  • commonwealth
	  • state/territory
	  • local government
	  • industry
	  • organisation

Organisational plans may include:	• documented policies and procedures • work plans to minimise waste or to increase efficiency of resources such as a green office program, supply chain program for purchasing sustainable products or an environmental management framework
Suggestions may include ideas that help to:	• improve energy efficiency • increase use of renewable, recyclable, reusable and recoverable resources • maximise opportunities such as use of solar power or other alternative forms of energy, where appropriate

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• prevent and minimise risks • reduce emissions of greenhouse gases • reduce use of non-renewable resources

Unit Sector(s)

Unit sector	

Competency field

Competency field	Industry Capability - Sustainability

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBSUS301A Implement and monitor environmentally sustainable work practices

Modification History

Release	Comments
Release 2	New release of this Unit with *version 7.0 of BSB07 Business Services Training Package*. Environmental assets italicised and bolded in PC 3.6 AND identified in Range Statement.
Release 1	Initial release of this Unit.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to effectively analyse the workplace in relation to environmentally sustainable work practices and to implement improvements and monitor their effectiveness.

This unit requires the ability to access industry information, applicable legislative and occupational health and safety (OHS) guidelines.

Application of the Unit

Application of the unit	This unit applies to those with responsibility for a specific area of work or who lead a work group or team. It addresses the knowledge, processes and techniques necessary to implement and monitor environmentally sustainable work practices, including the development of processes and tools, such as: • identifying areas for improvement • developing plans to make improvements • implementing and monitoring improvements in environmental performance. A person who demonstrates competence in this unit must be able to provide evidence of the ability to implement and monitor integrated environmental and resource efficiency management policies and procedures within an organisation. Evidence must be strictly relevant to the

© Commonwealth of Australia, 2025 Future Skills Organisation

	particular workplace role.

Licensing/Regulatory Information

While no licensing, legislative, regulatory or certification requirements apply holistically to this unit at the time of publication, relevant national, state and territory legislation, regulations and codes of practice impact upon this unit.

Pre-Requisites

Prerequisite units		

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	**Performance Criteria**
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Investigate current practices in relation to resource usage	1.1 Identify environmental regulations applying to the enterprise 1.2 Analyse procedures for assessing ***compliance*** with environmental/sustainability regulations 1.3 Collect information on environmental and resource efficiency systems and procedures, and provide to the work group where appropriate

© Commonwealth of Australia, 2025 Future Skills Organisation

	1.4 Collect, analyse and organise information from a range of ***sources*** to provide information/advice and tools/resources for improvement opportunities 1.5 Measure and document current resource usage of members of the work group 1.6 Analyse and document current ***purchasing strategies*** 1.7 Analyse current work processes to access information and data to assist in identifying areas for improvement
2. Set targets for improvements	2.1 Seek input from ***stakeholders, key personnel and specialists*** 2.2 Access external sources of information and data as required 2.3 Evaluate alternative solutions to workplace environmental issues 2.4 Set efficiency targets
3. Implement performance improvement strategies	3.1 Source and use appropriate ***techniques and tools*** to assist in achieving efficiency targets 3.2 Apply continuous improvement strategies to own work area of responsibility, including ideas and possible solutions to communicate to the work group and management 3.3 Implement and integrate ***environmental and resource efficiency improvement plans*** for own work group with other operational activities 3.4 Supervise and support team members to identify possible areas for improved practices and resource efficiency in work area 3.5 Seek ***suggestions*** and ideas about environmental and resource efficiency management from stakeholders and act upon where appropriate 3.6 Implement costing strategies to fully utilise ***environmental assets***
4. Monitor performance	4.1 Use and/or develop evaluation and monitoring, tools and technology 4.2 Document and communicate outcomes to report on efficiency targets to key personnel and stakeholders 4.3 Evaluate strategies and improvement plans 4.4 Set new efficiency targets, and investigate and apply new tools and strategies 4.5 Promote successful strategies and reward participants where possible

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse problems, to devise solutions and to reflect on approaches taken
- change management skills
- communication skills to answer questions, clarify and acknowledge suggestions relating to work requirements and efficiency
- communication/consultation skills to support information flow from stakeholders to the work group
- innovation skills to identify improvements, to apply knowledge about resource use to organisational activities and to develop tools
- literacy skills to comprehend documentation, to interpret environmental and energy efficiency requirements, to create tools to measure and monitor improvements and to report outcomes
- numeracy skills to analyse data on organisational resource consumption and waste product volumes
- planning and organising skills to implement environmental and energy efficiency management polices and procedures relevant to own work area
- problem-solving skills to devise approaches to improved environmental sustainability and to develop alternative approaches as required
- technology skills to operate and shut down equipment; where relevant, to use software systems for recording and filing documentation to measure current usage; and to use word processing and other basic software for interpreting charts, flowcharts, graphs and other visual data and information
- supervisory skills to work effectively with a team.

Required knowledge

- best practice approaches relevant to own area of responsibility and industry
- compliance requirements within work area for all relevant environmental/sustainability legislation, regulations and codes of practice including resource hazards/risks associated with work area, job specifications and procedures
- environmental and energy efficiency issues, systems and procedures specific to industry practice
- external benchmarks and support for particular benchmarks to be used within organisation, including approaches to improving resource use for work area and expected outcomes

© Commonwealth of Australia, 2025 Future Skills Organisation

- OHS issues and requirements
- organisational structure and reporting channels and procedures
- quality assurance systems relevant to own work area
- strategies to maximise opportunities and to minimise impact relevant to own work area
- supply chain procedures
- terms and conditions of employment including policies and procedures, such as daily tasks, work area responsibilities, employee, supervisor and employer rights, equal opportunity.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • knowledge of relevant compliance requirements within work area • developing plans to make improvements • planning and organising work group activities in relation to measuring current use and devising strategies to improve usage • monitoring resource use and improvements for environmental performance relative to work area and supervision • ensuring appropriate action is taken within work area in relation to environmental/sustainability compliance and potential hazards • implementing new approaches to work area in an effort to resolve and improve environmental and resource efficiency issues and reporting as required.
Context of and specific resources for assessment	Assessment must ensure: • access to an actual workplace or simulated environment • access to a range of environment/sustainability legislation, standards, guidelines and procedural requirements relevant to specific work area, daily

© Commonwealth of Australia, 2025 Future Skills Organisation

	responsibilities and supervision • access to a range of information, workplace documentation and resources such as compliance obligations, organisation plans, work supervision and responsibilities • access to reports from other parties involved in the process of identifying and implementing improvements • evidence is relevant to the particular workplace role, including work area, staff, stakeholders, equipment, systems and documentation.
Method of assessment	A range of assessment methods should be used t assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • response to case studies • review of reports of activities of work group in relation to measuring resource use and developing improvement strategies • review of work plans outlining approaches to improved practices with documented benchmarks • analysis of the way in which advice is sought and suggestions are made about improvements • observation over time and in a range of situations in relation to review of overall work area and staff, to assess and measure resource use, hazards and compliance • review of checklists to identify and assess resource usage at the beginning and end of the unit; reports on meetings around procedures and improvement processes and monitoring within the workplace; lists of environmental hazards/risks or inefficiencies or opportunities for improvements identified in the workplace • analysis of implementation of programs such as a green office program, supply chain program for purchasing sustainable products, or an environmental management framework • oral or written questioning to assess knowledge of environmental and energy efficiency issues, systems and procedures specific to industry practice.

© Commonwealth of Australia, 2025 Future Skills Organisation

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Compliance may include:	• meeting relevant laws, by-laws and regulations or best practice or codes of practice to support compliance in environmental performance and sustainability at each level as required (such as Environmental Protection or Biodiversity Conservation Act):
	  • international
	  • commonwealth
	  • state/territory
	  • industry
	  • organisation.

Sources may include:	• organisation specifications • regulatory sources • relevant stakeholders • resource use.
Purchasing strategies may include:	• influencing suppliers to take up environmental sustainability approaches • researching and participating in programs such as a supply chain program to purchase sustainable products.

Stakeholders, key personnel and specialists may include:	• individuals and groups both inside and outside the organisation who have direct or indirect interest in the organisation's conduct, actions, products and services, including:
	  • customers
	  • employees at all levels of the organisation
	  • government

© Commonwealth of Australia, 2025 Future Skills Organisation

	• investors • local community • other organisations • suppliers • key personnel within the organisation, and specialists outside the organisation who may have particular technical expertise.
Techniques and tools may include:	• examination of invoices from suppliers • examination of relevant information and data • measurements made under different conditions • others as appropriate to the specific industry context.

Environmental and resource efficiency improvement plans may include:	• addressing environmental and resource sustainability initiatives such as environmental management systems, action plans, green office programs, surveys and audits
	• applying the waste management hierarchy in the workplace
	• determining organisation's most appropriate waste treatment including waste to landfill, recycling, re-use, recoverable resources and wastewater treatment
	• initiating and/or maintaining appropriate organisational procedures for operational energy consumption, including stationary energy and non-stationary (transport)
	• preventing and minimising risks, and maximising opportunities such as:
	  • improving resource/energy efficiency
	  • reducing emissions of greenhouse gases
	• reducing use of non-renewable resources
	• referencing standards, guidelines and approaches such as:
	  • ecological footprinting
	  • Energy Efficiency Opportunities Bill 2005
	  • Global Reporting Initiative
	  • green office program – a cultural change program
	  • green purchasing
	  • Greenhouse Challenge Plus (Australian government initiative)
	  • ISO 14001:1996 Environmental management systems life cycle analyses

© Commonwealth of Australia, 2025 Future Skills Organisation

	• product stewardship • supply chain management • sustainability covenants/compacts • triple bottom line reporting.

Suggestions may include ideas that help to:	• prevent and minimise risks and maximise opportunities such as:
	  • usage of solar or renewable energies where appropriate
	  • reducing emissions of greenhouse gases
	  • reducing use of non-renewable resources
	  • making more efficient use of resources, energy and water
	• maximising opportunities to re-use, recycle and reclaim materials
	• identifying strategies to offset or mitigate environmental impacts:
	  • purchasing carbon credits
	  • energy conservation
	  • reducing chemical use
	  • reducing material consumption
	• expressing purchasing power through the selection of suppliers with improved environmental performance e.g. purchasing renewable energy
	• eliminating the use of hazardous and toxic materials.

Environmental assets may include:	• assets of the natural environment such as:
	  • biological assets (produced or natural)
	  • land
	  • water areas with their ecosystems
	  • subsoil, and
	  • air.

Unit Sector(s)

Unit sector	

© Commonwealth of Australia, 2025 Future Skills Organisation

Competency field

Industry Capability – Sustainability

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBSUS501A Develop workplace policy and procedures for sustainability

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to develop and implement a workplace sustainability policy, including the modification of the policy to suit changed circumstances. This unit requires the ability to access industry information, applicable legislative and occupational health and safety (OHS) guidelines. While no licensing, legislative, regulatory or certification requirements apply holistically to this unit at the time of publication, relevant national, state and territory legislation, regulations and codes of practice impact upon this unit.

Application of the Unit

Application of the unit	This unit addresses the knowledge, processes and techniques necessary to develop approaches to sustainability within workplaces, including the development and implementation of policy. This unit applies to people with managerial responsibility who undertake work developing approaches to create strategies within workplaces, including the development and implementation of policy and includes: • communicating with relevant stakeholders • developing and monitoring policies • reviewing and improving policies. A person who demonstrates competence in this unit must be able to provide evidence of the ability to develop and implement integrated sustainability policies and

© Commonwealth of Australia, 2025 Future Skills Organisation

	procedures within an enterprise. The review of the policy after implementation will also need to be evidenced. The context of the unit applies to all sectors of the business industry; it may be applied to all sections of an organisation, including the office, the factory floor, or work area. With such a broad application, the unit will need to be contextualised as it is applied across an organisation and across different industry sectors.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Develop workplace sustainability policy	1.1. Define ***scope*** of sustainability policy 1.2. Gather information from a range of ***sources*** to plan and develop policy 1.3. Identify and consult ***stakeholders*** as a key component of the policy development process 1.4. Include appropriate ***strategies*** in policy at all stages of work for minimising resource use, reducing toxic material and hazardous chemical use, and employing life cycle management approaches 1.5. Make recommendations for policy options based on likely effectiveness, timeframes and cost 1.6. Develop policy that reflects the organisation's commitment to sustainability as an integral part of business planning and as a business opportunity 1.7. Agree to appropriate methods of implementation
2. Communicate workplace sustainability policy	2.1. Promote workplace sustainability policy, including its expected outcome to key stakeholders 2.2. Inform those involved in implementing the policy as to outcomes expected, activities to be undertaken and responsibilities assigned
3. Implement workplace sustainability policy	3.1. Develop and communicate procedures to help implement workplace sustainability policy 3.2. Implement strategies for continuous improvement in resource efficiency 3.3. Establish and assign responsibility to use recording systems for tracking continuous improvements in sustainability approaches
4. Review workplace sustainability policy implementation	4.1. Document outcomes and provide feedback to key personnel and stakeholders 4.2. Investigate successes or otherwise of policy 4.3. Monitor records to identify trends that may require remedial action and use to promote continuous improvement of performance 4.4. Modify policy and or procedures as required to ensure improvements are made

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• communication skills to adjust communication to suit different audiences; to respond effectively to diversity; to work as a member of a team to consult on and validate policy • literacy skills to read and evaluate complex and formal documents such as policy and legislation • problem skills to effectively manage different points of view and dissenting stakeholders • research, analytical and writing skills to research, analyse and present information; to prepare written reports requiring precision of expression and language and structures suited to the intended audience
Required knowledge
• best practice approaches relevant to own work area • environmental or sustainability legislation, regulations and codes of practice applicable to industry and organisation • equal employment opportunity, equity and diversity principles and occupational health and safety implications of policy being developed • policy development processes and practices • principles, practices and available tools and techniques of sustainability management relevant to the particular industry context • quality assurance systems relevant to own organisation • relevant industry competency • relevant organisational polices, procedures and protocols • relevant systems and procedures to aid in the achievement of workplace sustainability

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • candidate's involvement as a key person in planning, developing and implementing organisational policy and that the developed policy complies with legislative requirements • implementation strategy, as part of the policy, that has been devised, implemented and reviewed showing a measurable improvement utilising the chosen benchmark indicators • communicating with stakeholders to discuss possible approaches to policy development and implementation, and contributing to the resolution of disputes among stakeholders • developing and monitoring policies for analysing data on enterprise resource consumption • using software systems for recording and filing documentation for measurement of current usage and using word processing and other basic software for interpreting charts, flowcharts, graphs and other visual data and information • reviewing and improving policies by identifying improvements and benchmarking against industry best practice and attempting new approaches continuously over time.
Context of and specific resources for assessment	Assessment must ensure: • access to an actual workplace or simulated environment • access to relevant legislation/standards/guidelines • access to a range of workplace documentation and personnel, information and resources (such as compliance obligations, organisational plans, work responsibilities) • access to reports from other parties involved in the development and implementation of policy • evidence is collected over time, involving both formative and summative assessment • evidence is relevant to the particular workplace role, including work area, equipment, systems, and documentation.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	• direct questioning combined with review of portfolios of evidence and third party workplace reports of on the job performance by the candidate • response to case studies • review of policy developed and procedural documentation outlining the approach taken • review of implementation strategy, plans and work plans • analysis of methods used to involve stakeholders in policy development, implementation and review • analysis of inefficiencies or opportunities for improvements identified in the workplace • evaluation of participation in sustainability work practices and programs such as an environmental management framework • observation over time in relation to review of work area relating to policy and procedures being developed to assess measurement of resources used, hazards and compliance.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • BSBATSIM419A Contribute to the development and implementation of organisational policies • BSBHRM506A Manage recruitment, selection and induction processes • BSBHRM602B Manage human resources strategic planning • BSBINN502A Build and sustain an innovative work environment • BSBMGT515A Manage operational plan • BSBMGT516C Facilitate continuous improvement • BSBMGT608C Manage innovation and continuous improvement • BSBMGT616A Develop and implement strategic plans • BSBMGT617A Develop and implement a business plan • BSBRSK501A Manage risk.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	

Scope of workplace sustainability policy may include:	• addressing sustainability initiatives through reference to standards, guidelines and approaches such as:
	  • ecological foot printing
	  • Energy Efficiency Opportunities Bill 2005l
	  • Global Reporting Initiative
	  • green office program
	  • green purchasing
	  • Greenhouse Challenge Plus (Australian government initiative)
	  • ISO 14001:1996 Environmental management systems life cycle analyses
	  • life cycle analyses
	  • product stewardship
	  • supply chain management
	  • sustainability covenants/compacts
	  • triple bottom line reporting
	• integrated approach to sustainability which includes environmental, economic and social aspects, or a specific approach that focuses on each aspect individually
	• investigating particular business and market context of the industry/organisation
	• meeting relevant laws, by laws and regulations or best practice to support compliance in environmental performance and sustainability at each level as required (such as Environmental Protection or Biodiversity Conservation Act):
	  • international
	  • commonwealth
	  • state/territory
	  • industry

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• organisation • parts of the organisation to which it is to apply, including whether it is for the whole organisation, one site, one work area or a combination of these.
Sources may include:	• regulatory sources • relevant personnel • organisational specifications.

Stakeholders may include:	• individuals and groups both inside and outside the organisation who have some direct interest in the organisation's conduct, actions, products and services, including:
	  • customers
	  • employees at all levels of the organisation
	  • government
	  • investors
	  • local community
	  • other organisations
	  • regulators
	  • suppliers
	• key personnel within the organisation and specialists outside the organisation who may have particular technical expertise.

Strategies may include:	• promotional activities • raising awareness among stakeholders • training staff in sustainability principles and techniques.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Industry Capability - Sustainability

© Commonwealth of Australia, 2025 Future Skills Organisation

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

BSBWOR404B Develop work priorities

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to plan one's own work schedules, to monitor and to obtain feedback on work performance and development. It also addresses the requirement to take responsibility for one's own career planning and professional development. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit applies to individuals who are required to design their own work schedules and work plans, and to establish priorities for their work. They will typically hold some responsibilities for the work of others and have some autonomy in relation to their own role.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan and complete own work schedule	1.1. Prepare ***Workgroup*** plans which reflect consideration of resources, client needs and workgroup targets 1.2. Analyse and incorporate ***Work objectives*** and priorities into personal schedules and responsibilities 1.3. Identify ***Factors affecting the achievement of work objectives*** and establish contingencies and incorporate them into work plans 1.4. Efficiently and effectively use ***Business technology*** to manage and monitor planning completion and scheduling of tasks
2. Monitor own work performance	2.1. Identify and analysed personal performance through self-assessment and feedback from others on the achievement of work objectives 2.2. Seek and evaluate ***Feedback on performance*** from colleagues and clients in the context of individual and group requirements 2.3. Routinely identify and report on variations in the quality of service and performance in accordance with organisational requirements
3. Coordinate	3.1. Assess personal knowledge and skills against

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
professional development	organisational benchmarks to determine development needs and priorities 3.2. Research and identify sources and plan for opportunities for improvement in consultation with colleagues 3.3. Use ***Feedback*** to identify and develop ways to improve competence within available opportunities 3.4. Identify, access and complete ***professional development activities*** to assist career development 3.5. Store and maintain records and documents relating to achievements and assessments in accordance with organisational requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- learning skills to recognise and develop new and necessary skills and knowledge
- literacy skills to understand the organisation's policies, procedures and communications, to write personal work plans and professional development plans, and to request and receive feedback about performance
- organising skills to prioritise, manage time and meet deadlines
- problem solving skills to develop contingency plans

Required knowledge

- knowledge of relevant business technology applications to schedule tasks and plan work
- knowledge of techniques to prepare personal plans and establish priorities
- methods to identify and prioritise personal learning needs
- understanding of a range of professional development options
- understanding of methods to elicit, analyse and interpret feedback
- understanding of methods to evaluate own performance

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • preparing and communicating own work plan • scheduling work objectives and tasks to support the achievement of goals • seeking and acting on feedback from clients and colleagues • reviewing own work performance against achievements through self-assessment • accessing learning opportunities to extend own personal work competencies • using business technology to monitor self development.
Context of and specific resources for assessment	Assessment must ensure: • the learner and trainer should have access to appropriate documentation and resources normally used in the workplace
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • observation of performance in role plays • observation of presentations • review of work and professional development plans.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • Other units from the Certificate IV in Frontline Management.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workgroup plans may include:	• budgetary plans • production plans • reporting plans • sales plans • team and individual learning goals • team participation • work schedules
Work objectives may include:	• budgetary targets • production targets • reporting deadlines • sales targets • team and individual learning goals • team participation
Factors affecting the achievement of work objectives may include:	• budget constraints • competing work demands • environmental factors such as time, weather, etc • personnel • resource and materials availability • technology/equipment breakdowns • unforeseen incidents
Business technology may include:	• computer applications • computers • email and internet/intranet/extranet • facsimile machines • modems • personal schedules • photocopiers • printers • scanners
Feedback on performance may include:	• formal/informal performance appraisals • obtaining comments from clients • obtaining comments from supervisors and

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	colleagues • personal, reflective behaviour strategies • routine organisational methods for monitoring service delivery
Professional development activities may include:	• career planning/development • coaching, mentoring and/or supervision • formal/informal learning programs • internal/external training provision • performance appraisals • personal study • Recognition of Prior Learning • work experience/exchange/opportunities • workplace skills assessment

Unit Sector(s)

Unit sector	

ELEMENT	PERFORMANCE CRITERIA

Competency field

Competency field	Management and Leadership - Management

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

© Commonwealth of Australia, 2025

BSBWOR502B Ensure team effectiveness

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to facilitate all aspects of teamwork within the organisation. It involves taking a leadership role in the development of team plans, leading and facilitating teamwork and actively engaging with the management of the organisation. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit applies to managers and addresses the need for managers to facilitate work teams and to build a positive culture within work teams. The unit takes a systematic and planned approach to developing teams. It includes the soft skills as well as more structured approaches to the management of teams. At this level, work will normally be carried out within complex and diverse methods and procedures which require the exercise of considerable discretion and judgement, using a range of problem solving and decision making strategies.

Licensing/Regulatory Information

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Establish team performance plan	1.1. ***Consult*** team members to establish a common understanding of team purpose, roles, responsibilities and ***accountabilities*** in accordance with organisational goals, plans and objectives 1.2. Develop ***performance plans*** to establish expected ***outcomes***, ***outputs***, ***key performance indicators*** and goals for work team 1.3. ***Support*** team members in meeting expected performance outcomes
2. Develop and facilitate team cohesion	2.1. Develop ***strategies*** to ensure team members have input into planning, decision making and operational aspects of work team 2.2. Develop ***policies and procedures*** to ensure team members take responsibility for own work and assist

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	others to undertake required roles and responsibilities 2.3. Provide feedback to team members to encourage, value and reward individual and team efforts and contributions 2.4. Develop ***processes*** to ensure that issues, concerns and problems identified by team members are recognised and addressed
3. Facilitate teamwork	3.1. Encourage team members and individuals to participate in and to take responsibility for team activities, including communication processes 3.2. Support the team in identifying and resolving work performance problems 3.3. Ensure own contribution to work team serves as a role model for others and enhances the organisation's image for all ***stakeholders***
4. Liaise with stakeholders	4.1. Establish and maintain open communication processes with all stakeholders 4.2. Communicate information from ***line manager***/***management*** to the team 4.3. Communicate unresolved issues, concerns and problems raised by team members and follow-up with line manager/management and other relevant stakeholders 4.4. Evaluate and take necessary corrective action regarding unresolved issues, concerns and problems raised by internal or external stakeholders

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• communication skills to explain team goals, to address team conflict and to build an environment of trust • planning and organisational skills to keep team on track and focussed on work outcomes.
Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• group behaviour • strategies for mentoring and coaching to informally guide and instruct team members • issue resolution • strategies for gaining consensus.

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • range of techniques that can be used to build work teams, strengthen communications in the team and resolve issues • methods for engaging with stakeholders and obtaining advice from outside the work team, to ensure team is focussed and on track • knowledge of group behaviour.
Context of and specific resources for assessment	Assessment must ensure: • access to appropriate documentation and resources normally used in the workplace.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • analysis of responses to case studies and scenarios • assessment of written reports • demonstration of team building techniques • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • observation of performance in role plays • review of performance plans developed for work team • review of policies and procedures developed to

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	ensure team members take responsibility for own work.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • other units from the Diploma of Management.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Consultation may refer to:	• conducting meetings, interviews, brainstorming sessions, email/intranet communications, newsletters or other processes and devices which ensure that all employees have the opportunity to contribute to team and individual performance plans • mechanisms used to provide feedback to the work team in relation to outcomes of consultation
Accountabilities may refer to:	• responsibilities as defined in position descriptions, codes of conduct/behaviour, duty statements or similar • statement of conduct outlining responsibilities/actions/performance
Performance plans may refer to:	• individual performance plans linked to team goals • team plans based on work assignments and responsibilities
Outcomes, ***outputs***, ***key performance indicators*** may refer to agreed:	• changes in work roles and responsibilities • improved individual and team, performance and participation • improvements to systems, operations • measures for monitoring and evaluating the

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	efficiency or effectiveness of systems or services • quality standards and expectations • targets for productivity improvements such as reduced downtime, higher production levels, decreases in absenteeism • targets for training and development
Support may include:	• Coaching • Mentoring • Training and development opportunities • Clarification of roles and expectations • Long term or short term plans • Meetings
Strategies may refer to:	• clarification of roles and expectations • electronic communication devices and processes, such as intranet and email communication systems, to facilitate input • long-term or short-term plans factoring in opportunities for team input • mentoring and 'buddy' systems to support team members in providing input • newsletters and briefings • training and development activities
Policies and procedures may refer to:	• organisational guidelines and systems that govern operational functions • procedures that detail the activities that must be carried out for the completion of actions and tasks • Standard Operating Procedures
Processes may refer to:	• brainstorming options with the team for addressing concerns • creating a matrix of issues and concerns and distributing for comment • discussions with individuals regarding their concerns • distributing drafts for comment with a range of options for resolution of concerns • training and development sessions
Stakeholders may include:	• Board members • business or government contacts • funding bodies

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• union/employee groups and representatives • work team
Line manager*/*management may refer to:	• chief executive officer • direct superior • other management representatives

Unit Sector(s)

Unit sector	

Competency field

Competency field	Industry Capability - Workplace Effectiveness

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

CPPSEC3009A Prepare and present evidence in court

Modification History

Not Applicable

Unit Descriptor

Unit descriptor

This unit of competency specifies the outcomes required to prepare and present information which may be used in a judicial or quasi-judicial environment as evidence. It requires the ability to gather and manage information, prepare and give evidence in court, store evidence and complete documentation.

This unit may form part of the licensing requirements for persons engaging in security operations in those states and territories where these are regulated activities.

Application of the Unit

Application of the unit

This unit of competency has wide application in the security industry in those roles involving operational activities. Competency requires legal and operational knowledge applicable to relevant sectors of the security industry. The knowledge and skills described in this unit are to be applied within relevant legislative and organisational guidelines.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Not Applicable

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Information

Employability skills This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the required skills and knowledge section and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Gather and organise evidence.	1.1 Applicable provisions of ***legislative*** and ***organisational requirements*** relevant to the preparation and presentation of ***evidence*** are identified and complied with. 1.2 A summary of the case history and other ***relevant information*** is gathered and organised. 1.3 Information to be used as evidence is confirmed for reliability and relevance in accordance with organisational procedures. 1.4 Evidence is organised in accordance with ***evidence management*** principles.
2 Prepare for court proceedings.	2.1 Briefing sessions are held with relevant persons to confirm ***court arrangements***, role and involvement. 2.2 Information to be presented as evidence and negotiation parameters is discussed with ***relevant persons***. 2.3 Briefs of evidence are submitted in a logical sequence appropriate to jurisdictional requirements and comply with the relevant rules of evidence. 2.4 Material to be used or referred to in court proceedings is thoroughly reviewed prior to presentation in court to ensure familiarity, completeness and availability. 2.5 ***Documentation and exhibits*** are prepared to ensure their acceptability for use in court in accordance with procedural requirements.

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
3 Present evidence.	3.1 ***Rules of evidence***, procedures and ***protocols*** relevant to the jurisdiction involved are observed and adhered to throughout proceedings.
	3.2 Personal presentation, manner and language are consistent with court protocols.
	3.3 Evidence is admissible and presented in a clear, concise and unambiguous manner and complies with rules of evidence.
	3.4 Specialist opinion within own level of qualification and expertise is provided on request in accordance with organisational procedures.
	3.5 Outcomes of proceedings and associated documentation and evidence are noted, filed and stored in accordance with legislative requirements.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge and their level required for this unit.

Required skills

- adhere to court protocols and procedures
- check and review documentation for accuracy, spelling and grammar
- communicate effectively with people from different social, cultural and ethnic backgrounds and of varying physical and mental abilities
- communicate verbally and non-verbally in a clear and concise manner
- identify and comply with applicable legal and procedural requirements, including licensing requirements
- identify relevant and valid information as admissible evidence
- maintain, store and preserve evidence
- prepare documentation using appropriate structure and language
- read, analyse and interpret information
- record and accurately report information
- research, select and organise information
- select and use information technology appropriate to task
- store and preserve evidence
- use a range of business equipment and technology appropriate to meet task requirements.
- verify validity of information

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

- write reports using formal structure and language.

Required knowledge

- briefing, documentation and preparation requirements
- court protocols and procedures relevant to the jurisdiction
- document and evidence management systems
- evidence preparation and presentation requirements
- general principles regarding the admissibility of evidence in courts
- organisation policies and procedures relating to own role and responsibilities and providing specialist opinion
- principles of effective communication
- privacy and confidentiality requirements
- procedures for handling and managing evidential exhibits
- relevant industry codes of practice and legislation including 'rules of evidence' and 'continuity of evidence'
- requirements for handling and managing evidential exhibits
- storage requirements for information that is susceptible to spoil or damage (film, computer tapes)
- techniques to verify and validate information.

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit	A person who demonstrates competency in this unit must be able to provide evidence of: • sourcing, organising and confirming validity of information • following up outcomes of proceedings and feedback, reviewing implications as the basis for appropriate actions to be implemented • managing and storing evidence and material to ensure its preservation, and completing relevant documentation in compliance with applicable legislation and licensing requirements • presenting evidence in a clear, concise and unambiguous manner and, as required, providing specialist opinion within

© Commonwealth of Australia, 2025 Future Skills Organisation

	own level of qualification and expertise • researching and selecting information that is determined relevant and valid for use as admissible evidence in a judicial or quasi-judicial environment • understanding and complying with court protocols, legislative and procedural requirements including appropriate use of communication and language.
Context of and specific resources for assessment	Context of assessment includes: • a setting in the workplace or environment that simulates the conditions of performance described in the elements, performance criteria and range statement. Resource implications for assessment include: • access to plain English version of relevant statutes and procedures • access to a registered provider of assessment services • access to a suitable venue and equipment • assessment instruments including personal planner and assessment record book • work schedules, organisational policies and duty statements. Reasonable adjustments must be made to assessment processes where required for people with disabilities. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.
Method of assessment	This unit of competency could be assessed using the following methods of assessment: • observation of processes and procedures • questioning of underpinning knowledge and skills.
Guidance information for assessment	Assessment processes and techniques must be culturally appropriate and suitable to the language, literacy and numeracy capacity of the candidate and the competency being assessed. In all cases where practical assessment is used, it should be combined with targeted questioning to assess the underpinning knowledge. Oral questioning or written assessment may be used to assess underpinning knowledge. In assessment situations where the candidate is offered a choice between oral questioning and written assessment, questions are to be identical. Supplementary evidence may be obtained from relevant authenticated correspondence from existing supervisors, team leaders or specialist training staff.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Legislative requirements may relate to:

- apprehension and powers of arrest
- Australian standards and quality assurance requirements
- counter-terrorism
- crowd control and control of persons under the influence of intoxicating substances
- force continuum, use of force guidelines
- general 'duty of care' responsibilities
- inspection of people and property, and search and seizure of goods
- licensing or certification requirements
- privacy and confidentiality
- relevant commonwealth, state, territory legislation, codes and national standards for:
  - anti-discrimination
  - cultural and ethnic diversity
  - environmental issues
  - equal employment opportunity
  - industrial relations
  - Occupational Health and Safety (OHS)
- relevant industry codes of practice
- trespass and the removal of persons
- use of restraints and weapons:
  - batons
  - firearms
  - handcuffs
  - spray.

Organisational requirements may relate to:

- access and equity policies, principles and practices
- business and performance plans
- client service standards
- code of conduct, code of ethics
- communication and reporting procedures
- complaint and dispute resolution procedures

© Commonwealth of Australia, 2025 Future Skills Organisation

- emergency and evacuation procedures
- employer and employee rights and responsibilities
- OHS policies, procedures and programs
- own role, responsibility and authority
- personal and professional development
- privacy and confidentiality of information
- quality assurance and continuous improvement processes and standards
- resource parameters and procedures
- roles, functions and responsibilities of security personnel
- storage and disposal of information.

Evidence may include:

- audio or video recordings
- charts
- documents
- drawings
- facts
- photographs or images
- physical items (eg specimens, samples)
- statements
- testimonies.

Relevant information may relate to:

- admissible evidence
- computer-based information
- data
- original and back-up video or audio tapes
- original, copy or negative film or photographs
- physical items
- precedents
- records of interview
- reports or documentation
- specimens and samples
- tape recordings
- witness statements.

Evidence management may involve:

- constant reviews during an investigation
- continuity of possession
- labelling
- protection and storing of evidence
- referral to prosecution organisations at any stage
- systematic recording such as dating and numbering
- using written or electronic database systems.

***Courts* may include**:

- criminal, coronial and civil
- district
- federal

© Commonwealth of Australia, 2025 Future Skills Organisation

- Human Rights and Equal Opportunity Commission
- Industrial Relations Commission
- Land and Environment Court
- local
- magistrates
- Royal Commissions
- supreme
- tribunals.

***Court arrangements* may relate to**:

- confirmation of evidence requirements
- date, location and time of proceedings
- documentation requirements.

***Relevant persons* may include**:

- clients
- colleagues
- judicial representatives
- legal representatives
- police
- supervisor.

***Documentation and exhibits* may relate to**:

- affidavits
- items of evidence
- media footage
- photographs
- radio and telephone records or logs
- reports
- reports of incidents
- transcripts of conversation.

***Rules of evidence* may involve**:

- admissibility
- contemporaneousness.

Court *protocols* may relate to:

- examination and cross-examination procedures
- forms of address
- general demeanour
- impartiality
- punctuality
- readiness of self and evidence
- respect for people and offices held
- standards of dress, physical appearance
- voice clarity and language.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Unit sector Security

Competency field

Competency field Operations

© Commonwealth of Australia, 2025 Future Skills Organisation

CPPSEC5003A Assess security risk management options

Modification History

Not Applicable

Unit Descriptor

Unit descriptor

This unit of competency specifies the outcomes required to assess options for the management of security risk in an organisational environment. It requires the ability to compare treatment options against identified security risks, rank suitable treatment options, and prepare and present recommended options and supporting analysis.

This unit may form part of the licensing requirements for persons engaged in risk assessment operations in those states and territories where these are regulated activities.

Application of the Unit

Application of the unit

This unit of competency has application in those work roles involving the assessment of security risks in an organisational environment. Competency requires legal and operational knowledge applicable to relevant sectors of the security industry. The knowledge and skills described in this unit are to be applied within relevant legislative and organisational guidelines.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Not Applicable

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Information

Employability skills This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the required skills and knowledge section and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Determine security risk.	1.1 Applicable provisions of ***legislative*** and ***organisational requirements***, and ***relevant standards*** for assessment activities are identified and complied with. 1.2 Type and nature of ***security risks*** are determined based on an accurate and current assessment of the client's ***operating environment*** and core business operations. 1.3 Security risks are ranked in terms of degree of risk and linked to potentially suitable ***treatment options***. 1.4 Degree of risk is determined by an assessment of current and valid data.
2 Identify and assess treatment options.	2.1 Treatment options are identified and confirmed to be commensurate with the identified type, ***nature and cause*** of security risk. 2.2 Treatment options applied in a similar context are researched and assessed for effectiveness against documented and ***verifiable evidence***. 2.3 ***Criteria*** for assessment of risks against treatment options are consistent with recognised industry practice and relevant standards. 2.4 Treatment options appropriate to the full range of potential security risks are selected and prioritised according to established criteria.
3 Review and	3.1 A report outlining assessment findings and recommended treatment options is prepared and ***presented*** to relevant

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
present findings.	persons. 3.2 Analysis and recommendations are clear, coherent and consistent with ***terms of reference*** and supported by verifiable evidence. 3.3 Advice outlining possible consequences of not implementing recommended treatment options is included in the analysis. 3.4 Effective ***interpersonal techniques*** and presentation procedures are used to enhance understanding and acceptance of recommended treatment options.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge and their level required for this unit.

Required skills

- accurately determine identified risks and threats
- apply reasoning and logical analysis in assessment processes
- assess risks and threats
- coaching and mentoring to provide support to colleagues
- collate numerical data
- communicate in a clear and concise manner
- determine suitability of treatment option against security risk
- determine type and nature of security risks
- identify and assess assets
- prepare and present verbal and written reports
- prioritise tasks and organise schedules
- prioritise treatment options in terms of degree of security risk
- provide written communication to a standard required for compiling reports and summarising information
- relate to persons of different social and cultural backgrounds and varying physical and mental abilities
- research and analyse information
- source and access information
- use a variety of problem-solving techniques
- use business and information technology.

Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

- applicable Australian standards, industry codes of practice and legislation including Occupational Health and Safety (OHS)
- basic understanding of insurance in terms of acceptable risks, premium ranges and liabilities
- client's operating environment and business operations
- concept of integrated security measures including physical security; information technology security, and security of personnel and information
- concept of litigation
- current security systems and technologies available expertise
- distinction between information and intelligence
- preparation of documentation and presentation procedures
- principles of basic statistics and numeracy
- principles of effective communication
- principles of AS/NZS 4360: 2004 Risk management and related guidelines
- privacy and confidentiality requirements
- relevant industry codes of practice
- relevant legislation and regulations including licensing requirements
- risk assessment techniques
- types of treatment options appropriate to the range of security risks and threats applicable to premises and businesses.

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

A person who demonstrates competency in this unit must be able to provide evidence of understanding and knowledge of the following:

- evaluating risks against developed criteria and selecting treatment options commensurate with the level and nature of potential risks based on the principles of AS/NZS 4360: 2004
- identifying the nature, cause and range of potential security risks to client based on an assessment of valid and relevant data
- preparing and presenting an analysis and options related to management of security risks and using effective interpersonal skills to enhance client understanding and acceptance of recommendations.

© Commonwealth of Australia, 2025 Future Skills Organisation

Context of and specific resources for assessment	Context of assessment includes: • a setting in the workplace or environment that simulates the conditions of performance described in the elements, performance criteria and range statement. Resource implications for assessment include: • access to a registered provider of assessment services • access to a suitable venue and equipment • access to plain English version of relevant statutes and procedures • assessment instruments including personal planner and assessment record book • work schedules, organisational policies and duty statements. Reasonable adjustments must be made to assessment processes where required for people with disabilities. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.
Method of assessment	This unit of competency should be assessed using questioning of underpinning knowledge and skills.
Guidance information for assessment	Assessment processes and techniques must be culturally appropriate and suitable to the language, literacy and numeracy capacity of the candidate and the competency being assessed. In all cases where practical assessment is used, it should be combined with targeted questioning to assess the underpinning knowledge. Oral questioning or written assessment may be used to assess underpinning knowledge. In assessment situations where the candidate is offered a choice between oral questioning and written assessment, questions are to be identical. Supplementary evidence may be obtained from relevant authenticated correspondence from existing supervisors, team leaders or specialist training staff.

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on

© Commonwealth of Australia, 2025 Future Skills Organisation

the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Legislative requirements may relate to:

- apprehension and powers of arrest
- Australian standards and quality assurance requirements
- counter-terrorism
- crowd control and control of persons under the influence of intoxicating substances
- force continuum, use of force guidelines
- general 'duty of care' responsibilities
- inspection of people and property, and search and seizure of goods
- licensing or certification requirements
- privacy and confidentiality
- relevant commonwealth, state and territory legislation, codes and national standards for:
  - anti-discrimination
  - cultural and ethnic diversity
  - environmental issues
  - equal employment opportunity
  - industrial relations
  - OHS
- relevant industry codes of practice
- trespass and the removal of persons
- use of restraints and weapons:
  - batons
  - firearms
  - handcuffs
  - spray.

Organisational requirements may relate to:

- access and equity policies, principles and practices
- business and performance plans
- client service standards
- code of conduct, code of ethics
- communication and reporting procedures
- complaint and dispute resolution procedures
- emergency and evacuation procedures
- employer and employee rights and responsibilities
- OHS policies, procedures and programs
- own role, responsibility and authority
- personal and professional development
- privacy and confidentiality of information
- quality assurance and continuous improvement processes

© Commonwealth of Australia, 2025 Future Skills Organisation

	and standards • resource parameters and procedures • roles, functions and responsibilities of security personnel • storage and disposal of information.

Relevant standards:	• must include AS/NZS 4360: 2004 Risk management
	• may relate to:
	  • AS2630-1983 Guide to the selection and application of intruder alarm systems for domestic and business premises
	  • HB 167:2006 Security Risk Management
	  • HB 436 Risk Management Guidelines - Companion to AS/NZS 4360
	  • HB 231:2000 Information security risk management guidelines
	  • other standards relating to the treatment options as published and distributed by Standards Australia.

Security risks may be:	• acceptable • across all aspects of operations • across limited number of operations • high likelihood • long-term • low likelihood • potentially avoidable • potentially unavoidable • short-term • unacceptable.
***Risk* relates to**:	• the chance of something happening that will have an impact on objectives.
Risks may relate to:	• break-ins • business operations • confidentiality • deliberate or accidental damage • finance • OHS • personnel • theft • threats of loss, harm or damage to persons or property • trespass • unauthorised access • vandalism • workplace environment.
Assessment of	• competitors

© Commonwealth of Australia, 2025 Future Skills Organisation

***operating environment* may relate to**:	• core business functions • environmental issues • financial markets • industrial relations • market share • nature of operations • neighbours • scale of operations • situational issues • size • stability • stability of company, organisation, industry and market • stakeholders • type of industry • workforce.
Security risk *nature and causes* may be:	• client-based • external • financial • internal • mechanical • operational • skill based.
***Treatment options* may relate to**:	• attendance • confidentiality • interventions • regularity of presence • rehearsals • surveillance.
***Verifiable evidence* may include**:	• incident reports • insurance data • official records • organisational data • video evidence • witness statements.
***Criteria* may include assessment of**:	• budgetary constraints • environmental issues • industrial relations • legal issues • nature of the task • operating environment of organisation • organisation structure

© Commonwealth of Australia, 2025 Future Skills Organisation

- organisational image
- political influences
- terms of reference
- timeframes.

***Presentation* may involve**:

- charts and statistical reports
- computer equipment including data projectors
- models
- real-time demonstration
- simulation
- the use of audio and video.

***Terms of reference* may relate to**:

- client expectations
- cost
- limitations and exclusions of access to information
- lines of authority
- operational environment
- roles and responsibilities
- scale of the assessment eg full-scale operation or limited to a particular section or operation of the company
- security and other clearances
- timeframe.

Interpersonal techniques may involve:

- active listening
- being non-judgemental
- being respectful and non-discriminatory
- constructive feedback
- control of tone of voice and body language
- culturally aware and sensitive use of language and concepts
- demonstrating flexibility and willingness to negotiate
- effective verbal and non-verbal communication
- maintaining professionalism
- providing sufficient time for questions and responses
- reflection and summarising
- two-way interaction
- use of plain English
- use of positive, confident and cooperative language.

Unit Sector(s)

Unit sector Security

© Commonwealth of Australia, 2025 Future Skills Organisation

Competency field

Competency field Security and risk management

© Commonwealth of Australia, 2025 Future Skills Organisation

CPPSEC5004A Prepare security risk management plan

Modification History

Not Applicable

Unit Descriptor

Unit descriptor

This unit of competency specifies the outcomes required to plan and prepare for security risks. It requires the ability to develop a security risk management plan which incorporates suitable strategies for risk identification and treatment, and contingency arrangements compatible to identified risk.

This unit may form part of the licensing requirements for persons engaged in security operations in those states and territories where these are regulated activities.

Application of the Unit

Application of the unit

This unit of competency has wide application in a range of managerial roles in the security industry. Work is performed under minimal supervision and competency requires a high level of judgement and decision-making. The knowledge and skills described in this unit are to be applied within relevant legislative and organisational guidelines.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Not Applicable

Employability Skills Information

Employability skills

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the required skills and knowledge section and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Evaluate security risks.	1.1 ***Security risks*** are identified and consequences interpreted in accordance with client, ***organisational*** and ***legislative requirements*** and ***relevant standards***. 1.2 Acceptable and unacceptable risks are clearly distinguished and confirmed. 1.3 High priority risks are emphasised and specified to ensure the development of appropriate ***controls***. 1.4 Existing controls are evaluated to determine impact on risk occurrence and required modifications identified.
2 Develop action plans.	2.1 Action plans are developed identifying key tasks, activities and resources to achieve security risk management objectives. 2.2 ***Type of risk*** associated with security context is identified and appropriate controls incorporated into planning processes. 2.3 Communication and reporting arrangements for maintaining currency of action plans are established. 2.4 ***Contingency arrangements*** for actions are developed and incorporated into plans.
3 Design treatment options.	3.1 Operating environment monitored to confirm potential and real risks, threats and required treatments. 3.2 ***Treatment options*** are selected in line with available organisational practices, and implications researched, clarified and approved by ***relevant persons***. 3.3 Feasible treatment options are documented and costed to ensure compatibility with nature of risk and client requirements.

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	3.4 Treatment options are linked to whole or part of security risks and verified with clients for suitability to security context.
	3.5 ***Tests*** on treatment options are conducted to determine applicability in the field, and results statistically analysed to confirm effectiveness of treatments.
4 Develop security risk management plan.	4.1 ***Management requirements*** are identified and accounted for in development of security risk management plan.
	4.2 Procedures for monitoring and review of security risk management activities are developed to ensure continuous improvement.
	4.3 Security risk management plan is developed incorporating all ***relevant information*** in line with appropriate ***format*** and relevant standards.
	4.4 Plan is finalised and presented to client for review and approval in accordance with organisational procedures.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge and their level required for this unit.

Required skills

- access and use workplace information
- active listening
- adapt personal communication style to a variety of situations
- analyse and evaluate information and data
- coaching and mentoring to provide support to colleagues
- collate numerical data
- communicate in a clear and concise manner
- design treatment options and tests
- negotiation
- numeracy skills to calculate resources and costings
- planning
- reading to interpret complex information
- relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities
- solve problems to deal with complex and non routine difficulties
- use technology to research, analyse and report information

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

- writing to develop complex reports.

Required knowledge

- applicable Occupational Health and Safety (OHS) licensing and legislative compliance requirements
- application of the hierarchy of control
- approved communication terminology and call signs
- available support agencies and the types of services offered
- basic methods for statistical analysis and presentation of statistical data
- difference between negative and positive language
- differences between written and spoken English
- how to read and use body language to gain confidence of others
- how to record information which may be used for legal purposes
- how to safeguard confidential information
- how to use business equipment to present information
- negotiation techniques
- OHS implications relating to use of guard dogs, apprehension or arrest of persons, use of firearms, use of restraints, handcuffs, batons and spray
- organisational standards for the presentation and maintenance of written information
- principles of AS/NZS 4360: 2004 Risk management
- risk management principles and practices
- sources of supply of security equipment or systems
- tactical response measures
- use of force guidelines.

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit	A person who demonstrates competency in this unit must be able to provide evidence of: • identifying and evaluating security risks and control measures in compliance with client, organisational and legislative requirements • designing and developing effective action plans which

© Commonwealth of Australia, 2025 Future Skills Organisation

incorporate strategies for treating risks, contingency arrangements, key tasks and resources, and communication and reporting
- designing and testing risk treatment options which are compatible with nature of risk and client requirements, and conducting an analysis of the results to confirm effectiveness of treatments
- developing a comprehensive risk management plan in an appropriate format which incorporates a broad range of relevant information, considers implementation issues, and incorporates continuous improvement mechanisms based on the principles of AS/NZS 4360:2004.

Context of and specific resources for assessment

Context of assessment includes:

- a setting in the workplace or environment that simulates the conditions of performance described in the elements, performance criteria and range statement.

Resource implications for assessment include:

- access to a registered provider of assessment services
- access to a suitable venue and equipment
- access to plain English version of relevant statutes and procedures
- assessment instruments including personal planner and assessment record book
- work schedules, organisational policies and duty statements.

Reasonable adjustments must be made to assessment processes where required for people with disabilities. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.

Method of assessment

This unit of competency should be assessed using questioning of underpinning knowledge and skills.

Guidance information for assessment

Assessment processes and techniques must be culturally appropriate and suitable to the language, literacy and numeracy capacity of the candidate and the competency being assessed. In all cases where practical assessment is used, it should be combined with targeted questioning to assess the underpinning knowledge.

Oral questioning or written assessment may be used to assess underpinning knowledge. In assessment situations where the candidate is offered a choice between oral questioning and written assessment, questions are to be identical.

Supplementary evidence may be obtained from relevant authenticated correspondence from existing supervisors, team leaders or specialist training staff.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Security risks may relate to:

- biological hazards
- chemical spills
- client contact
- electrical faults
- explosives
- financial viability
- injury to personnel
- noise, light, heat, smoke
- persons carrying weapons
- persons causing a public nuisance
- persons demonstrating suspicious behaviour
- persons suffering from emotional or physical distress
- persons under the influence of intoxicating substances
- persons with criminal intent
- persons, vehicles and equipment in unsuitable locations
- property or people
- security systems
- suspicious packages or substances
- systems or process failures
- terrorism
- violence or physical threats.

***Risk* relates to**:

- the chance of something happening that will have an impact on objectives.

Organisational requirements may relate to:

- client service standards
- implementation of OHS system
- policies for ensuring privacy and confidentiality of information
- procedures for archiving electronic and hard-copy records
- procedures for recording, storing and destroying information

© Commonwealth of Australia, 2025 Future Skills Organisation

- standard of language, literacy and numeracy required
- use of organisational equipment and resources.

Legislative requirements may relate to:

- anti-discrimination and diversity
- Australian standards, codes of practice and regulations
- award and enterprise agreements
- duty of care
- evidence collection
- licensing arrangements and certification requirements
- OHS issue resolution
- relevant commonwealth, state and territory OHS legislation, codes of practice and regulations
- roles and responsibilities of OHS representatives and committees
- trade practices
- use of force.

Relevant standards:

- must include AS/NZS 4360: 2004 Risk management
- may relate to:
  - AS2630-1983 Guide to the selection and application of intruder alarm systems for domestic and business premises
  - HB 167:2006 Security Risk Management
  - HB 436 Risk Management Guidelines - Companion to AS/NZS 4360
  - HB 231:2000 Information security risk management guidelines.

***Controls* may include**:

- communication
- deployment of specialist expertise or equipment
- development of procedures
- monitoring and surveillance
- physical attendance and security
- staff ratios and resource deployment
- training of personnel.

Type of risk may be:

- intermediate
- likely to occur
- major
- minor
- physical
- potentially avoidable
- potentially unavoidable
- property related
- unlikely to occur.

Contingency

- approvals and licenses

© Commonwealth of Australia, 2025 Future Skills Organisation

***arrangements* may include**:	• availability of additional resources • background information • back-up • checklists and reporting • identification requirements • instructions.
***Project planning requirements* may include**:	• key outcomes • milestones • personnel involvement • resources • tasks • timelines.
***Treatment options* may include**:	• controlled interruptions to normal operations • exercises • information collation and analysis • simulations • surveillance • verification requirements.
***Relevant persons* may include**:	• authorities • client • managers • technical specialists.
***Tests* may include**:	• alarms and other warning devices • exercises • inspections • interviews • rehearsals • simulations.
***Management requirements* may relate to**:	• adherence to organisational policies and procedures • allocation of suitable resources and expertise • feedback and monitoring arrangements • preparation of documentation and checklists • procedures to maximise safety of operatives • project planning • reporting procedures and timeframes • risk management timelines and objectives specified in action plans.
***Relevant information* may include**	• action plans • backup systems or processes • contingency plans • details and results of testing and relevant statistical

© Commonwealth of Australia, 2025 Future Skills Organisation

analysis
- identified assets
- identified management requirements
- implementation issues
- operational issues
- resource requirements including allocation and location of resources
- review and monitoring procedures
- risk assessment
- supporting evidence
- threat assessment
- treatment options and strategies linked to risks and threats.

***Format* may relate to**:
- accuracy
- common industry terminology
- enclosures and attachments
- length
- sequence of coverage
- style
- use of abbreviations
- use of appendices
- use of plain English.

Unit Sector(s)

Unit sector Security

Competency field

Competency field Security and risk management

© Commonwealth of Australia, 2025 Future Skills Organisation

CPPSEC5005A Implement security risk management plan

Modification History

Not Applicable

Unit Descriptor

Unit descriptor

This unit of competency specifies the outcomes required to facilitate implementation of a security risk management plan. It requires the ability to allocate roles and responsibilities, coordinate and monitor implementation procedures, and evaluate the effectiveness of treatment options.

This unit may form part of the licensing requirements for persons engaged in risk assessment operations in those states and territories where these are regulated activities.

Application of the Unit

Application of the unit

This unit of competency has wide application in a range of managerial roles in the security industry. Work is performed under minimal supervision and competency requires a high level of judgement and decision-making. The knowledge and skills described in this unit are to be applied within relevant legislative and organisational guidelines.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Not Applicable

Employability Skills Information

Employability skills

This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the required skills and knowledge section and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Organise functions and tasks.	1.1 Applicable provisions of ***legislative*** and ***organisational requirements***, and ***relevant standards*** for ***risk*** assessment activities are identified and complied with.
	1.2 ***Roles and responsibilities*** associated with the implementation of the security risk management plan are clearly defined and articulated to ***relevant persons***.
	1.3 ***Activities*** and targets are linked to achievement of milestones and outcomes in project action plans.
	1.4 ***Resources***, ***equipment and materials*** to assist plan implementation are suitable to project purposes and available within specified timelines.
	1.5 Information related to the implementation of the plan is accurately and promptly distributed using established communication channels.
	1.6 Confidentiality requirements are confirmed and maintained in accordance with client and organisational requirements.
2 Monitor risk context.	2.1 Emerging risks or threats to assets are monitored and assessed to maintain ongoing suitability of implemented security risk ***treatment options***.
	2.2 Changes to operating environment are monitored and corrective measures determined and incorporated into the plan as required.
	2.3 ***Targets and outcomes*** are regularly reviewed and evaluated to ensure achievement of ***project aims*** based on relevant standards.
	2.4 Existence and occurrence of risks are accurately and

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	comprehensively documented providing an assessment of the type, nature and cause.
	2.5 Application of contingencies and corrective measures are accurately documented.
3 Review effectiveness of treatment options.	3.1 Long and short-term options are costed to ensure an accurate estimate of resources is allocated to support the plans.
	3.2 Discrepancies between treatment options and risk incidence are monitored and addressed through appropriate modifications to plans.
	3.3 Stages of implementation are identified and resources and options are coordinated to ensure access and availability.
	3.4 Corrective measures are developed, tested and incorporated into the risk management plan.
	3.5 Feedback on effectiveness of treatment options is sought and provided to relevant personnel.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge and their level required for this unit.

Required skills

- allocate work tasks and functions
- coaching and mentoring to provide support to colleagues
- collate and analyse numerical data
- communicate in a clear and concise manner
- delegate roles and responsibilities
- determine suitability of treatment option against security risk
- determine type and nature of security risks and threats
- manage projects
- monitor implementation procedures
- monitor risk context and identify emerging risks or threats to assets
- prepare and present verbal and written reports
- prioritise tasks and organise schedules
- prioritise treatment options in terms of degree of security risk
- provide written communication to a standard required for compiling reports and summarising information

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

- relate to persons of different social and cultural backgrounds and varying physical and mental abilities
- research and analyse data and information
- summarise information
- use a variety of problem-solving techniques
- use business equipment and technology.

Required knowledge

- availability and capability of project management software
- concept of integrated security measures including physical security; information technology security, and security of personnel and information
- current security systems and technologies and available expertise
- operating environment and business operations
- preparation of documentation procedures
- principles of effective communication
- principles of AS/NZS 4360: 2004 Risk management and related guidelines
- privacy and confidentiality requirements
- process of security risk management
- relevant legislation and regulations including licensing requirements
- risk assessment techniques and processes
- sources of supply of security equipment and systems
- types of treatment options appropriate to the range of security risks and threats applicable to premises and businesses.

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

A person who demonstrates competency in this unit must be able to provide evidence of:

- monitoring emerging risks to ensure ongoing suitability of risk management plan based on principles of AS/NZS 4360: 2004
- efficient allocation of resources to support risk management plan
- effectively communicating designated roles, responsibilities and work schedules to security personnel

© Commonwealth of Australia, 2025 Future Skills Organisation

- preparing documentation and guidelines with a clear explanation of the incidence, nature and causes of risks and appropriate contingency arrangements
- systematically reviewing the effectiveness of treatment options and making appropriate modifications as required to address any discrepancies between treatment options and risk incidence.

Context of and specific resources for assessment

Context of assessment includes:

- a setting in the workplace or environment that simulates the conditions of performance described in the elements, performance criteria and range statement.

Resource implications for assessment include:

- access to a registered provider of assessment services
- access to a suitable venue and equipment
- access to plain English version of relevant statutes and procedures
- assessment instruments including personal planner and assessment record book
- work schedules, organisational policies and duty statements.

Reasonable adjustments must be made to assessment processes where required for people with disabilities. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.

Method of assessment

This unit of competency should be assessed using questioning of underpinning knowledge and skills.

Guidance information for assessment

Assessment processes and techniques must be culturally appropriate and suitable to the language, literacy and numeracy capacity of the candidate and the competency being assessed. In all cases where practical assessment is used, it should be combined with targeted questioning to assess the underpinning knowledge.

Oral questioning or written assessment may be used to assess underpinning knowledge. In assessment situations where the candidate is offered a choice between oral questioning and written assessment, questions are to be identical.

Supplementary evidence may be obtained from relevant authenticated correspondence from existing supervisors, team leaders or specialist training staff.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Legislative requirements may relate to:

- apprehension and powers of arrest
- Australian standards and quality assurance requirements
- cabling
- counter-terrorism
- crowd control and control of persons under the influence of intoxicating substances
- Force continuum, use of force guidelines
- general 'duty of care' responsibilities
- inspection of people and property, and search and seizure of goods
- licensing or certification requirements
- privacy and confidentiality
- relevant commonwealth, state and territory legislation, codes and national standards for:
  - anti-discrimination
  - cultural and ethnic diversity
  - environmental issues
  - equal employment opportunity
  - industrial relations
  - Occupational Health and Safety (OHS)
- relevant industry codes of practice
- surveillance
- telecommunications
- trespass and the removal of persons
- use of listening and recording devices
- use of restraints and weapons:
  - batons
  - firearms
  - handcuffs
  - spray.

Organisational requirements may

- access and equity policies, principles and practices
- business and performance plans

© Commonwealth of Australia, 2025 Future Skills Organisation

relate to:

- client service standards
- code of conduct, code of ethics
- communication and reporting procedures
- complaint and dispute resolution procedures
- emergency and evacuation procedures
- employer and employee rights and responsibilities
- OHS policies, procedures and programs
- own role, responsibility and authority
- personal and professional development
- privacy and confidentiality of information
- quality assurance and continuous improvement processes and standards
- resource parameters and procedures
- roles, functions and responsibilities of security personnel
- storage and disposal of information.

Relevant standards:

- must include AS/NZS 4360: 2004 Risk management
- may relate to:
  - AS2630-1983 Guide to the selection and application of intruder alarm systems for domestic and business premises
  - HB 167:2006 Security Risk Management
  - HB 436 Risk Management Guidelines - Companion to AS/NZS 4360
  - HB 231:2000 Information security risk management guidelines.

***Risk* relates to**:

- the chance of something happening that will have an impact on objectives.

Security risks may relate to:

- biological hazards
- chemical spills
- client contact
- electrical faults
- explosives
- financial viability
- injury to personnel
- noise, light, heat, smoke
- persons carrying weapons
- persons causing a public nuisance
- persons demonstrating suspicious behaviour
- persons suffering from emotional or physical distress
- persons under the influence of intoxicating substances
- persons with criminal intent
- persons, vehicles and equipment in unsuitable locations

© Commonwealth of Australia, 2025 Future Skills Organisation

- property or people
- security systems
- suspicious packages or substances
- systems or process failures
- terrorism
- violence or physical threats.

Roles and responsibilities may relate to:

- administrative support
- backup operational role
- decision-making
- frontline role
- team leadership
- team membership.

Relevant persons may include:

- client
- colleagues
- human resources personnel
- management
- security personnel.

Activities may include:

- advising
- field work
- monitoring
- organising
- report preparation
- reporting.

Resources, equipment and materials may relate to:

- consumables
- equipment
- funding
- personnel
- time
- vehicles.

***Treatment options* may relate to**:

- controlled interruptions to normal operations
- exercises
- information collation and analysis
- simulations
- surveillance
- verification requirements.

***Targets and outcomes* may relate to**:

- client support times
- effective security risk management
- incident reports
- level of feedback from clients
- number of new sales
- police liaison

© Commonwealth of Australia, 2025 Future Skills Organisation

***Project aims* may relate to**:	• response times. • key outcomes • milestones • personnel involvement • resources • tasks • timelines.

Unit Sector(s)

Unit sector Security

Competency field

Competency field Security and risk management

© Commonwealth of Australia, 2025 Future Skills Organisation

CPPSEC5006A Determine strategy for the implementation of biometric technology

Modification History

Not Applicable

Unit Descriptor

Unit descriptor

This unit of competency specifies the outcomes required to determine requirements and processes for the strategic implementation of biometric technology in the workplace.

It requires the ability to determine security and biometric technology requirements, design treatment options and develop an implementation strategy for the integration of a biometrics system.

An understanding of the operating principles of biometric systems including software, hardware and acquisition devices is also required as well as the ability to interpret and apply effective principles and requirements relating to confidentiality, privacy and security in own work.

This unit may form part of the licensing requirements for persons engaged in security operations involving biometric technology in those states and territories where these are regulated activities.

Application of the Unit

Application of the unit

This unit of competency has application in those roles involving determining requirements for biometric technology in the workplace to maintain security. Competency requires legal and operational knowledge applicable to relevant sectors of the security industry. The knowledge and skills described in this unit are to be applied within relevant legislative and organisational guidelines.

© Commonwealth of Australia, 2025 Future Skills Organisation

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Not Applicable

Employability Skills Information

Employability skills This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the required skills and knowledge section and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Determine security requirements.	1.1 Applicable ***Occupational Health and Safety*** (***OHS***), ***legislative*** and ***organisational requirements*** relevant to workplace ***biometric technology*** are identified and complied with. 1.2 Relevant ***privacy legislation*** and codes of ethics relevant to the workplace application of biometric technology are accessed and interpreted. 1.3 Reliability and effectiveness of organisational ***security safeguards*** are evaluated. 1.4 ***Threats*** to organisational physical and technical security are identified. 1.5 ***Risks*** are identified and risk levels established and prioritised. 1.6 Effective ***communication*** and ***interpersonal techniques*** are used that reflect sensitivity to individual ***social and***

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	cultural differences.
	1.7 Specialist assistance to examine and assess security requirements is sought as required in accordance with organisational requirements.
2 Determine requirements for implementing biometric technology.	2.1 Legislative and regulatory requirements applicable to the use of biometric technology are confirmed.
	2.2 ***Options*** for single or ***multiple*** biometric technology are determined.
	2.3 Physical and technical specifications of ***biometric equipment and systems*** to be installed are determined.
	2.4 Workspace requirements are identified and locations determined.
	2.5 ***Resources***, skills and training requirements for the implementation of biometric technology are determined.
	2.6 ***Existing architecture*** is assessed for effective integration with biometric technology and ***additional requirements*** determined.
3 Design implementation options.	3.1 Implementation options are selected in accordance with industry practices and organisational policies and procedures.
	3.2 Implementation options are ***feasible*** and verifiable in accordance with organisational requirements.
	3.3 Implementation options are in compliance with time schedules, available resources and budgetary guidelines.
	3.4 Implementation options take into account organisational risk assessment and security requirements.
	3.5 Implementation options are effective and applicable in the workplace.
4 Develop an implementation strategy.	4.1 All ***relevant information*** is collated, documented and presented in an ***appropriate format*** in accordance with organisational requirements.
	4.2 ***Implementation strategy*** is developed in accordance with organisational requirements.
	4.3 Strategy incorporates ***contingencies*** and allows for continuous improvement planning.
	4.4 Strategy is presented to ***relevant persons*** and feedback is sought and used to evaluate and refine strategy.
	4.5 ***Records and reports*** are completed and maintained in accordance with legislative and organisational requirements.

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge and their level required for this unit.

Required skills

- accurately and securely maintain records, reports and other workplace information
- analyse organisational security plans, goals, objectives and existing safeguards
- coaching and mentoring to provide support to colleagues
- comply with applicable confidentiality and privacy requirements
- comply with legislation, regulations, standards, codes of practice relevant to workplace biometric technology
- conduct and evaluate risk and threat assessments
- design effective treatment options
- determine biometric technology and system requirements, including single or multiple biometrics applications
- determine resources including personnel, tools and equipment
- determine security requirements
- make effective decisions
- plan for contingencies
- read and interpret technical information including plans, designs and specifications
- relate effectively to people from a range of social, cultural and ethnic backgrounds and varying physical and mental abilities
- research and analyse data and specifications
- resolve problems
- select and use equipment and technology appropriate to the work task
- undertake effective enrolment of biometric and biographical data
- use appropriate communication and interpersonal skills including negotiation
- written communication skills sufficient to complete relevant records and reports.

Required knowledge

- accuracy metrics and ratios according to risk tolerance
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice relevant to the full range of processes relating to workplace biometric technology
- appropriate mathematical procedures for estimating, measuring and calculating
- biometric technology installation and implementation processes, procedures and requirements
- ergonomic and safe working practices and procedures
- established threshold levels and their impact on security
- feasibility and cost-benefit analysis techniques

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

- initial enrolment processes
- management of enrolment data
- operating systems and integration application requirements
- operational principles of information technology
- organisational procedures for recording, reporting and maintaining workplace information
- organisational security plans, goals and objectives
- organisational standards, requirements, policies and procedures for the use of biometric technology
- principles of cultural diversity and access and equity
- privacy and ethics issues associated with biometric technology
- product options for various biometric systems
- risk, threats and vulnerabilities associated with biometric technology
- security and risk assessment and management techniques and processes
- types, functions and parameters of biometric technology including software, hardware and acquisition devices
- workplace communication channels, protocols and procedures.

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

A person who demonstrates competency in this unit must be able to provide evidence of:

- accurately estimating resources to support implementation strategy and determining roles, responsibilities and work schedules
- complying with applicable legislation and codes of ethics applicable to privacy and client confidentiality
- complying with organisational policies and procedures, including OHS, relevant to biometric work tasks
- designing treatment options which are compatible with assessed risk and security requirements
- determining biometric technology requirements based on an accurate evaluation of existing security controls, assets, and potential risks and threats

© Commonwealth of Australia, 2025 Future Skills Organisation

- developing an effective strategy which incorporates the implementation of treatment options, contingency arrangements, and resources for the effective implementation of biometric technology in a workplace environment.

Context of and specific resources for assessment

Context of assessment includes:

- a setting in the workplace or environment that simulates the conditions of performance described in the elements, performance criteria and range statement.

Resource implications for assessment include:

- access to a registered provider of assessment services
- access to a suitable venue and equipment
- access to plain English version of relevant statutes and procedures
- assessment instruments including personal planner and assessment record book
- work schedules, organisational policies and duty statements.

Reasonable adjustments must be made to assessment processes where required for people with disabilities. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.

Method of assessment

This unit of competency could be assessed using the following methods of assessment:

- observation of processes and procedures
- questioning of underpinning knowledge and skills.

Guidance information for assessment

Assessment processes and techniques must be culturally appropriate and suitable to the language, literacy and numeracy capacity of the candidate and the competency being assessed. In all cases where practical assessment is used, it should be combined with targeted questioning to assess the underpinning knowledge.

Oral questioning or written assessment may be used to assess underpinning knowledge. In assessment situations where the candidate is offered a choice between oral questioning and written assessment, questions are to be identical.

Supplementary evidence may be obtained from relevant authenticated correspondence from existing supervisors, team leaders or specialist training staff.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Occupational Health and Safety (***OHS***) ***requirements may relate to***:

- controlling and minimising risks
- correct manual handling including shifting, lifting and carrying
- elimination of hazardous materials and substances
- identifying hazards
- safe use and operation of equipment including
  - business technology
  - first aid equipment
  - fire safety equipment
  - personal protective clothing and equipment
  - safety equipment
- safety procedures for the protection of self and others.

Legislative requirements may relate to:

- Australian standards and quality assurance requirements
- award and enterprise agreements
- Compliance Policy Guidelines (CPGs)
- counter-terrorism
- general 'duty of care' responsibilities
- licensing or certification requirements
- privacy and confidentiality
- relevant commonwealth, state and territory legislation, codes and national standards for:
  - anti-discrimination
  - cultural and ethnic diversity
  - environmental issues
  - equal employment opportunity
  - industrial relations
  - OHS
- relevant industry codes of practice
- telecommunications.

Organisational requirements may relate to:

- access and equity policies, principles and practices
- business and performance plans
- client service standards

© Commonwealth of Australia, 2025 Future Skills Organisation

- code of conduct, code of ethics
- communication and reporting procedures
- complaint and dispute resolution procedures
- emergency and evacuation procedures
- employer and employee rights and responsibilities
- environmental management including waste disposal, recycling and re-use guidelines
- OHS policies, procedures and programs
- own role, responsibility and authority
- personal and professional development
- privacy and confidentiality of information
- quality assurance and continuous improvement processes and standards
- resource parameters and procedures
- roles, functions and responsibilities of security personnel
- standard operating procedures
- storage and disposal of information
- use and maintenance of equipment and systems.

Biometric refers to:

- a measurable physical characteristic or personal behavioural trait used to recognise the identity or verify the identity of an individual.

Biometric technologies include:

- facial recognition
- fingerprint recognition
- hand geometry
- iris recognition
- retina recognition
- signature recognition
- vein recognition
- voice recognition.

Privacy legislation may include:

- Commonwealth, State and Territory Privacy Acts
- national information privacy principles
- national privacy principles.

Security safeguards may be:

- administrative and include:
  - contingency plans (data back-up, disaster recovery, and emergency mode operation plans)
  - information access management (access authorisation, establishment and modification)
  - security awareness and training (awareness, virus protection, log-in success or failure, password management)
  - security incident procedures (report and response procedures)

© Commonwealth of Australia, 2025 Future Skills Organisation

- security management (risk analysis and management)
- physical and include measures to protect information systems, buildings and equipment from natural and environmental hazards and unauthorised intrusions
- technical and include:
  - access control (user identification, emergency access procedures, automatic log-off, encryption and decryption)
  - audit control (logging, capturing data versions, times, sessions, workstations, events and user information)
  - transmission security (integrity controls, encryption).

Threats:

- are intentional or unintentional potential events that could compromise the security integrity of physical and technical organisational systems.

***Risk* relates to**:

- the chance of something happening that will have an impact on objectives.

***Risks* may relate to**:

- data and information
- personnel
- property.

Communication may be:

- face-to-face
- group interaction
- in Indigenous languages
- in languages other than English
- oral reporting
- participation in routine meetings
- reading independently
- recording of discussions
- speaking clearly and directly
- through the use of assistive technology
- via an interpreter
- visual or written
- writing to audience needs.

Interpersonal techniques may involve:

- active listening
- being non-judgemental
- being respectful and non-discriminatory
- constructive feedback
- control of tone of voice and body language
- culturally aware and sensitive use of language and concepts
- demonstrating flexibility and willingness to negotiate
- effective verbal and non-verbal communication
- maintaining professionalism

© Commonwealth of Australia, 2025 Future Skills Organisation

- providing sufficient time for questions and responses
- reflection and summarising
- two-way interaction
- use of plain English
- use of positive, confident and cooperative language.

***Social and cultural differences* may relate to**:

- dress and personal presentation
- food
- language
- religion
- social conventions
- traditional practices
- values and beliefs.

***Options* may relate to**:

- enrolment advice
- motivation to verify
- tolerance for rejected attempts.

***Multiple* biometrics refers to**:

- a biometric system that integrates two ore more biometric technologies (facial and iris recognition, and multiple instances of a single biometric eg one, two or ten fingerprints).

Biometric equipment and systems are:

- automated systems able to capture a biometric sample from an individual person, extract biometric data from the sample, compare the data with one or more reference templates, determine the quality of a match, and indicate whether or not an identification or verification of identity has been achieved.

Biometric equipment and systems may include:

- acquisition devices:
  - cameras (video, infrared-enabled video, single-image)
  - chip or reader embedded in peripheral device
  - microphones
  - optical scanners
- biometric servers
- hardware
- interconnecting infrastructure
- software:
  - server-based authentication software for biometric authentication and logging
  - software associated with acquisition devices.

Resource requirements may include:

- computer systems (hardware, software and infrastructure)
- equipment
- funding
- personnel
- time

© Commonwealth of Australia, 2025 Future Skills Organisation

- tools.

***Existing architecture* may include**:

- desktop PCs
- local area networks (LANs)
- mainframe systems
- servers
- websites
- wide area networks (WANs).

***Additional requirements* may relate to**:

- integration service requirements and interoperability
- upgrading or replacing the system or components of the system.

***Feasibility* may relate to**:

- economic and schedule feasibility
- operational feasibility
- technical feasibility.

***Relevant information* may include**:

- assets (resources, data and information)
- contingency plans
- implementation issues
- resource requirements including allocation and location
- risk and threat assessment outcomes
- treatment options.

Appropriate format may include:

- formats that cater for those with special needs for example, producing documents in large print.

Implementation strategy may include:

- analysis and comparison of biometrics system options
- assessment of security risks
- enrolment processes
- integration requirement and system interoperability
- resources necessary for implementation
- staged rollouts.

Contingencies may detail:

- roles, responsibilities, teams and procedures associated with restoring a security system following a disruption
- side manual door entry.

***Relevant persons* may include**:

- biometric technology specialists
- clients
- colleagues
- external consultants
- information technology specialists
- manager.

Records and reports:

- may be:
  - computer-based
  - manual
  - other appropriate organisational communication

© Commonwealth of Australia, 2025 Future Skills Organisation

system

- may detail:
  - biometric technologies and systems
  - organisational security requirements
  - resources requirements
  - risk assessment outcomes
  - technical data and specifications
  - timeframe and financial considerations.

Unit Sector(s)

Unit sector Security

Competency field

Competency field Biometrics

© Commonwealth of Australia, 2025 Future Skills Organisation

CPPSEC5007A Assess biometric system

Modification History

Not Applicable

Unit Descriptor

Unit descriptor

This unit of competency specifies the outcomes required to conduct an assessment of the application and operations of biometric technologies and systems in a workplace environment.

It requires the ability to determine security arrangements and requirements, measure and assess the operation, application and outcomes of biometric technologies and systems in terms of efficiency and effectiveness. It also involves the preparation and presentation of assessment results.

An understanding of the operating principles of biometric systems including software, hardware and acquisition devices, and principles of measurement and assessment are also required as well as the ability to interpret and apply effective principles and requirements relating to confidentiality, privacy and security in own work.

This unit may form part of the licensing requirements for persons engaged in security operations involving biometric technology in those states and territories where these are regulated activities.

Application of the Unit

Application of the unit

This unit of competency has application in those roles involving the assessment of biometric technologies and systems in the workplace. Competency requires legal and operational knowledge applicable to relevant sectors of the security industry. The knowledge and skills described in this unit are to be applied within relevant legislative and organisational guidelines.

© Commonwealth of Australia, 2025 Future Skills Organisation

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Not Applicable

Employability Skills Information

Employability skills This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the required skills and knowledge section and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Plan for assessment.	1.1 Applicable ***Occupational Health and Safety*** (***OHS***), ***legislative*** and ***organisational requirements*** relevant to ***biometric technologies and systems*** are confirmed. 1.2 Relevant ***privacy legislation*** and codes of ethics relevant to the workplace application of biometric technology are accessed and interpreted. 1.3 Context and purpose of assessment is determined and clarified with ***relevant persons*** as required. 1.4 Organisational ***security requirements*** are determined. 1.5 Resources relevant to assessment activities are determined and organised in accordance with workplace procedures. 1.6 ***Assessment plan*** is constructed in accordance with client requirements and workplace procedures.
2 Conduct assessment.	2.1 Effective ***communication*** and ***interpersonal techniques*** are used that reflect sensitivity to individual ***social and***

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	cultural differences.
	2.2 Integration of biometric systems with ***existing architecture*** is assessed.
	2.3 Operational functions of biometric technologies and systems are assessed.
	2.4 Application of single or ***multiple*** biometric technologies are assessed.
	2.5 Data and information is assessed and errors or deficiencies identified.
	2.6 Skills and training requirements for the use, operation and maintenance of biometric systems are determined.
3 Complete assessment.	3.1 Assessment results are analysed, accurately documented and prepared in an ***appropriate format*** in accordance with organisational requirements.
	3.2 Findings are presented to relevant persons in accordance with workplace procedures.
	3.3 Findings are supported by verifiable evidence in accordance with organisational requirements.
	3.4 Feedback is sought, received and used in a constructive manner.
	3.5 Recommendations or identified opportunities for ***system improvements*** are forwarded to relevant persons to inform future practice.
	3.6 ***Records and reports*** are completed and maintained in accordance with legislative and organisational requirements.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge and their level required for this unit.

Required skills

- accurately and securely maintain records, reports and other workplace information
- analyse organisational security plans, goals, objectives and existing safeguards
- assess data and information and identify errors or deficiencies
- assess the application, operation and outcomes of biometric technologies and systems
- coaching and mentoring to provide support to colleagues

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

- comply with applicable confidentiality and privacy requirements
- comply with legislation, regulations, standards, codes of practice relevant to workplace biometric systems
- conduct and evaluate risk and threat assessments
- conduct contingency planning
- design effective treatment options
- determine biometric technology and system requirements, including single or multiple biometric applications
- determine resource requirements including personnel, tools and equipment
- determine security requirements
- determine skills and training requirements
- make effective decisions
- read and interpret technical information including plans, designs and specifications
- relate effectively to people from a range of social, cultural and ethnic backgrounds and varying physical and mental abilities
- resolve problems
- select and use equipment and technology appropriate to the work task
- undertake effective enrolment of biometric and biographical data
- use appropriate communication and interpersonal skills including negotiation.
- written communication skills sufficient to complete relevant records and reports
- written communication skills sufficient to write assessment plan, document assessment results and complete relevant records and reports.

Required knowledge

- accuracy metrics and ratios according to risk tolerance
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice relevant to the full range of processes relating to workplace biometric systems
- appropriate mathematical procedures for estimating, measuring and calculating
- assessment methods and techniques
- biometric technology and systems installation and implementation processes, procedures and requirements
- ergonomic and safe working practices and procedures
- established threshold levels and their impact on security
- feasibility and cost-benefit analysis techniques
- initial enrolment processes
- management of enrolment data
- operating systems and integration application requirements
- operational principles of information technology
- organisational procedures for recording, reporting and maintaining workplace information
- organisational security plans, goals and objectives

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

- organisational standards, requirements, policies and procedures for the use of biometric systems
- principles of cultural diversity and access and equity
- privacy and ethics issues associated with biometric systems
- problem identification and resolution procedures
- product options for various biometric systems
- risk, threats and vulnerabilities associated with biometric technology
- security and risk assessment and management techniques and processes
- types, functions and parameters of biometric systems including software, hardware and acquisition devices
- workplace communication channels, protocols and procedures.

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit	A person who demonstrates competency in this unit must be able to provide evidence of: • complying with applicable legislation and codes of ethics applicable to privacy and client confidentiality • complying with organisational policies and procedures, including OHS, relevant to biometric work tasks • determining security requirements based on an accurate assessment of existing security controls, assets, and existing and potential risks and threats • determining skill and training requirements to support the application of biometric technologies and systems • efficiently and effectively assessing the application, operation and outcomes of biometric technologies and systems, including an accurate assessment of data and information • establishing purpose and context of assessment and plan, organising and coordinating assessment activities • preparing and presenting assessment findings, seeking and reviewing feedback, and recommending opportunities for improvement to inform future practices.
Context of and specific	Context of assessment includes:

© Commonwealth of Australia, 2025 Future Skills Organisation

resources for assessment	• a setting in the workplace or environment that simulates the conditions of performance described in the elements, performance criteria and range statement. Resource implications for assessment include: • access to a registered provider of assessment services • access to a suitable venue and equipment • access to plain English version of relevant statutes and procedures • assessment instruments including personal planner and assessment record book • work schedules, organisational policies and duty statements. Reasonable adjustments must be made to assessment processes where required for people with disabilities. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.
Method of assessment	This unit of competency could be assessed using the following methods of assessment: • observation of processes and procedures • questioning of underpinning knowledge and skills.
Guidance information for assessment	Assessment processes and techniques must be culturally appropriate and suitable to the language, literacy and numeracy capacity of the candidate and the competency being assessed. In all cases where practical assessment is used, it should be combined with targeted questioning to assess the underpinning knowledge. Oral questioning or written assessment may be used to assess underpinning knowledge. In assessment situations where the candidate is offered a choice between oral questioning and written assessment, questions are to be identical. Supplementary evidence may be obtained from relevant authenticated correspondence from existing supervisors, team leaders or specialist training staff.

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work

© Commonwealth of Australia, 2025 Future Skills Organisation

situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Occupational Health and Safety* (*OHS*) *requirements may relate to:

- controlling and minimising risks
- correct manual handling including shifting, lifting and carrying
- elimination of hazardous materials and substances
- identifying hazards
- safe use and operation of equipment including
  - business technology
  - first aid equipment
  - fire safety equipment
  - personal protective clothing and equipment
  - safety equipment
- safety procedures for the protection of self and others.

Legislative requirements may relate to:

- Australian standards and quality assurance requirements
- award and enterprise agreements
- Compliance Policy Guidelines (CPGs)
- counter-terrorism
- general 'duty of care' responsibilities
- licensing or certification requirements
- privacy and confidentiality
- relevant commonwealth, state and territory legislation, codes and national standards for:
  - anti-discrimination
  - cultural and ethnic diversity
  - environmental issues
  - equal employment opportunity
  - industrial relations
  - OHS
- relevant industry codes of practice
- telecommunications.

Organisational requirements may relate to:

- access and equity policies, principles and practices
- business and performance plans
- client service standards
- code of conduct, code of ethics
- communication and reporting procedures
- complaint and dispute resolution procedures
- emergency and evacuation procedures
- employer and employee rights and responsibilities
- environmental management including waste disposal, recycling and re-use guidelines

© Commonwealth of Australia, 2025 Future Skills Organisation

- OHS policies, procedures and programs
- own role, responsibility and authority
- personal and professional development
- privacy and confidentiality of information
- quality assurance and continuous improvement processes and standards
- resource parameters and procedures
- roles, functions and responsibilities of security personnel
- standard operating procedures
- storage and disposal of information
- use and maintenance of equipment and systems.

Biometric refers to:

- a measurable physical characteristic or personal behavioural trait used to recognise the identity or verify the identity of an individual.

Biometric technologies include:

- facial recognition
- fingerprint recognition
- hand geometry
- iris recognition
- retina recognition
- signature recognition
- vein recognition
- voice recognition.

Biometric systems are:

- automated systems able to capture a biometric sample from an individual person, extract biometric data from the sample, compare the data with one or more reference templates, determine the quality of a match, and indicate whether or not an identification or verification of identity has been achieved.

Biometric systems may include:

- acquisition devices
  - cameras (video, infrared-enabled video, single-image)
  - chip or reader embedded in peripheral device
  - microphones
  - optical scanners
- biometric servers
- hardware
- interconnecting infrastructure
- software
  - server-based authentication software for biometric authentication and logging
  - software associated with acquisition devices.

Privacy legislation may include:

- Commonwealth, State and Territory Privacy Acts
- national information privacy principles

© Commonwealth of Australia, 2025 Future Skills Organisation

- national privacy principles.

***Relevant persons* may include**:

- biometric technology specialists
- clients
- colleagues
- external consultants
- information technology specialists
- manager.

Security requirements may be:

- risk and threat assessments
  - auditability
  - authentication
  - integrity
  - privacy protection
  - recovery
- security objectives
  - auditability
  - authentication
  - integrity
  - privacy protection
  - recovery
- security safeguards
  - administrative (licensing, authorisations, contingency plans, information access management, security incident procedures, security management, security awareness and training)
  - physical (include measures to protect information systems, buildings and equipment from natural and environmental hazards and unauthorised intrusions)
  - technical (access control, audit control, transmission security).

***Assessment plan* may include**:

- enrolment requirements
- level of assessment
- measurement and testing details and methods
- necessary resources (eg number of tests)
- privacy and ethics requirements
- timelines.

Communication may be:

- face-to-face
- group interaction
- in Indigenous languages
- in languages other than English
- oral reporting
- participation in routine meetings

© Commonwealth of Australia, 2025 Future Skills Organisation

- reading independently
- recording of discussions
- speaking clearly and directly
- through the use of assistive technology
- via an interpreter
- visual or written
- writing to audience needs.

Interpersonal techniques may involve:

- active listening
- being non-judgemental
- being respectful and non-discriminatory
- constructive feedback
- control of tone of voice and body language
- culturally aware and sensitive use of language and concepts
- demonstrating flexibility and willingness to negotiate
- effective verbal and non-verbal communication
- maintaining professionalism
- providing sufficient time for questions and responses
- reflection and summarising
- two-way interaction
- use of plain English
- use of positive, confident and cooperative language.

***Social and cultural differences* may relate to**:

- dress and personal presentation
- food
- language
- religion
- social conventions
- traditional practices
- values and beliefs.

***Existing architecture* may include**:

- desktop PCs
- local area networks (LANs)
- mainframe systems
- servers
- websites
- wide area networks (WANs).

***Multiple* biometrics refers to**:

- a biometric system that integrates two ore more biometric technologies (facial and iris recognition, and multiple instances of a single biometric eg one, two or ten fingerprints).

Appropriate format may include:

- formats that cater for those with special needs for example, producing documents in large print.

© Commonwealth of Australia, 2025 Future Skills Organisation

***System improvements* may relate to**:	• backup systems • changes to biometrics settings • contingency plans • threshold levels.

Records and reports:	• may be:
	  • computer-based
	  • manual
	  • other appropriate organisational communication system
	• may detail:
	  • applications of biometric technologies and systems
	  • functional operations of biometric technologies and systems
	  • resource requirements
	  • risk and threat assessments
	  • security arrangements and additional requirements.

Unit Sector(s)

Unit sector Security

Competency field

Competency field Biometrics

© Commonwealth of Australia, 2025 Future Skills Organisation

CUFANM301A Create 2D digital animations

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to use industry-current software to create 2D animations. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit addresses basic 2D animation skills directed at developing animations for inclusion in interactive media products, short stand-alone animated sequences and basic games. A person in this role works closely with other members of a production team and reports to a senior animator, designer, director or producer. The short dynamic animations they produce may include audio components. Skills associated with 3D digital animation are covered in: • CUFANM302A Create 3D digital animations. More complex skills associated with 3D character animation, including animating facial expressions and lip syncing, are covered in: • CUFANM501A Create 3D digital character animation.

© Commonwealth of Australia, 2025 Future Skills Organisation

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
Identify animation requirements	1. Clarify ***2D animation*** requirements, including ***design specifications*** and storyboard in consultation with ***relevant personnel*** 2. Clarify target users/audience and requirements with regard to ***output formats*** and ***delivery platforms***
Generate and assess ideas	3. Review animations, artworks and other creative sources that may inspire design ideas 4. Obtain other relevant information that may influence design ideas

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	5. Generate a range of animation ideas that are technically feasible, respond to specifications and provide creative solutions to all design issues 6. Present animation ideas to relevant personnel using appropriate ***design techniques***
Plan approach	7. Assess the range of industry-current 2D ***animation software*** available to determine compatibility with design specifications 8. In consultation with relevant personnel, select the most appropriate 2D animation software for a given purpose 9. Evaluate initial design ideas and specifications against findings and discuss with relevant personnel to select final design concept
Produce animations	10. Apply basic ***screen principles***, ***visual design principles***, ***communication principles***, ***animation techniques*** and ***animation principles*** to produce animated sequences 11. Source and import, or generate sufficient quantity of key drawings to establish required actions 12. Combine animated objects to produce single sequences according to creative requirements and specifications 13. Integrate ***audio assets*** where necessary 14. Save and store animations using appropriate output file formats and standard naming conventions
Finalise animations	15. Review animations to assess creative solutions to design specifications, appropriateness to users/audience and technical feasibility 16. Discuss and confirm with relevant personnel additional requirements or modifications to overall designs or animations and undertake necessary amendments

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• communication, teamwork and literacy skills sufficient to: • interpret and clarify written or verbal instructions

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• interpret information in software user manuals and help features • work as a member of a project team, both independently on assignment and under direction • respond constructively to feedback received from other team members • initiative and enterprise in the context of: • generating a range of feasible ideas for 2D animated sequences • visualising creative concepts • technical skills sufficient to: • use appropriate software to develop 2D animations • produce hand-drawn sketches • apply the basic principles of screen, visual design and communication to produce 2D animations • create 2D animations in appropriate formats for a range of delivery platforms • manage files and directories using standard naming conventions and version control protocols • self-management and planning skills sufficient to: • prioritise work tasks • meet deadlines • seek expert assistance when problems arise
Required knowledge
• industry knowledge, including: • roles and responsibilities of project team members • basic understanding of the relationship between the technical and creative aspects and requirements of media projects • basic animation techniques and principles • basic screen principles • principles of visual design and communication • copyright clearance procedures • OHS standards as they apply to use of computer and keyboard for periods of time

Evidence Guide

EVIDENCE GUIDE
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential:
	• creation of a range of 2D digital animations that:
	  • meet specifications
	  • demonstrate the basic principles of screen, visual design and communication
	  • meet the technical requirements of at least two delivery platforms listed in the range statement
	  • satisfy client requirements
	• collaborative approach to work.

Context of and specific resources for assessment	Assessment must ensure: • access to a selection of resources, equipment and current industry-current software as listed in the range statement • where sound is integrated in the animated sequence, access to a range of suitable software to support the integration of sound and visual elements • access to appropriate learning and assessment support when required • use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of a range of 2D digital animations created by the candidate in response to specifications • written or oral questioning to test knowledge of visual design principles, communication principles, animation techniques and responsibilities of different members of a project team.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFANM302A Create 3D digital animations • CUFDIG301A Prepare video assets

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	• CUFDIG304A Create visual design components.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
2D animations may include:	• basic games • buttons • characters • illustrations • logos • morphs • objects • puzzles • simulated sequences • text • titles and credits.

Design specifications may include:	• characters and objects
	• key frames
	• objects
	• references
	• samples
	• script
	• storyboard
	• technical specifications, including:
	  • output file format
	  • output file size
	  • operating system
	  • hardware specifications, including memory size, RAM
	  • delivery platform
	  • bandwidth
	  • media form.

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
Relevant personnel may include:	• art director • audio asset creator • designer • director • graphic artist • instructional designer • navigation designer • producer • project manager • system support personnel • other technical and specialist personnel.
Output formats may include:	• DIR/DCR • FLA/SWF • GIF • HTML.
Delivery platforms may include:	• CD • DVD • film • games console • internet • kiosk • mobile phone • PDA (personal digital assistant) • video • other mobile devices.
Design techniques may include:	• digital illustrations of objects and characters • freehand sketches • storyboards • story trees.
Animation software may include:	• Director • Flash • Toon Boon Studio.
Screen principles may include:	• editing, including basic transitions • framing • lighting • montage • narrative • story-telling • style/genre.

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
Visual design principles may include:	• balance • composition • emphasis • focal point • movement • perspective • proportion • scale • unity.
Communication principles may include:	• communicating the message • conveying meaning • meeting audience requirements • using functional components.
Animation techniques may include:	• acceleration/deceleration • audio integration • hinges and pivots • key frames and tweens • looping backgrounds • morphing/object exaggeration • motion paths • registration points • rotation • speed/motion blur.
Animation principles may include:	• key frames • motion • pacing/timing • point of view.
Audio assets may include:	• music • narration • sound effects.

Unit Sector(s)

Unit sector	

© Commonwealth of Australia, 2025 Future Skills Organisation

Competency field

Competency field	Visual communication - animation and digital effects

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

CUFANM302A Create 3D digital animations

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to animate simple 3D models and create 3D animations. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit requires the application of basic 3D animation skills to create animations for inclusion in interactive media products, short stand-alone animated sequences and basic games. At this level, animators are working with 3D digital models that have already been created. Animated sequences may include audio components. Animations are created using a range of industry-current software that is constantly evolving, so it is essential that people working in this area keep up to date with the latest software. This unit does not include techniques for stop-motion, cell-analogue and real time animation. Nor does it cover more sophisticated animation techniques used in film, television and high-end games. These are addressed in: • CUFANM501A Create 3D digital character animation • CUFANM502A Create 3D digital environments.

© Commonwealth of Australia, 2025 Future Skills Organisation

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
Clarify animation requirements	1. With reference to ***production documentation***, clarify ***3D animation*** requirements and ***design specifications*** in consultation with ***relevant personnel*** 2. Examine the models to be animated to determine the most appropriate ***animation techniques*** 3. Identify the ***file format*** and ***delivery platform*** for animated sequences 4. Identify ***factors*** that may influence animation design approach 5. In consultation with relevant personnel, clarify work

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	flow sequences to ensure that production schedule deadlines are met
Plan approach	6. Research animations, artworks and other creative sources that may inspire visual design ideas 7. Generate a range of animation ideas that are technically feasible, respond to briefs and provide creative solutions to all design issues 8. Present animation ideas to relevant personnel using appropriate ***design techniques***. 9. Adjust approach to incorporate feedback and agree on final design concepts 10. Discuss and select 3D ***animation software*** with relevant personnel to ensure that animated sequences meet specified outcomes 11. Analyse ***audio assets*** supplied for animations as required
Produce animated sequences for review	12. Create 3D animations using animation techniques to suit design requirements 13. Apply basic ***animation principles***, ***screen principles***, ***visual design principles*** and ***communication principles*** 14. Apply real world camera techniques to virtual cameras used in 3D animation 15. Render completed animated sequences 16. Save and store animated sequences using appropriate output file formats, standard naming conventions and version control protocols 17. Present 3D animated sequences to relevant personnel for evaluation by agreed deadlines
Finalise animated sequences	18. Review animated sequences to assess creative solutions to design briefs, appropriateness to users/audience and technical feasibility 19. Discuss and confirm with relevant personnel additional requirements or modifications and complete changes as required

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication, teamwork and literacy skills sufficient to:
  - interpret and clarify written or verbal instructions
  - work as a member of a production team, both independently on assignment and under direction
  - respond constructively to feedback received from other team members
  - complete workplace documentation
- conceptual and creative skills in the context of:
  - generating feasible ideas for animated sequences
  - having a feel for movement and timing in order to produce convincing animations
  - maintaining design integrity
- technical skills sufficient to:
  - use industry-current animation software to develop digitally animated sequences
  - apply the principles of basic screen, visual design and communication to produce 3D animated sequences
  - output 3D animated sequences in appropriate file formats for a range of delivery platforms
  - manage files and directories using standard naming conventions and version control protocols
- self-management and planning skills sufficient to:
  - prioritise work tasks
  - meet deadlines
  - seek expert assistance when problems arise

Required knowledge

- roles and responsibilities of project team members in the relevant industry sector
- basic understanding of the stages in the production process from initial design through to finished product
- issues and challenges that arise in the context of creating 3D digital animations
- basic 3D digital animation techniques
- basic screen principles
- principles of animation
- principles of visual design and communication
- features of a range of delivery platforms
- OHS standards as they relate to working for periods of time on computers

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential:
	• creation of 3D digital animated sequences that:
	  • demonstrate the principles of basic screen, visual design and communication
	  • meet the technical requirements of specific platforms
	  • satisfy the design brief and client requirements
	• collaborative approach to work
	• attention to detail
	• ability to meet production deadlines.

Context of and specific resources for assessment	Assessment must ensure: • access to a range of resources, equipment and current industry-current software as listed in the range statement • where sound is integrated in animated sequences, access to a range of suitable software to support the integration of sound and visual elements • access to appropriate learning and assessment support when required • use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence, authenticated show reels and third-party workplace reports of on-the-job performance • critical analysis of a range of 3D digital animated sequences created by the candidate to determine

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	ability to meet design requirements • written or verbal questioning to test knowledge as listed in the required skills and knowledge section of this unit • informal questioning and discussion, including response to feedback and diagnostics.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFANM303A Create 3D digital models • CUFDIG303A Produce and prepare photo images • CUFDIG304A Create visual design components • CUFSOU301A Prepare audio assets.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Production documentation may include	• animatics • brief • storyboard • technical specifications.
3D animations may include:	• 3D elements • 3D panoramas • basic games • buttons • characters • illustrations • logos • models • morphs/blend shapes • puzzles • simulated sequences

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• text • titles and credits.

Design specifications may include:	• characters and objects
	• key frames
	• objects
	• references
	• samples
	• script
	• storyboard
	• technical specifications, including:
	  • output file format
	  • version control protocols
	  • output file size
	  • operating system
	  • hardware specifications, including memory size, RAM
	  • delivery platform
	  • media form.

Relevant personnel may include:	• 3D modeller • 3D producer • animation director • audio asset creator • director • graphic artist/designer • instructional designer • lead animator • matte painter • system support personnel • other technical and specialist personnel.
Animation techniques may include:	• acceleration/deceleration • audio integration • dynamic simulation • hierarchies • hinges and pivot points • hybrid method • key frames • layered animation • looping backgrounds • morphing/object exaggeration

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• motion capture • motion paths • pose to pose animation • registration points • rotation • scripted animation • speed/motion blur • straight-ahead animation.
File formats may include:	• AAS • ACT • ANI • ANM • ANS • AVI • AWA • AWM • CEL • CFT • CMV • DIR/DCR • FLA/SWF • FLC • FLI • FLX • GIF • HTML • IFF • JPEG • LWOB • M3D • MMM • MOV • MPEG • MWF • PNG • QTVR • SEC • TIFF • VAN • VUE.

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
Delivery platforms may include:	• CD • DVD • film • games console • internet • kiosk • mobile phone or device • PDA (personal digital assistant) • video.
Factors may include:	• budget • purpose of animation • resources • target audience • timelines.
Design techniques may include:	• digitally generated illustrations of objects and/or characters • freehand sketches • fully rendered hand-drawn illustrations • story trees • storyboards.
Animation software may include:	• 3D Studio Max • Cinema 4D • Houdini • Lightwave • Maya • Motionbuilder • Soft Image - XSI.
Audio assets may include:	• music • narration • sound effects.
Animation principles may include:	• anticipation • asymmetry in body and facial poses • balanced poses • exaggeration • movement in arcs • overlapping actions and follow-through • pacing/timing • secondary actions • singularity of message

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• squash and stretch • staging • strong silhouette in poses • weight.
Screen principles may include:	• camera techniques • editing, including basic transitions • framing • lighting • montage • narrative • story-telling • style/genre.
Visual design principles may include:	• balance • composition • emphasis • movement • perspective • proportion • scale • unity.
Communication principles may include:	• communicating the message • conveying meaning • meeting audience requirements • using functional components.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Visual communication - animation and digital effects

© Commonwealth of Australia, 2025 Future Skills Organisation

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

CUFANM303A Create 3D digital models

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to create 3D digital models. This unit is a prerequisite for: • CUFANM401A Prepare 3D digital models for production. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	3D modellers working on relatively simple projects apply the skills and knowledge described in this unit. From reference material and established designs, they create 3D models using whatever software is applicable to the production. 3D models need to meet technical and design specifications, as well as being efficient, reliable, to scale, and easy to rig and animate. Modellers need to appreciate what will be required of their models in later stages of production because this can affect the work they produce. Close liaison with other team members is, therefore, important. Even though a senior modeller or technical director supervises the creation of models, people at this level are expected to work autonomously within clear guidelines.

© Commonwealth of Australia, 2025 Future Skills Organisation

	More complex skills associated with 3D digital modelling are covered in: • CUFANM401A Prepare 3D digital models for production.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
Clarify work	1. With reference to ***production documentation***, clarify

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
requirements	***requirements*** and ***purpose*** for 3D digital models 2. In consultation with ***relevant personnel***, clarify work flow sequences to ensure that ***production*** schedule deadlines are met 3. Select ***software*** that best suits the type of production and ***delivery platform*** for which 3D digital models are being created 4. Gather and analyse ***reference materials*** to help with visualisation of 3D models
Create 3D digital models	5. Use software features to block out models to determine correct proportions in relation to reference materials 6. Manipulate software features to apply basic lighting and shaders as required 7. Ensure that models' topology allows appropriate deformation, as required 8. ***Progressively refine*** and check ***integrity*** of models until they meet design requirements 9. Submit models to relevant personnel for comment on whether production requirements have been met and make final adjustments as required 10. Render and output models in required ***format*** and submit to relevant personnel by agreed deadlines 11. Make back-up copies of files and complete workplace documentation according to enterprise procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills

• communication, teamwork and literacy skills sufficient to:
  • interpret and clarify written or verbal instructions
  • work as a member of a production team, both independently on assignment and under direction
  • respond constructively to feedback received from other team members
  • complete workplace documentation
• technical skills sufficient to:

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• use industry-current software applications to create 3D models to specifications • manage files and directories using standard naming conventions and version control protocols • make back-up copies of files and store appropriately • initiative and creativity in the context of visualising and accurately creating 3D digital models of a range of animate and inanimate objects • self-management and planning skills sufficient to: • prioritise work tasks • meet deadlines • seek expert assistance when problems arise
Required knowledge
• roles and responsibilities of project team members in the relevant industry sector • basic understanding of the stages in the production process from initial design through to finished product • issues and challenges that arise in the context of creating 3D digital models • 3D digital modelling techniques • strong sense of scale, form, weight and volume • geometry as it applies to the creation of realistic 3D digital models • features of a range of delivery platforms • OHS standards as they relate to working for periods of time on computers

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • creation of 3D digital models that: • demonstrate efficient use of geometry and attention to detail • meet design requirements • collaborative approach to work • ability to meet deadlines.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
Context of and specific resources for assessment	Assessment must ensure: • access to a selection of industry-current software as listed in the range statement • access to simulated or real production situations that require the creation of 3D digital models • access to appropriate learning and assessment support when required • use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of a range of 3D digital models created by the candidate to determine ability to create models for different kinds of objects • written or verbal questioning to test knowledge as listed in the required skills and knowledge section of this unit.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFANM302A Create 3D digital animations • CUVDSP11A Research and apply techniques for illustrative work • CUVVSP16A Research and experiment with techniques to produce drawings.

Range Statement

RANGE STATEMENT
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
regional contexts) may also be included.	
Production documentation may include:	• animatics • brief • storyboard • technical specifications.
Requirements may include:	• assets for integration • collaboration with other team members • creative expectations • design specifications • output format • technical specifications • timelines.

Purpose of 3D digital models may be for:	• animations
	• digital simulations, e.g.:
	  • architectural models
	  • e-learning resources
	  • demonstration of processes and procedures.

Relevant personnel may include:	• 3D designer or concept artist • 3D modeller • art director • director • head of department • matte painter • producer • project manager • storyboard artist • supervisor • technical director • other technical/specialist personnel.

Production may include:	• animated productions
	• commercials
	• digital media products, e.g.:
	  • simulations
	  • games
	  • e-learning resources
	  • virtual worlds/environments
	• documentaries
	• feature films
	• filmed events or performances

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• music video • short films • television productions.

Software may include:	• 3D, e.g.:
	  • 3D Studio Max
	  • Maya
	  • Softimage
	• graphics, e.g.:
	  • Photoshop
	  • Illustrator.

Delivery platforms may include:	• broadcast television • CD • DVD • film • internet • Kiosk • mobile phone • PDA (personal digital assistant) • other digital devices.
Reference materials may include:	• books • concept drawings and designs • direct observation of actions to be simulated in 3D models • real object on which models are to be based • still images • videos.
Progressive refinements may include:	• achieving required shape • achieving required topology.
Aspects to be checked for ***integrity*** may include:	• double faces • isolated vertices • pivot points • resetting transform • scale of models relative to other components in final sequences.
Formats may include:	• AVI • IFF • JPEG • MPEG • PNG

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• Quicktime • Targa • TIFF.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Visual communication - Animation and digital effects

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

CUFANM402A Create digital visual effects

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to create digital visual effects. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	Compositors or effects artists working in 3D animation and graphics studios apply the skills and knowledge described in this unit. They are responsible for creating digital visual effects to simulate physical or natural phenomenon, such as fire, crowds, flocks of birds, fluids, smoke and weather conditions. They receive material from various sources, which could include bluescreen elements, particles, graphics, 2D and 3D animation, and live action footage. Their job is to creatively combine elements into the final image, ensuring that the established style of the project is respected and continuity is maintained. Typically, their briefs are based on elements of storyboards for film, television or digital media productions, including games. A high level of creativity is required, along with proficiency in using a range of industry-current software applications to create and refine digital visual effects.

© Commonwealth of Australia, 2025 Future Skills Organisation

	A collaborative approach to work within a production team is essential, as is an ability to meet deadlines.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
Clarify work requirements	1. With reference to ***production documentation***, clarify ***requirements*** for ***digital visual effects*** 2. In consultation with ***relevant personnel***, clarify work flow sequences to ensure that production schedule

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	deadlines are met 3. Select ***software*** that best suits the type of ***production*** and ***delivery platform*** for which visual effects sequences are being created 4. Gather and analyse ***reference material*** to help with visualisation of final sequences
Prepare components	5. Gather all ***assets*** for integration and check that they are in the correct ***output file format*** 6. Choose digital visual effects that best represent the vision of scripts, as required 7. Check that components comply with storyboard requirements 8. Determine the appropriate ***methods and techniques*** to be used for the production of the required digital special effects
Assemble previsualisations	9. Create previsualisation of the required visual effects sequences using the appropriate assets and ***compositing techniques*** 10. Experiment with previsualisation to establish the best results and solve problems that arise during the process of creating the visual effects 11. Submit previsualisation visual effects sequences to relevant personnel for evaluation and feedback 12. Match elements as required, such as colour, lighting and camera
Produce visual effects	13. Create final visual effects 14. Generate additional required effects to final stage 15. Render visual effects to desired format 16. Submit visual effects sequences to relevant personnel for evaluation and feedback by agreed deadlines
Finalise visual effects	17. Respond to feedback by making adjustments to visual effects so that they comply with design and production specifications 18. Save files to specified storage system accessible to production team 19. Make back-up copies of visual effects in accordance with enterprise procedures 20. Complete workplace documentation as required 21. Review process of creating digital visual effects and note areas for future improvement

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication, teamwork and literacy skills sufficient to:
  - interpret and clarify written or verbal instructions
  - interpret storyboards
  - work collaboratively in a team environment, both independently and under direction
  - respond constructively to feedback received from other team members
  - complete workplace documentation
- technical skills sufficient to:
  - use common features of industry-current compositing and visual effects software
  - produce digital visual effects for a range of output formats
  - manage files and directories using standard naming conventions and version control protocols
- initiative and creativity in the context of:
  - visualising and interpreting creative concepts
  - distinguishing subtle differences that affect the matching of elements created in multiple mediums
  - creatively integrating media assets to achieve the required digital visual effects
  - troubleshooting and solving problems as they arise during the process of creating digital visual effects
- self-management, learning and planning skills sufficient to:
  - prioritise work tasks
  - continuously improve skills and knowledge by keeping up to date with industry developments and new software features
  - meet deadlines
  - seek expert assistance as required

Required knowledge

- industry knowledge, including:
  - roles and responsibilities of project team members in the relevant industry sector
  - sound understanding of the relationship between the technical and creative aspects and requirements of productions in which digital visual effects are used

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• issues and challenges that arise in the context of creating digital visual effects sequences • strong understanding of light, colour, composition and mood • keying process • technical parameters of various platforms and how these impact on the process of creating digital visual effects • OHS standards as they relate to working for periods of time on computers

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential:
	• creation of a range of digital visual effects sequences that:
	  • meet the requirements of a brief
	  • demonstrate attention to detail and an ability to refine visual effects to achieve the required creative effects
	• collaborative approach to work
	• ability to meet deadlines.

Context of and specific resources for assessment	Assessment must ensure: • access to a selection of industry-current software as listed in the range statement • access to simulated or real production situations that require the creation of digital visual effects sequences • access to appropriate learning and assessment support when required • use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of a range of digital visual effects sequences created by the candidate to determine ability to create different types of effects • written or verbal questioning to test knowledge as listed in the required skills and knowledge section of this unit.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • BSBCRT402A Collaborate in a creative process • CUFANM403A Create titles for screen productions.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Production documentation may include:	• animatics • brief • script • shot list • storyboard • technical specifications.
Requirements may include:	• assets for integration • collaboration with other team members • creative expectations • design specifications • output format • technical specifications • timelines.

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

Digital visual effects may include:	• colour correction
	• compositing:
	  • image layering
	  • motion graphics
	• filters:
	  • warp
	  • glow
	  • blur
	  • fog
	• integrating lighting across different elements
	• keying:
	  • chroma
	  • luma/luminance
	  • difference
	• lighting:
	  • shadow
	  • atmospheric
	  • flares
	• particle systems:
	  • bubbles
	  • smoke
	  • droplets
	  • weather effects
	  • dust
	  • atmospheric effects
	  • starbursts
	  • fireworks
	• textures, e.g.:
	  • water
	  • cloth
	  • fur
	• tracking:
	  • camera matching
	  • motion tracking.

Relevant personnel may include:	• designer • director • editor • head of department

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• post-production manager • producer • SFX (special effects) supervisor • storyboard artist • technical director • other technical/specialist personnel.

Software may include:	• 3D, e.g.:
	  • 3D Studio Max
	  • Maya
	  • Soft Image
	• graphics, e.g.:
	  • Photoshop
	  • Illustrator
	• video editing, e.g.:
	  • Adobe Premier
	  • Final Cut Pro
	  • Avid Liquid
	• visual effects/compositing, e.g.:
	  • Combustion
	  • Shake
	  • After Effects
	  • Nuke
	  • Digital Fusion.

Productions may include:	• animated productions
	• commercials
	• digital media products, e.g.:
	  • simulations
	  • games
	  • e-learning resources
	  • virtual worlds/environments
	• documentaries
	• feature films
	• filmed events or performances
	• music video
	• short films
	• television productions.

Delivery platforms may include:	• broadcast television • CD

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• DVD • film • internet • kiosk • mobile phone • PDA (personal digital assistant) • other digital devices.
Reference material may include:	• books • direct observation of actions • DVDs ('making ofs') • still images • videos.
Assets may include:	• animated sequences • audio tracks • live action film footage • live action video footage • sequences of stills • static background plates • stills.
Output file format may include:	• AVI • EPS • IFF • JPEG • MPEG • PNG • Quicktime • Targa • TIFF.
Methods and techniques may include:	• 2D graphics and paint • 3D models and animation • compositing.
Compositing techniques may include:	• adding graining • adding motion blur • camera matching • colour matching • combining levels together seamlessly • creating convincing shadows • creating mattes • enhancing the lighting

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• keying • painting • rotoscoping.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Visual communication - animation and digital effects

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

CUFCAM201A Assist with a basic camera shoot

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to assist with setting up and shooting low-end productions. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit describes the skills and knowledge required of a camera assistant working on low-budget and low-end single-camera video productions. Issues relevant to pre-production and production activities are included. Camera assistants are expected to work under the direction of a qualified camera operator, and may, on occasions, be responsible for operating cameras. Community television is a typical environment where these skills are applied. These skills are applied in the setting up and shooting of a variety of low-end productions, including community television. Skills associated with basic lighting operations are covered in: • CUFLGT101A Apply a general knowledge of lighting

© Commonwealth of Australia, 2025 Future Skills Organisation

	to work activities.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
Prepare for camera shoots	1. Organise and prepare ***equipment*** for ***shoots***, taking into account ***location*** requirements 2. Ensure equipment is clean and operational 3. Report equipment faults to ***relevant personnel*** 4. Safely charge batteries according to manufacturer

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	specifications 5. Ensure charged batteries are in sufficient supply to meet the needs of the production schedule 6. Select required ***capture format*** and ensure sufficient supply for the intended ***production***
Assist with camera set-up on location	7. Lift camera and other equipment, using safe lifting and handling techniques 8. Ensure camera and other equipment is safely secured 9. ***Under direction***, assist with positioning the camera to achieve the required shots 10. Safely connect cables and camera to ***power source*** if required 11. Assist with final check of equipment prior to shoot and report faults to relevant personnel 12. Label and load capture media 13. Check camera tilt and pan functions
Set up lighting	14. Mount lighting equipment following safety guidelines 15. Run lighting cables and connect safely to power source ensuring they are located securely 16. Under direction, position lights to achieve required effect 17. Adjust focus and angles of lights as required 18. Install colour frames and gels according to lighting requirements for the particular shoot
Shoot video	19. Adjust and move equipment as required 20. Operate clapperboard if needed 21. Operate camera according to manufacturer guidelines and instructions 22. Shoot and record sequences as directed 23. Time-code recording of takes with descriptions as required
Wrap up shoots	24. Clean and pack equipment using safe lifting techniques 25. Check that all equipment is accounted for and report faults to relevant personnel 26. Ensure recordings are labelled properly, together with relevant ***documentation*** 27. Leave location in original condition to ensure there is no adverse effect on the site 28. Review and reflect on own performance and note areas for improvement

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication, teamwork and organisational skills sufficient to:
  - interpret production documentation relevant to camera operations
  - work collaboratively with other crew members
  - understand and follow instructions
- technical skills sufficient to:
  - make simple adjustments to, and operate cameras and accessories typically used in low-end productions
  - safely connect cabling and equipment to power sources
- literacy and numeracy skills sufficient to interpret written instructions and to label capture format accurately and in sequence
- self-management skills sufficient to:
  - prioritise work tasks
  - meet deadlines
  - seek expert assistance when problems arise
- problem solving skills sufficient to anticipate and deal with minor set-up problems

Required knowledge

- basic technical understanding of camera, lighting and sound equipment used in low-end productions
- full range of functions typically found on cameras used in low-end productions
- basic principles of lighting, e.g. key, fill and back light
- roles and responsibilities of video/television production personnel
- OHS requirements as they relate to working under direction on camera shoots in a range of locations

Evidence Guide

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • ability to work effectively as a team member and take direction • ability to assist effectively in location set-ups • competent operation of cameras typically used in low-end productions.
Context of and specific resources for assessment	Assessment must ensure: • access to basic camera, lighting and sound equipment • access to a range of varying locations and conditions • access to appropriate learning and assessment support when required • use of culturally appropriate processes, and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • observation of the candidate assisting with a basic camera shoot to determine whether correct procedures are followed and equipment is operated according to instructions • written or verbal questioning to test knowledge as listed in the required skills and knowledge section of this unit.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFLGT101A Apply a general knowledge of lighting to work activities.

Range Statement

RANGE STATEMENT

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Equipment may include:	• cameras, e.g.Â mini DV • filters • lens adaptors • lenses - fixed, zoom, wide-angle • lighting kit • mounts • tripods.
Shoots may include:	• fixed tripod • hand-held • single-camera.
Locations may include:	• day • exterior • in studio • interior • night.
Relevant personnel may include:	• camera and sound operators • director/producer • members of the public • production assistant • reporter or presenter • technical staff.
Capture formats may include:	• CD • DVD • flashcards • P2 solid-state drive • small hard drive • video.
Types of ***production*** may include:	• corporate/training videos • coverage of events • short current affairs stories • short documentaries • short news items.
Under direction may include	• camera operator

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
direction from:	• director/producer • reporter/journalist • sound recordist.
Power sources may include:	• AC • batteries.
Documentation may include:	• fault reports • production schedules • running sheets • scripts • shot lists • sound sheets • stock management and correct labelling.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Media and entertainment production - Camera/cinematography

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

CUFCAM301A Shoot material for screen productions

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to shoot screen material using a single-camera unit. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	Camera operators apply the skills and knowledge described in this unit. Their prime responsibility is to capture screen images using a range of video equipment. Operators in this context generally work under direction but perform all camera, sound and lighting functions. Occasionally they will be assisted by a camera assistant or sound recordist. On occasion, they may be required to assist other camera operators with the movement and handling of cameras and cables. Mainstream activities include shooting for news and current affairs, short documentaries, and corporate and training videos. More specialised duties may include the capture of materials for animations and stop-motion animated productions. Typically camera operators are employed by television

© Commonwealth of Australia, 2025 Future Skills Organisation

	stations, production houses or corporate video units. In addition, there is a growing body of camera operators who work on a freelance basis. More complex skills associated with shooting television material on location, often as a one-person camera crew, are covered in: • CUFCAM401A Shoot a wide range of television content.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
Prepare for shoots	1. Participate in pre-production briefings as required to confirm ***production and post-production requirements*** 2. Arrange ***equipment and accessories*** for ***shoots*** as directed, ensuring that everything is clean and operational 3. Safely charge ***batteries*** according to manufacturer specifications and ensure sufficient supply of charged batteries to meet the needs of production schedules 4. Select required ***capture media*** and ensure sufficient supply for the intended ***production*** 5. Prepare and pack ***lighting*** equipment, including gels and cables as required 6. Undertake minor repairs on faulty equipment or report significant faults to relevant production ***personnel*** 7. Confirm ***location***, shooting schedules and timelines with relevant production personnel 8. Complete appropriate ***documentation*** prior to shoots
Set up on location	9. Determine camera positions to ensure that composition of ***shots*** provides correct visual interpretation of production requirements 10. Liaise and collaborate with crew and talent and contribute ideas to initial concepts 11. Set up equipment and accessories to ensure the safety of personnel on location 12. Consider requirements for repositioning equipment and accessories during shoots taking into account production schedules 13. Ensure cameras and other equipment are safely secured 14. Label and load capture media and check camera functions 15. Position microphones as required and conduct audio check
Set up lighting	16. Assess the quality and quantity of available light and determine the amount of correction required if necessary 17. Mount and position lighting equipment following safety guidelines 18. Run lighting cables and connect safely to ***power sources*** 19. Install colour frames and gels in accordance according to requirements for the specific shoot 20. Select ***lenses*** and ***filters*** appropriate to the prevailing

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	conditions
Position and operate camera to capture shots	21. Consider camera shots and angles, where feasible, to ensure cuts between shots produce the desired result 22. Take account of editing or other post-production requirements while shooting 23. Ensure camera set-up meets criteria for shoot 24. Check ***camera movements*** to implement planned or rehearsed shots according to direction from relevant production personnel 25. Shoot and record sequences as directed, maintaining focus throughout
Manipulate cables and camera positioning	26. Participate in pre-production meetings and rehearsal, if required, and ensure that final camera and cable movements are understood 27. Communicate with relevant production personnel during shoots and position and move camera cabling according to instructions and cues received 28. React consistently to cues received from relevant production personnel and ensure consistency of timing without undue lapses 29. Move cameras and cabling without impeding the operation of camera operators and work in cooperation with other personnel to achieve the desired camera movements 30. Ensure that camera operators do not collide with other elements 31. Complete cabling handling operations without damage to equipment or injury to personnel
Wrap up the shoot	32. Check and pack equipment and accessories using safe lifting techniques 33. Ensure recorded material is labelled properly, together with relevant documentation 34. Report equipment faults and complete required documentation 35. Leave locations in original condition to ensure no adverse effect on the site 36. Review and reflect on performance and note areas for improvement

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication, teamwork and literacy skills sufficient to:
  - work collaboratively as a member of a production team
  - understand and carry out instructions and creative directions as required
  - interpret and complete production documentation
- technical skills sufficient to operate a range of professional camera, lighting and audio equipment
- problem solving skills in the context of anticipating and addressing equipment set-up problems
- self-management skills sufficient to:
  - prioritise work tasks
  - meet deadlines
- seek expert assistance when problems arise

Required knowledge

- industry knowledge, including:
  - roles and responsibilities of production and post-production personnel
  - broadcast language and terminology
  - issues and challenges that arise in the context of shooting material for screen productions
- different image capture formats and their uses
- basic framing techniques and methods of composition
- camera-to-subject practice, i.e. lens to eye line, crossing the line, matching shots
- characteristics of commonly used microphones and audio equipment
- the effect of different light sources, diffusion materials, filters and reflectors on the lighting environment, which includes both talent and set
- types of artificial/introduced light sources available to camera operators
- basic principles of lighting, e.g. key, fill and back light
- basic concepts and techniques of cable handling and compatibility with other equipment
- OHS procedures, particularly as they relate to shooting on location

Evidence Guide

EVIDENCE GUIDE

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • ability to work within production deadlines • ability to work effectively as a team member and under direction • ability to provide ideas to assist with capturing the desired style of moving image • ability to operate a range of professional video camera equipment and accessories • ability to set up lighting as directed.
Context of and specific resources for assessment	Assessment must ensure: • access to a functional set of equipment based on items listed in the range statement. Equipment must be sufficient to enable the compilation of a portfolio of screen material shot in different locations, including exterior daytime, interior, night shoots, stormy weather • that the candidate demonstrates competency in shooting material for screen productions within a production environment over a period of time • access to appropriate learning and assessment support when required • use of culturally appropriate processes, and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of a range of screen content shot by the candidate to determine whether production requirements have been met • observation of the candidate setting up and operating camera and lighting equipment on location • written or verbal questioning to test knowledge as

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	listed in the required skills and knowledge section of this unit.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFLGT101A Apply a general knowledge of lighting to work activities • CUSSOU201A Assist with sound recordings.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Production and post-production requirements may relate to:	• night shoots • post-production process • props • sets • specialised equipment • venues.

Equipment and accessories may include:	• autocue monitor
	• Betacam SP
	• cables
	• cue card holders
	• digital Betacam
	• digital DVC Pro
	• digital SLR, e.g.:
	  • stop-motion and software
	  • iStop Motion (Mac)
	  • Stop Motion Pro (PC)
	• DV Cam
	• HDDV
	• headphones

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

	• lighting bulbs
	• lighting kit
	• lights
	• microphones, e.g.:
	  • fixed
	  • pole
	  • lapel
	• mini DV
	• mobile phones
	• motion capture facility for animation
	• mounts
	• recording device (e.g. audiotape recorder)
	• talkback facility
	• tripod
	• two-way intercom
	• video split monitor
	• video stock.

Shoots may include:	• animations, e.g. stop-motion • combined video and audio function • fixed/supported • hand-held operation • separate video and audio record functions • single-camera.
Batteries may include:	• lead/acid • lithium ION • Ni-Cad.
Capture media may include:	• CD • DVD • flashcards • P2 solid-state drive • small hard drive • videotape.

Production may include:	• animations, e.g.:
	  • modelling
	  • flat plane
	• corporate videos
	• EFP (electronic field production)
	• ENG (electronic news gathering)
	• events or performances

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• news and current affairs • short documentaries • training videos.
Lighting may include:	• back light • bounced light • effect light, e.g. on backgrounds • fill light • flood light • HMI (hydrargyrum medium arc-length iodide) • interior lights • key light • light meters • luminaires • spot light • tungsten.

Personnel may include:	• animation director
	• camera assistant
	• director/producer
	• floor manager
	• general public
	• safety officer
	• sound recordist
	• supervisor
	• technical staff
	• talent, e.g.:
	  • presenters
	  • actors
	  • reporter/journalist
	• interviewee.

Locations may include:	• day • exterior • interior • night • studio.

Documentation may include:	• animation, e.g.:
	  • scoring sheets
	  • style sheets
	  • character sheets
	  • storyboards

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• computer generated • fault reports • film and battery labels • manually written • production schedule • running sheets • script • shot lists • stock order forms.
Shots may include:	• close-up • cutaway shot • establishing or master shot • extreme close-up • eye-level shot • hand-held • high-angle • long shot • low-angle • mid shot • pan • point-of-view shot • static • tilt • track • wide shot • zoom in • zoom out.
Power sources may include:	• batteries • generators • mains power.
Lenses may include:	• fixed • lens filters • lens hood • macro • micro • wide-angle • wide-angle adaptor • zoom.
Filters may include:	• chromatic • colour

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• colour correction • correction filters • enhancers • graduated: hard-edge, soft-edge, attenuated, coloured, neutral density • non-specific colour • polarising • ultraviolet.
Camera movements may include:	• hand-held • pan • tilt • track • zoom in • zoom out.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Media and entertainment production - Camera/cinematography

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

CUFDIG201A Maintain interactive content

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to maintain interactive content. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	People responsible for updating the content of websites apply the skills and knowledge described in this unit. Under direction, they upload a range of media assets and change text content, using a content management system that may be a proprietary system designed for a static or dynamic website. Changes to the interface and structure of the site are made by people in more senior positions.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
Check website information for relevance and currency	1. Confirm with ***relevant personnel*** frequency of upgrades 2. Obtain revised and additional ***electronic content*** and ensure correct versions 3. Confirm with relevant personnel the age limit of links that should be retained or deleted 4. Confirm with relevant personnel other revisions as required
Check links and navigation	5. Select appropriate ***link-checking software***, run software to test links and check currency of existing links 6. Save report document according to technical and organisational requirements 7. Check broken or failed links to determine site closures or new site addresses
Update information	8. Access ***content management system*** and load appropriate files 9. Delete closed links and re-establish new site links if available 10. Check internal page links and rectify or delete as required 11. Import and/or change content material as required and

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	specify appropriate ***metadata*** if required 12. Make heading, typographical and image revisions applying appropriate style sheets and alt tags if required 13. Insert additional pages or screens as required, applying appropriate templates or themes 14. Upload edited files to server using file transfer protocols (FTP). 15. Advise relevant personnel if new buttons, interface or navigation design are required to incorporate additional materials
Test and confirm changes	16. Check all links are valid 17. Confirm with relevant personnel that all changes have been made

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication and literacy skills sufficient to:
  - interpret and clarify written or verbal instructions
  - interpret and apply information in user manuals for software applications
- ability to work as a member of a production team - both independently on assignment and under direction
- technical skills sufficient to:
  - proficiently use a content management system
  - use link-checking software
  - manage files using standard naming conventions
  - apply appropriate metadata to describe documents
  - apply style sheets, templates and themes
- self-management and planning skills sufficient to:
  - prioritise work tasks
  - meet deadlines
  - seek expert assistance when problems arise

Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• W3C Accessibility standards relevant to text and images • internet protocols and data types • OHS standards as they relate to working on computers for periods of time

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • accurate creation of interactive media information and links • proficient use of content management systems • attention to detail.
Context of and specific resources for assessment	Assessment must ensure: • access to industry-standard authoring software, the internet and an FTP client for uploading content • access to appropriate learning and assessment support when required • use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of websites where content has been updated by the candidate on a regular basis • written or oral questioning to test knowledge of internet protocols, data types and W3C Accessibility standards relevant to text and images.
Guidance information for	Holistic assessment with other units relevant to the

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
assessment	industry sector, workplace and job role is recommended, for example: • CUFIND201A Develop and apply creative arts industry knowledge • CUFRES201A Collect and organise content for broadcast or publication.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Relevant personnel may include:	• client • programmer and technical support people • supervisor • web manager • other specialist creative and administrative staff as appropriate.
Electronic content may include:	• audio • HTML • images (photographs and illustrations) • PDF documents • text • video • Word documents.
Link-checking software may include:	• Xenu • Linkbot • software internal to content management systems.

Content management systems may include:	• authoring tools, such as:
	  • Dreamweaver
	  • Contribute
	• learning management systems, such as:
	  • WebCT

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• Blackboard • Janeson • Moodle • Sharepoint • open source database systems • other proprietary database systems.
Metadata may include:	• author • copyright • date • description • subject • title • other metadata based on Dublin Core or other standards.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Visual communication - digital content and imaging

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

CUFDIG301A Prepare video assets

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to prepare video assets for inclusion in interactive media. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	The size of an organisation or project determines who undertakes the role described in this unit. In a large-scale environment, the person responsible for this task would typically be supervised by a video editor and an interactive media author. In a television production environment, the prime focus of the task involves converting television programs into podcast material or in a form appropriate to streaming or downloading, and this may be a dedicated role under the supervision of a producer. In a smaller organisation or project, a video editor or interactive author or programmer would absorb this task into their own role. In all cases, they are collaborating closely with other team members.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Skills associated with other aspects of video production at this level are covered in: • CUFCAM201A Assist with a basic camera shoot • CUFPOS201A Perform basic vision and sound editing.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
Identify video assets	1. Obtain digital sources of video 2. Identify ***file format of source video*** 3. Identify output ***purpose***, ***destination*** and ***platform*** 4. Discuss with ***relevant personnel*** required ***output file format*** and ***codecs*** for specified bandwidths 5. Discuss with relevant personnel appropriate ***video encoding software***
Prepare video assets	6. Open appropriate video encoding software and load video file 7. Ensure duration of video sequences meets that required by the specification, and clip if necessary 8. Determine and apply appropriate video and audio codecs 9. Batch and optimise video files where possible 10. Save files in appropriate output file format using standard naming conventions
Package video assets	11. Assign ***metadata tags*** if required 12. Group files logically in folder system using standard naming conventions 13. Store in share drive or asset repository for production team access

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills

• communication and literacy skills sufficient to interpret and clarify written or verbal instructions
• ability to work as a member of a production team - both independently on assignment and under direction
• technical skills sufficient to:
  • proficiently use video software to prepare video sequences for inclusion in an interactive media product
  • manage files using standard naming conventions
  • apply appropriate metadata tags to describe files
• self-management and planning skills sufficient to:

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• prioritise work tasks • meet deadlines • seek expert assistance when problems arise
Required knowledge

• techniques for saving and preparing digital video output to optimise file size
• OHS standards as they relate to working for periods of time on computers
• industry knowledge, including:
  • roles and responsibilities of project team members, e.g. designers, content creators, information architects, programmers and coders
  • basic understanding of the relationship between technical and creative aspects and requirements of interactive media projects
  • basic knowledge of the features of a range of delivery platforms
  • basic understanding of what happens when video files are compressed for inclusion in interactive media products
  • appropriate codecs for various platforms and destinations
  • digital video source and output formats

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • preparation of a range of video sequences to be included in interactive media products that meet appropriate technical specifications • proficient use of video encoding software.
Context of and specific resources for assessment	Assessment must ensure: • access to industry-standard video encoding software • access to appropriate learning and assessment support when required • use of culturally appropriate processes and techniques appropriate to the language and literacy

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of video assets prepared by the candidate on a number of occasions • written or oral questioning to test knowledge of codecs for various platforms and understanding of file compression.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFSOU301A Prepare audio assets.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
File format of source video includes:	• Betacam, including SP and digital • DVC • DVD • miniDV • SVHS • Umatic • VHS.
Purpose may include:	• animation • e-learning resource • game • interactive application • website.

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

Destination may include:	• computer-based playback software, such as iTunes
	• downloading server
	• internet video players, such as:
	  • QuickTime
	  • Windows Media Player
	  • RealPlayer
	• progressive downloading (buffering) server
	• streaming server.

Platform may include:	• CD • DVD • games console • internet • kiosk • mobile phone • other video playback devices • personal digital assistant (PDA) • video player (iPods).
Relevant personnel may include:	• client • producer • programmer and technical support people • supervisor • video editor • other specialist creative and administrative staff.
Output file formats include:	• FLV • lossless and lossy • M4V • MOV • MPEG-2 • MPEG-4 • RealMedia • WAV • WMV.

Codecs may include:	• audio codecs, including:
	  • mono and stereo
	  • bit sampling rates and bit depth
	  • standardised and pre-set codecs
	• video codecs, including:

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

	• screen size
	• frame rate
	• bit rate (constant and variable)
	• one pass and double pass
	• standardised and pre-set codecs, such as:
	  • H.261, H.263 and H.264
	  • MPEG
	  • Sorenson, Cinepak, RealVideo
	  • MMV.

Video encoding software may include:	• specialised video compression tools, such as DivX and Squeeze
	• video editing tools, such as:
	  • Adobe Premier
	  • Final Cut Pro
	  • Final Cut Express
	  • QuickTime Pro
	  • Media 100
	  • iMovie
	  • Movie Maker
	  • WaveLab.

Metadata tags may include:	• author • copyright • description • other as specified • resolution • version.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Visual communication - digital content and imaging

© Commonwealth of Australia, 2025 Future Skills Organisation

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

CUFDIG302A Author interactive sequences

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to use an authoring tool to produce discrete interactive sequences. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	People responsible for developing small components to be integrated into a larger project apply the skills and knowledge described in this unit. They could be working under the direction of an interactive author or programmer to produce several web pages, or a sequence of screens for other forms of delivery. They need to draw on technical assistance from a programmer or other technical support personnel to produce sequences for server side technologies. In all cases, they are collaborating with other members of a team and need a sound understanding of the project on which they are working. More complex skills associated with authoring are covered in: • CUFDIG401A Author interactive media • CUFDIG404A Apply scripting language in authoring.

© Commonwealth of Australia, 2025 Future Skills Organisation

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
Plan use of authoring tool	1. Identify a range of appropriate ***authoring software*** 2. Discuss with ***relevant personnel*** the range of authoring software and their application to various ***delivery platforms*** 3. Discuss with relevant personnel ***design specifications*** of the ***project*** 4. Discuss with relevant personnel technical requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	of the project in order to select authoring software
Prepare to use authoring tool	5. Load selected authoring software 6. Create a new file for the specified task and name file using standard naming conventions 7. Display and use tools and features of authoring software relevant to the authoring process
Produce interactive sequences	8. Produce screens and layout according to design specifications applying basic ***visual design principles*** 9. Create ***interactive media components*** as required 10. Source text content and apply style sheets to format text 11. Source relevant ***media assets***, optimise if required and integrate using appropriate ***file formats*** 12. Produce and link all components according to storyboard and apply templates or themes 13. Manipulate markup code where errors are occurring or to finetune functionality 14. Save in appropriate file format to directory
Check functionality of interactive sequence	15. Check that interactive elements function with minimal error on a variety of systems 16. Present sequence to relevant personnel 17. Incorporate changes as required

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication and literacy skills sufficient to:
  - interpret and clarify written or verbal instructions and design specifications
  - interpret and apply information in user manuals for software applications
- ability to work as a member of a production team - both independently on assignment and under direction
- technical skills sufficient to:
  - use appropriate authoring software to proficiently author the sequences applying style sheets, templates or themes
  - integrate media assets for specific bandwidths

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• manage files and create appropriate directories • efficiently use a computer, including keyboard shortcuts • self-management and planning skills sufficient to: • prioritise work tasks • meet deadlines • seek expert assistance when problems arise
Required knowledge
• industry knowledge, including: • roles and responsibilities of project team members, e.g. designers, content creators, information architects, programmers and coders • basic understanding of the relationship between technical and creative aspects and requirements of interactive media projects • basic knowledge of the features of a range of delivery platforms • file formats of digital media assets and basic optimisation techniques • HTML • W3C Accessibility standards relevant to text and images • basic visual design principles as listed in the range statement • OHS standards as they relate to working for periods of time on computers

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • development of several discrete interactive media sequences that function as planned and demonstrate an understanding of basic visual design principles • accuracy and attention to detail in the process of developing interactive media sequences.
Context of and specific resources for assessment	Assessment must ensure: • access toa range of resources, equipment and current industry-standard software, as listed in the range

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	statement • access to appropriate learning and assessment support when required • use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of interactive sequences authored by the candidate • written or oral questioning to test knowledge of file formats and delivery platforms.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFDIG304A Create visual design components.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Authoring software may include:	• Director • Dreamweaver • Flash • FrontPage • PageMill.
Relevant personnel may include:	• designer • graphic designer • information architect

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• interaction designer • programmer • supervisor • trainer • user interface designer • other specialist staff.
Delivery platforms may include:	• CD • DVD • internet • kiosk • mobile phone • personal digital assistant (PDA) • other wireless/mobile devices.

Design specifications may include:	• content inventory
	• interactive script
	• personas
	• storyboard
	• target audience
	• technical requirements, such as:
	  • delivery platform
	  • screen resolution and size
	  • templates, style sheets and themes
	  • bandwidth information
	• user interface design.

Projects may include:	• production of interactive sequences to be incorporated in a:
	  • game
	  • educational product
	  • promotional product
	  • information product
	  • training product
	  • e-commerce.

Visual design principles may include:	• balance • emphasis • focal point • movement • perspective • proportion • scale

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• unity.
Interactive media components may include:	• backgrounds • banners • icons • interactive buttons • interactive controls • logos • text • titles • user interfaces.
Media assets may include:	• animation • audio • documents, such as PDF, Word, PowerPoint and Excel • graphics • photo images • text • video.
File formats may include:	• DIR/DCR • FLA/SWF • GIF • HTML • JPEG • MOV • MPEG • PDF • PICT • RTF • TIFF • WMV.

Unit Sector(s)

Unit sector	

© Commonwealth of Australia, 2025 Future Skills Organisation

Competency field

Competency field	Visual communication - digital content and imaging

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

CUFDIG303A Produce and prepare photo images

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to prepare photo images for integration into an interactive media sequence or product. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This role may be assigned to a graphic artist or, in a larger project, to a photographer who works closely with a programmer or interactive media author to publish required images. The photography ranges from digital still composition to panoramas for the production of virtual worlds. Photo images can include landscapes, objects and portraits. Specialist skills associated with photography are covered in: • CUVPHI06A Plan and carry out image capture in response to a brief.

Licensing/Regulatory Information

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
Use scanner to capture photo images	1. Source and select appropriate photographic images according to requirements of photographic ***project*** brief 2. Discuss selection of images with ***relevant personnel*** 3. Assess ***scanner features*** to ensure that outcomes will meet the requirements of brief 4. Operate scanner according to manufacturer specifications 5. Select ***scanner settings*** to ensure image capture meets production requirements 6. Transfer and store photographic image files to a computer using standard naming conventions
Use digital camera to create photo images	7. Discuss photographic project brief with relevant personnel

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	8. Assess ***digital camera features*** to ensure that outcomes will meet the requirements of brief 9. Plan camera shots taking into account lighting, framing, composition and other ***photographic techniques*** 10. Load and operate digital camera according to manufacturer specifications 11. Consider digital camera focus, exposure and shutter speed to ensure image capture meets production requirements 12. Check photographic images for fitness of purpose to comply with brief 13. Transfer and store photographic image files to a computer using standard naming conventions
Edit photo images	14. Load ***digital imaging software*** and import photo image source files 15. ***Manipulate*** and save digital images using designated digital imaging software 16. Create photo images that incorporate ***visual design*** and ***communication principles*** using designated digital imaging software 17. Evaluate the outcome for visual impact, effectiveness and fitness for purpose 18. Confirm outcome with relevant personnel
Prepare photo image assets	19. Save files in appropriate ***output format*** to meet ***platform*** requirements 20. Assign ***metadata tags*** if required 21. Group files logically in a folder system using standard naming conventions 22. Store files in share drive or repository for production team access

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• communication skills sufficient to:

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• interpret and clarify written or verbal instructions • consult equipment operation manuals • ability to work as a member of a production team - both independently on assignment and under direction • technical skills sufficient to: • proficiently use a scanner to reproduce photo images to specification • proficiently use a digital camera to create well-composed photo images • proficiently use digital imaging software to manipulate and prepare photo images • manage files using standard naming conventions • self-management skills sufficient to: • work under pressure • meet deadlines • seek expert assistance when problems arise • problem-solving skills sufficient to anticipate and resolve minor equipment set-up problems
Required knowledge
• basic photographic techniques • basic principles of visual design and communication • appropriate file formats for various platforms • industry knowledge, including: • roles and responsibilities of project team members, e.g. designers, content creators, information architects, programmers and coders • basic understanding of the relationship between technical and creative aspects and requirements of interactive media projects • basic knowledge of the features of a range of delivery platforms • OHS regarding the use of scanners, cameras and computers, and handling and disposing of lithium batteries

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • ability to use digital imaging software to prepare high quality photo images that satisfy the requirements of a range of briefs • efficient operation of a scanner and digital camera to capture images.

Context of and specific resources for assessment	Assessment must ensure:
	• access to a range of resources and equipment currently used by industry, including:
	  • flatbed scanner
	  • digital camera
	  • industry-standard graphics software
	• access to appropriate learning and assessment support when required
	• use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of photo images prepared by the candidate on a number of occasions • practical demonstration by the candidate of scanner and digital camera operation • written or oral questioning to test knowledge of file formats and OHS issues.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFDIG304A Create visual design components.

Range Statement

RANGE STATEMENT

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Projects may include:	• e-commerce • educational product • game • information product • promotional product • training product • website.
Relevant personnel may include:	• client • designer • graphic artist • interactive media author • programmer, coder and technical support people • supervisor • web manager • other specialist creative and administrative staff.
Scanner features may include:	• bit depth • dynamic range • optical resolution • output format (e.g. RGB, greyscale or CMYK) • platen size • reflective or transmissive (film) • range of film holders.
Scanner settings may include:	• bit depth • colour or greyscale • colour/target/working space • crop • destination • dust and scratch handling (e.g. ICE, FARE) • grain management (e.g. GEM) • multi-sampling • orientation • output dimension and resolution or file size

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• preferences/options • restoration of colour (e.g. ROC) • scaling • sharpening • source image type • tones, contrast, colour cast, saturation.
Digital camera features may include:	• aperture • automatic, program or manual settings • batteries • colour, target, working space • compatibility with hardware and digital imaging software • exposure compensation • file format • flash, fill flash • lens focal lengths, such as wide angle, close-up and telephoto • menu functions • resolution - megapixels • shutter speed • size and type of memory card(s) • subject modes • white balance.
Photographic techniques may include:	• composition • depth of field • dynamic range • field of view • framing • lighting.

Digital imaging software may include:	• a wide range of programs, e.g.:
	  • Adobe Photoshop
	  • Adobe Photoshop Elements
	  • Adobe Photoshop Lightroom
	  • Apple Aperture
	  • Corel Paint Shop Pro
	  • Corel PhotoPaint
	  • GNU Image Manipulation Program (GIMP and GIMPshop).

Manipulating digital images may	• appending text/type for files and captions

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
include:	• brushing • creating artistic effects • cropping • editing • eliminating red eye • emulating photographic effects • image enhancement including tones, contrast, colour cast/tint, saturation • masking layers • retouching (i.e. cloning, rubber stamping, healing, patching) • sharpening • stitching (panoramic scenes) • using layers for composites • using pre-sets.
Visual design principles may include:	• balance • emphasis • movement • perspective • proportion • scale • unity.
Communication principles may include:	• communicates message • conveys meaning • meets audience requirements • uses functional components.
Output formats may include:	• GIF • JPEG • PDF • PICT • PNG • PSD • TIFF.
Platforms may include:	• CD • DVD • games console • internet • kiosk • mobile phone • other video playback devices

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• personal digital assistant (PDA) • video player (iPods).
Metadata tags may include:	• author • copyright notice • date of capture/date created • description • EXIF and IPTC standards • file size • format • headline/caption • keywords/subject • location/GPS coordinates • resolution • rights usage terms • roll/identifier # • subject • time • title • version.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Visual communication - digital content and imaging

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

CUFDIG304A Create visual design components

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to create visual designs for a range of interactive media components. People in this role work closely with other members of a production team. They create visual design components in response to specifications and under the supervision of a graphic designer or producer. They contribute creative ideas to the overall concept that needs to take account of technical considerations, such as the final delivery platform. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit requires the application of the key principles and practice of graphic design in the context of creating visual design components that could be integrated into a range of media products, including print media. A graphic artist usually undertakes this role and is expected to be competent in a range of design techniques, including freehand drawing. The visual design output will nevertheless be in a digital format for inclusion in a final media product. More complex skills associated with visual design aspects

© Commonwealth of Australia, 2025 Future Skills Organisation

	of a whole interactive media product are covered in: • CUFDIG402A Design user interfaces • CUFDIG403A Create user interfaces.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
Clarify work requirements	1. Clarify type of visual design ***components*** required, in consultation with ***relevant personnel*** 2. In discussion with relevant personnel, identify factors

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	that may determine or affect visual design concepts, including ***design techniques*** 3. Clarify in discussion with relevant personnel the target user and audience, and determine ***format*** and ***delivery platform***
Generate and assess ideas	4. Review media products, designs, images, artwork and other creative sources that may inspire visual design ideas 5. Obtain other ***relevant information*** that may influence design ideas 6. Generate a range of visual design ideas that are technically feasible, respond to specifications and provide creative solutions to all design issues 7. Present visual design ideas to relevant personnel using design techniques
Plan approach	8. Experiment with traditional and digital imaging techniques to create required visual design components 9. Explore range of ***typographical*** and ***visual design elements*** to create the components 10. Evaluate initial design ideas and specifications against findings and discuss with relevant personnel to select final design concept 11. Select design technique and discuss with relevant personnel to ensure appropriate output format meets delivery platform requirements
Produce visual design components	12. Develop structure for components based on the final design concept using selected design techniques 13. Apply ***visual design principles*** and ***communication principles*** to produce components 14. Save visual design in an appropriate format that satisfies the technical parameters determined in consultation with relevant personnel
Finalise visual design components	15. Review visual design components to assess whether creative solutions meet design and technical specifications 16. Discuss and confirm with relevant personnel additional requirements or modifications and undertake any necessary amendments

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication, teamwork and literacy skills sufficient to:
  - interpret and clarify written and verbal instructions
  - work as a member of a production team - both independently on assignment and under direction
  - respond constructively to feedback received from other team members
- initiative and enterprise in the context of generating a range of feasible ideas for visual designs
- technical skills sufficient to:
  - use a range of design techniques for creating visual designs, including industry-standard graphics software
  - apply visual design and communication principles to produce visual designs
  - create visual design components in appropriate formats for a range of delivery platforms
  - manage files and directories using standard naming conventions
- self-management and planning skills sufficient to:
  - prioritise work tasks
  - meet deadlines
  - seek expert assistance when problems arise

Required knowledge

- industry knowledge, including:
  - roles and responsibilities of project team members
  - basic understanding of the relationship between technical and creative aspects and requirements of media projects
- basic design principles of layout and composition
- characteristics of digital and traditional imaging
- visual design and communication principles
- typography
- copyright clearance procedures
- OHS standards as they apply to the use of computer and keyboard for periods of time

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • creation of visual design components that respond effectively to specifications and demonstrate the application of visual design and communication principles • ability to apply a selection of the design techniques listed in the range statement • ability to work collaboratively in a team environment.
Context of and specific resources for assessment	Assessment must ensure: • access toa range of resources, equipment and current industry-standard software as listed in the range statement • access to appropriate learning and assessment support when required • use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of a range of visual design components created by the candidate • written or oral questioning to test knowledge of visual design principles, communication principles and responsibilities of different members of a project team.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFDIG303A Produce and prepare photo images

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	• CUFANM301A Create 2D digital animations.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Components may include:	• 2D animation objects • backgrounds • banners • basic user interfaces • colours • flow charts • icons • illustrations • interactive buttons • interactive controls • logos • simple 2D animation characters • text • titles • other components required by the project.
Relevant personnel may include:	• art director • asset creator • client • editor • producer • programmer • supervisor • technical director • technical staff • other specialist creative and administrative staff.

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

Design techniques may include:	• drawing freehand
	• drawing on a tablet
	• flow charts
	• scanning drawings and photographs
	• storyboards
	• thumbnail sketches
	• using graphics software, such as:
	  • Corel Draw
	  • Corel Paint Shop Pro
	  • Photoshop
	  • Photoshop Elements
	  • Illustrator
	  • Paint.net
	  • Fireworks.

Format may include:	• bitmap image
	• digital formats, such as:
	  • GIF
	  • JPEG
	  • PDF
	  • TIFF
	  • PICT
	  • PNG
	  • PSD
	  • HTML
	• hard copy
	• vector image.

Delivery platform may include:	• CD • DVD • film • games console • internet • kiosk • mobile phone • other wireless/mobile devices • personal digital assistant (PDA) • print media • television.
Relevant information may	• brands

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
include:	• logos • previous versions of components • printed materials • promotion materials • style guides • trademarks.
Typographical design elements may include:	• alignment • fonts and typefaces • kerning • leading • point and size • serif or sans serif • tracking.
Visual design elements may include:	• colour • form • line • shape • texture • tone.
Visual design principles may include:	• balance • emphasis • focal point • movement • perspective • proportion • scale • unity.
Communication principles may include:	• communicates message • conveys meaning • meets audience requirements • uses functional components.

Unit Sector(s)

Unit sector	

© Commonwealth of Australia, 2025 Future Skills Organisation

Competency field

Competency field	Visual communication - digital content and imaging

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

CUFDIG401A Author interactive media

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to author a complete interactive media product, for example, a whole website. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	People in this role need a sound understanding of mark-up languages (HTML and XML). In addition, they need to be familiar enough with scripting languages to use script libraries in authoring software to provide interactive features. Authors work primarily on client-side technologies. In the construction of dynamic websites, for example, they develop the templates, themes and style sheets for the programmers and technical support team to integrate into the database and install on a web server. Authors also develop forms and form objects, but the scripting for form processing is provided by programmers. Authors may also use a variety of authoring software to produce complex interactions such as digital simulations, games and puzzles. In interactive media development, authors are working with a team, including user interface designers, interactive

© Commonwealth of Australia, 2025 Future Skills Organisation

	designers, asset creators and server-side programmers. Skills associated with scripting are covered in: • CUFDIG404A Apply scripting language in authoring.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
Identify multimedia	1. Obtain ***design specifications***

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
elements	2. Locate content required for ***productions*** 3. Discuss issues of integration and formats of ***media assets*** with ***relevant personnel*** 4. Determine with relevant personnel an interactive sequence to become the prototype
Identify scope of authoring software	5. Identify range of industry-standard ***authoring software*** 6. Assess the authoring software in relation to specified ***delivery platform*** 7. Discuss selection of authoring software with relevant personnel to ensure selection will meet specified outcomes 8. Select authoring software best suited to job requirements
Use authoring software	9. Load authoring software 10. Create a new file for the specified task and name using standard naming conventions 11. Display and use tools and features of authoring software relevant to the authoring process
Create interactive sequence	12. Slice and reassemble the user interface appropriate to the authoring software 13. Import and assemble components in appropriate sequence according to creative requirements 14. Create interactive features according to creative and technical requirements, sourcing and writing appropriate ***markup and scripting languages*** as required 15. Check that interactive sequence conforms to navigation design 16. Integrate media assets to ensure highest levels of technical performance 17. Check that interactive sequence conforms to loading specifications 18. Test for interoperability, eliminate all bugs and validate scripting 19. Present interactive sequence as a prototype ensuring that sequence meets creative, production and technical requirements 20. Save ***output file formats*** and identify for specified purpose
Evaluate interactive prototype	21. Present prototype to relevant personnel 22. Evaluate prototype against design specifications, including achievement of a creative and user-centred

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	product 23. Discuss and agree on required changes 24. Assist in user trials as required 25. Evaluate feedback from user trials 26. Seek confirmation from relevant personnel to transform prototype into final product
Seek confirmation from relevant personnel to transform prototype into final product	27. Make necessary changes as indicated by user trials 28. Replicate prototype functionality to complete the interactive product 29. Make final checks to ensure sequences conform to design specifications 30. Test for interoperability, eliminate bugs and validate scripting 31. Save to specified storage system accessible to production team 32. Assist in loading product to specified platform as required

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication and literacy skills sufficient to interpret and clarify written or verbal instructions
- ability to work as a member of a production team - both independently on assignment and under direction
- technical skills sufficient to:
  - correctly interpret design briefs, and design and technical specifications
  - proficiently use appropriate authoring and graphics software
  - seamlessly integrate and optimise a range of media assets to highest levels of technical performance
  - create and apply style sheets, templates or themes to conform with W3CAccessibility standards as they apply to client-side technology
  - manage files and directories using standard naming conventions and version control protocols
- initiative and flexibility in the context of troubleshooting and solving problems as

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

they arise during the authoring process
• self-management and planning skills sufficient to:
  • prioritise work tasks
  • meet deadlines
  • seek expert assistance as required

Required knowledge

• scope and applicability of industry-standard authoring software
• technical requirements for integrating digital content for use on a range of delivery platforms, including:
  • animation
  • graphics
  • text
  • video
  • audio
• user-centred design principles
• design principles of layout and composition
• industry knowledge, including:
  • roles and responsibilities of project team members, e.g. designers, content creators, information architects, programmers and coders
  • sound understanding of the relationship between technical and creative aspects and requirements of interactive media projects
  • sound knowledge of the features of a range of delivery platforms
  • markup and scripting languages as they apply to relevant authoring software
  • W3C Accessibility standards
  • purpose and process of validation and the role of interoperability standards
  • issues and challenges that arise in developing interactive media products
• OHS standards as they relate to working on computers for periods of time

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential:
	• development of an integrated and fully functional interactive media product that:
	  • conforms to design specifications
	  • meets W3C Accessibility standards
	  • demonstrates creativity in design solutions
	• collaborative approach to work.

Context of and specific resources for assessment	Assessment must ensure: • access toa range of resources, equipment and current industry-standard software as listed in the range statement • access to appropriate learning and assessment support when required • use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of at least two interactive products authored by the candidate • written or oral questioning to test knowledge of the processes followed to develop an interactive product and the respective roles and responsibilities of team members.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFDIG404A Apply scripting language in authoring • ICAU4207B Apply web authoring tool to convert client data for websites.

Range Statement

RANGE STATEMENT

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	

Design specifications may include:	• creative requirements
	• navigation design
	• priority levels of W3C Accessibility standards
	• storyboards
	• technical specifications, including:
	  • disk space
	  • delivery platform
	  • file format for final product
	• time
	• user interface design.

Productions may include:	• e-commerce • educational product • game • information product • interactive application • promotional product • training product • website.
Media assets may include:	• animation • audio • graphics • images • text • video.
Relevant personnel may include:	• animator • artist • asset creator • graphic designer • graphic interface designer • instructional designer • navigation designer • programmer • project manager

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• sound engineer • video producer • other specialist staff.

Industry-standard ***authoring software*** may include:	• Authorware
	• Breeze
	• Captivate
	• Contribute
	• Director
	• Dreamweaver
	• Flash
	• GoLive
	• PageMill
	• RoboDemo
	• graphics software, including:
	  • Photoshop
	  • Fireworks
	  • Illustrator
	• simulation software, such as LabView.

Delivery platform may include:	• CD • DVD • internet • kiosk • mobile phone • personal digital assistant (PDA) • other wireless/mobile devices.
Markup and scripting languages may include:	• ActionScript • HTML • JavaScript • Lingo • XML • other proprietary scripting languages.
Output file formats may include:	• DIR/DCR • FLA/SWF • HTML • PDB • PDF • PRC • TXT • WAP

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• XML • other proprietary formats.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Visual communication - digital content and imaging

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

CUFDIG502A Design web environments

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to design web environments. A web environment may consist of one or many web applications and technologies integrated in various combinations. The design is focused on how these applications and technologies are combined and used, and the way in which interactive content is accessed by users. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	A person in this role works with clients to develop design specifications for web environments. Other specialised designers, graphic artists and programmers working as a team undertake the development of design specifications. Higher order skills associated with developing and documenting concepts that could be used as the basis for design specifications are covered in: • BSBCRT501A Originate and develop concepts.

© Commonwealth of Australia, 2025 Future Skills Organisation

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
Determine project requirements	1. Analyse project brief to identify ***purpose*** of, and target audience for, web environments 2. Consult with clients to clarify ***project requirements*** 3. Identify target ***audience characteristics*** and determine how these influence all aspects of design 4. Identify content to be incorporated and generated and how this content is to be accessed, searched or delivered
Research and select web	5. Research ***web environments*** and analyse their potential

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
environments	6. Analyse how these web environments meet audience and content requirements 7. Identify issues relating to ***delivery platform*** and ***standards***, and determine how these may affect web environment options 8. Consult ***relevant personnel*** to ensure that all possible web environment options are considered 9. Select web environments that will meet creative, production and technical requirements
Draft design specifications	10. Design the architecture of web environments to show interrelationship between environment components 11. Identify each web environment and specify its individual interactive features, functionality and navigation and its relationship to design as a whole 12. Identify content components and specify how these will be logically structured and integrated into and/or generated by web environments 13. Specify levels of access permissions to web environments as required 14. Specify ***media assets*** as required 15. Specify user interfaces of web environments 16. Specify ***production requirements***, including appropriate ***testing strategies*** 17. Write draft ***design specifications*** to include all relevant advice to design and development teams 18. Discuss draft design specifications with client to ensure designs are consistent with project briefs
Review and confirm design specifications	19. Review designs against required project outcomes, as well as client and audience needs 20. Review designs to ensure they meet creative and technical requirements 21. Adjust designs as necessary after discussions with relevant personnel 22. Clarify ***legislative or ownership issues*** to comply with production and organisational requirements 23. Confirm with client acceptance of design specifications, including deliverables, milestones and timelines

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication, teamwork and literacy skills sufficient to:
  - interpret and clarify written proposals and creative briefs
  - work collaboratively in a team environment
  - present ideas for the design of web environments for discussion and feedback from team members
  - clearly and concisely document specifications for the design of web environments
- initiative, enterprise and creativity in the context of:
  - generating ideas for the design of web environments
  - thinking laterally when developing concepts
  - undertaking background research into web environments
  - maintaining design integrity
  - finding solutions to problems encountered when designing web environments
  - finding ways to minimise the effect of technical constraints
  - ensuring there is an intuitive and logical flow to the navigation of web environments
- technical skills sufficient to create storyboards, maps and other diagrams to specify the architecture and navigation of web environments
- self-management skills sufficient to:
  - meet deadlines
  - provide appropriate and timely documentation

Required knowledge

- industry knowledge, including:
  - roles and responsibilities of project team members, e.g. designers, content creators, information architects, programmers and coders
  - sequence and interrelationship of stages in the process of developing web environments
  - broad range of web applications and technologies
  - web design and its relationship to web optimisation strategies
  - web standards, including SCORM, usability, W3C Accessibility and interoperability
  - issues and challenges that arise in designing and developing web environments
- typical formats and techniques for documenting the design of web environments
- OHS standards as they relate to working for periods of time on computers

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• intellectual property rights and copyright clearance procedures

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential:
	• design specifications for web environments that:
	  • are well documented and clearly presented
	  • meet client and audience requirements
	  • are technically feasible
	• ability to work effectively as a member of a production team.

Context of and specific resources for assessment	Assessment must ensure: • practical demonstration of skills through the design of web environments for at least two projects • access to project briefs on which designs can be based • access to appropriate learning and assessment support when required • use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of designs for web environments documented by the candidate and of their effectiveness in terms of meeting project requirements • observation of a candidate presenting his/her design

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	for web environments to team members and explaining how it meets requirements • written or oral questioning to test knowledge as listed in the required skills and knowledge section of this unit.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFDIG505A Design information architecture • CUFPPM404A Create storyboards.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Purpose may include:	• business and corporate • community • education • entertainment • government • information and news • knowledge management • personal • promotion • training.

Project requirements may include:	• access to facilities and resources
	• budget
	• deliverables
	• milestones
	• personnel, including:
	  • number
	  • availability
	  • expertise prototyping

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

	• technical issues, including:
	  • delivery platform
	  • disk space
	  • bandwidth
	  • testing plan
	• timelines.

Audience characteristics may include:	• computer literacy
	• demographics, such as:
	  • age
	  • gender
	  • education
	  • occupation
	  • location
	  • cultural background
	• hobbies
	• interests
	• internet literacy
	• language, literacy and numeracy
	• personas
	• specific needs - physical or psychological.

Web environments may include one or combinations of:	• audio streaming • blog • chat • conferencing tool • content learning management system (CLMS) • content management system (CMS) • database repository • discussion forum • dynamic website • electronic newsletter • interactive calendar • interactive form • learning management system (LMS) • podcast • RSS feed • static website • TiVo • video streaming • other online collaboration and social network

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	tools.
Delivery platform may include:	• digital television set • internet • mobile phone • other wireless/mobile devices • personal digital assistant (PDA).
Standards may include:	• interoperability • SCORM • usability • W3C Accessibility.
Relevant personnel may include:	• art director • client • educator • graphic designer • head of department • information architect • instructional designer • programmer • technical director • technical staff • other specialist creative and administrative staff.
Media assets may include:	• animation • audio • audio/visual files, such as PowerPoint • graphics • images • text • text documents, such as PDF and Word • video.
Production requirements may include:	• levels of expertise • production deadlines • production schedules • production team • production values • testing strategies.
Testing strategies may include:	• alpha • beta • completion

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• continuous • milestone • prototype • staged.
Design specifications may include:	• content inventory • diagrams • flow charts • maps • navigation charts • plans • storyboards • technical specifications • user interface mock-ups • wire frames.
Legislative or ownership issues may be:	• access and equity • clearances • confidentiality • copyright • intellectual property rights • non-disclosure agreements • open source licensing • ownership of assets • product licensing.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Visual communication - digital content and imaging

© Commonwealth of Australia, 2025 Future Skills Organisation

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

CUFDIG503A Design e-learning resources

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to design an e-learning resource. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	The skills and knowledge outlined in this unit are applied by people working in education or training organisations, or in media production companies that specialise in the development of e-learning resources. The focus of this unit is different to that of the two units in the Training and Assessment Training Package that deal with e-learning resources. Namely: • TAADES503B Research and design e-learning resources • TAADES504B Develop and evaluate e-learning resources. These two units are written from the perspective of people in training organisations who are responsible for developing and delivering learning materials to be included in e-learning resources. CUFDIG503A is written from the perspective of a department or company responsible for developing the design of broad ranging e-learning resources in

© Commonwealth of Australia, 2025 Future Skills Organisation

	consultation with clients. However, there are synergies between the units and it may be appropriate to combine them in learning programs.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
Identify project requirements	1. With reference to project briefs, identify ***target learner characteristics*** and their impact on the way resources are designed 2. Identify ***content*** to be incorporated or generated and

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	how this content is to be accessed or delivered 3. Identify ***delivery platforms*** and implications that these will have on selection of ***media assets*** 4. Consult with clients to clarify ***project requirements***
Research and select instructional design model	5. Analyse content to clearly establish learning outcomes and assessment strategies 6. Research a range of ***instructional design models***, considering their characteristics, differences and ability to meet briefs 7. Identify ***standards*** that may apply for a range of delivery platforms 8. Identify ***learning styles*** of target learners and consider how these may impact on the design 9. Consider a range of ***learning activities*** that best meet learning objectives and needs of target learners 10. Consult with ***relevant personnel*** to ensure that a full range of instructional design models has been identified and sourced 11. Select the instructional design model that best meets learning needs and project requirements
Draft design specifications	12. Use selected instructional design model to design the overall architecture of an e-learning resource 13. Design sequences and interactivity based on content and project requirements 14. Develop content templates for content experts if required 15. Specify media assets as required 16. Specify ***communication and collaborative tools*** as required 17. Specify user interface of the e-learning resource 18. Specify ***production requirements***, including appropriate ***testing strategies*** 19. Write draft ***design specifications*** to include relevant advice to design and development teams 20. Discuss draft design specifications with clients to ensure designs are consistent with project briefs
Finalise design specifications	21. Review designs against required project outcomes and target learner needs 22. Review designs to ensure they meet creative and technical requirements 23. Adjust designs as necessary after discussions with

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	relevant personnel 24. Clarify ***legislative or ownership issues*** to comply with production and organisational requirements 25. Confirm with clients acceptance of design specifications, including deliverables, milestones and timelines

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication, teamwork and literacy skills sufficient to:
  - interpret and clarify project briefs
  - establish rapport with clients
  - work collaboratively in a team environment to find the best design solutions
  - clearly and concisely document specifications for the design of e-learning resources
- initiative and enterprise in the context of:
  - generating ideas for the design of e-learning resources that meet the needs of target learners
  - thinking laterally when developing ideas
  - selecting the most appropriate instructional design model
  - maintaining design integrity
- technical skills sufficient to:
  - create storyboards, maps and other diagrams to specify the architecture and navigation of e-learning resources
  - construct material in a logical order, one sequence flowing on from another
  - develop techniques for holding learner's attention
- self-management skills sufficient to:
  - meet deadlines
  - provide appropriate and timely documentation

Required knowledge

- typical formats and techniques for documenting the design of e-learning resources
- OHS standards as they relate to working for periods of time on computers

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

• range of learning models
• way in which various learning styles impact on learning models
• industry knowledge, including:
  • roles and responsibilities of project team members, e.g. designers, content creators, information architects, programmers and coders
  • sequence and interrelationship of stages in the process of developing e-learning resources
  • web standards, including usability, W3C Accessibility and interoperability
  • web applications and technologies that are relevant to e-learning
  • issues and challenges that arise in designing and developing e-learning resources
• intellectual property rights and copyright clearance procedures

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential:
	• design specifications for e-learning resources that:
	  • are well documented and clearly presented
	  • meet learner requirements
	  • are technically feasible
	• ability to work effectively as a member of a production team.

Context of and specific resources for assessment	Assessment must ensure: • practical demonstration of skills through the design of at least two e-learning resources for delivery on different platforms • access to project briefs on which designs can be based • access to appropriate learning and assessment support when required • use of culturally appropriate processes and

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of designs for e-learning resources documented by the candidate and of their effectiveness in terms of meeting project requirements • role-play involving a candidate presenting his/her design for an e-learning resource to a client and explaining how it meets requirements • written or oral questioning to test knowledge as listed in the required skills and knowledge section of this unit.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFPPM404A Create storyboards.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	

Target learner characteristics may include:	• computer literacy
	• demographics, such as:
	  • age
	  • gender
	  • education
	  • occupation

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• location • cultural background • hobbies • interests • internet literacy • language, literacy and numeracy levels • learning environment, such as: • workplace • classroom • home • community • mobile • personas • preferred learning styles • skills level • specific needs - physical or psychological.
Content may include:	• audio/visual materials • curriculum documents, such as: • Training Packages and their units of competency • modules • guides • manuals • PowerPoint presentations • pre-existing learning materials • printed materials • reference texts • training handouts.
Delivery platform may include:	• CD/DVD • digital television set • internet, including: • websites • blogs • wikis • database repositories • learning management systems, such as: • Blackboard • WebCT • Janeson

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• Moodle • virtual classrooms • conferencing • discussion forums • flash-based • chat • podcasting • video streaming • audio streaming • other online collaboration tools • mobile phone • personal digital assistant (PDA) • other wireless/mobile devices.
Media assets may include:	• animations • audio • audio/visual files, such as PowerPoint • graphics • images • text documents, such as PDF and Word • video.
Project requirements may include:	• access to facilities and resources • assessment strategies • budget • deliverables • learner characteristics • milestones • personnel, including: • number • availability • expertise • prototyping • technical issues, including: • delivery platform • disk space • bandwidth • testing plan • timelines.
Instructional design models	• exploration

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
include:	• game • instructional • lock step • mentoring • problem-solving • puzzle • simulation • story-telling.
Standards may include:	• AQTF • interoperability • SCORM • usability • W3C Accessibility.
Learning styles may include:	• activist • learning preferences, including auditory, visual or sensory • pragmatist • reflective • theorist
Learning activities may include:	• blogs • case studies • checklists • discussions and debates • games • interviews • media presentations • problems • projects • quizzes • research reports • role-plays • simulations • tasks • work-based practical activities.
Relevant personnel may include:	• art director • client • content expert • educator • graphic designer • head of department

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• information architect • language, literacy and numeracy specialist • programmer • reference group member • technical director • technical staff • other specialist creative and administrative staff.
Communication and collaborative tools may include:	• blogs • chat • discussion forums • messaging • TiVo • wikis • other social software tools.
Production requirements may include:	• levels of expertise • production deadlines • production schedules • production team • testing strategies.
Testing strategies may include:	• alpha • beta • completion • continuous • milestone • prototype • staged.
Design specifications may include:	• content inventory • diagrams • flow charts • maps • navigation charts • plans • storyboards • technical specifications • user interface mock-ups • wire frames
Legislative or ownership issues may be:	• access and equity • clearances

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• confidentiality • copyright • intellectual property rights • non-disclosure agreements • open source licensing • ownership of assets • product licensing.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Visual communication - digital content and imaging

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

CUFDIG504A Design games

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to design games and document the process for developing them. Game design requires a high degree of collaboration between script writers, programmers and graphic designers. Low-end games can be constructed using interactive authoring tools, but for video game productions, designers need to work with high level programmers to ensure that designs are technically feasible. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	A lead designer typically applies the skills and knowledge described in this unit, which relate to generating and then working on a game idea until the mechanics and design of the game are fully documented. A lead designer communicates the vision for a game to the rest of the team, takes ideas submitted during design meetings and analyses them to ensure they fit the game's intended objectives. This vision is captured in the game design document. Depending on the size of an enterprise, a lead designer may supervise assistant or level designers and would

© Commonwealth of Australia, 2025 Future Skills Organisation

	typically report to a design or creative director. Skills associated with story-telling are covered in: • CUFWRT402A Write extended stories.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
Identify project	1. Confirm the objective and desired outcomes of a game proposal or brief in consultation with ***relevant personnel***

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
requirements	2. Identify ***factors*** that may have an impact on how a game is designed 3. Clarify target audience to determine format and ***delivery platform*** of the game through discussion with relevant personnel
Research games and generate ideas	4. Select ***state of the art games*** from different genres to play as a source of inspiration 5. Search ***game literature*** for each game and identify the games' objectives 6. Generate range of ideas for game designs that are technically feasible, respond to the proposal or brief, and provide creative solutions to design issues 7. Discuss ideas and collaborate, as required, with relevant personnel to ensure contribution of a range of ideas and creative solutions to initial concepts
Select a game genre	8. Identify and present a range of ***game genres*** to relevant personnel for consideration in terms of their characteristics, differences and ability to meet requirements of proposal or brief 9. Consult with relevant personnel to ensure that a full range of genres has been identified and sourced 10. Select the game genre that best meets the creative, technical and production requirements of proposal or brief
Draft game design document	11. Establish the game strategy outcomes 12. Use ***design techniques*** to develop the structure of a game ensuring that all elements, including style and ***game mechanics***, are fully documented 13. Use a range of ***criteria*** to determine the scope of a prototype to be used in the development phase 14. Ensure that the prototype selected is capable of ***testing the effectiveness*** of the proposed game 15. Include a register of ***game assets*** in consultation with relevant personnel 16. Present draft ***game design document*** for discussion with and feedback from other team members
Finalise game design document	17. Re-evaluate game design objectives on the basis of feedback on the prototype and draft game design document 18. Discuss and confirm additional requirements or modifications to the game design with relevant

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	personnel 19. Specify the game ***production specifications***, including appropriate ***testing strategies*** 20. Write final game design document to reflect all additional requirements or modifications

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication, teamwork and literacy skills sufficient to:
  - interpret and clarify written proposals and creative briefs
  - work collaboratively in a team environment
  - present game design ideas for discussion and feedback from team members
  - document game design specifications clearly and concisely
- initiative, enterprise and creativity in the context of:
  - generating innovative ideas for game designs
  - thinking laterally when developing concepts
  - undertaking background research into game ideas
  - maintaining design integrity
- technical skills sufficient to create complex designs using storyboards, maps and other diagrams to specify the architecture and navigation of game mechanics
- self-management skills sufficient to:
  - meet deadlines
  - provide appropriate and timely documentation

Required knowledge

- industry knowledge, including:
  - roles and responsibilities of project team members, e.g. designers, content creators, information architects, programmers and coders
  - sound understanding of game theory, including traditional games
  - broad range of game genres and styles
  - technical parameters of various games platforms
  - issues and challenges that arise in designing games
- research methods for staying abreast of the latest changes and design enhancements

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• requirements of game play design documents • typical formats and techniques for documenting game designs • intellectual property rights and copyright clearance procedures • OHS standards as they relate to working for periods of time on computers

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • development of original and innovative concepts for games • design of game play methods that are compelling for the user and technically feasible • production of clear and well-presented game design documentation • ability to work effectively as a member of a design team.
Context of and specific resources for assessment	Assessment must ensure: • practical demonstration of skills through the design of a variety of games for at least two platforms • access to game proposals or briefs on which designs can be based • access to a range of games for viewing • access to appropriate learning and assessment support when required • use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	reports of on-the-job performance • evaluation of game designs documented by the candidate and of their quality in terms of meeting creative briefs • written or oral questioning to test knowledge as listed in the required skills and knowledge section of this unit • case studies to assess ability to develop designs for different types of games.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFPPM404A Create storyboards • BSBCRT501A Originate and develop concepts.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Relevant personnel may include:	• art director • client • designers • director • graphic artist • head of department • producer • programmer • publisher • script writer • software engineer • other technical and creative staff.
Factors may include:	• availability of personnel • availability of resources

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

	• available budget
	• complexity of proposed game
	• intellectual property
	• need to attract finance
	• production schedule
	• production values
	• technical parameters, including:
	  • technology constraints
	  • console
	  • platform
	  • bandwidth
	  • memory/RAM
	• timelines
	• user and audience.

Delivery platforms may include:	• CD/DVD • digital television set • games console • internet • mobile phone • personal digital assistant (PDA) • other wireless/mobile devices.
State of the art games may include:	• best selling games • games that show unique and innovative approaches.
Game literature may include:	• game design books • game post-mortems • magazine, newspaper and journal articles • previews and reviews • strategy guides • user manuals • walkthroughs • other online game resources.
Game genres may include:	• adventure • arcade • first person shooter • massively multiplayer online • mazes • platforms • puzzles

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• racing • rhythm • role playing • simulation • sport • strategy • third person shooter.
Design techniques may include:	• drawing • flow chart • scanning • storyboard • using image and background generating tools.

Game mechanics may include:	• environment and object interactions
	• environment dynamics
	• game objects
	• game play elements that may include:
	  • skill levels
	  • judgements
	  • choices
	  • decisions
	  • codes
	  • rules
	  • levels of progression
	  • goals
	  • actions
	  • events
	  • levels of difficulty
	  • scoring
	  • calculation of scoring
	  • user control
	  • user interaction
	  • options for single player or multiplayer
	  • customisation
	• key systems
	• object actions
	• object to object interactions.

Criteria may include whether the prototype:	• can be demonstrated to a specialist target group • can be used for promotional purposes • can demonstrate the full potential of the game

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• can sell a concept to potential investors • is appropriate for the chosen genre and style.

Testing the effectiveness of the prototype may include:	• comparing game design with original objectives
	• group discussion techniques
	• identifying any logical inconsistencies in:
	  • design
	  • game timing
	  • story-lines
	• measuring the levels of user satisfaction
	• paper and pencil techniques (dry running).

Game assets may include:	• animations
	• audio, including:
	  • sound effects
	  • dialogue
	  • narration
	  • music
	• cut scenes
	• titles
	• video sequences.

Game design document may include:	• agent architectures • artificial intelligence • asset register • background story • comprehensive designs for each mission and level • decision-making systems • game mechanics • game tools • graphics • inventories • overview • production specifications • scripts • spatial design • storyboard and flow chart • synopsis • title • user interface

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• walkthroughs.
Production specifications may include:	• budget • intellectual property • levels of staff expertise • production schedule • production values • size and composition of the development team • technology constraints • testing strategies • timelines.
Testing strategies may include:	• alpha • beta • completion • continuous • milestone • prototype • staged.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Visual communication - digital content and imaging

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

© Commonwealth of Australia, 2025

CUFDIG507A Design digital simulations

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to design digital simulations. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	The range of digital simulations covered in this unit is broad, and could include virtual world environments for architecture; virtual instruments and equipment for science and engineering; or natural and technical processes and procedures in medicine, conservation and manufacturing. As these simulations are based on real world environments and processes, designers need to work closely with experts in the field to understand the dynamics of the processes and to be able to model these in a virtual environment. The unit also requires working collaboratively with programmers and software authors to ensure the simulation can be technically achieved. As the application for simulation is broad, including demonstration and training, this unit relates to other design units, including: • CUFDIG503A Design e-learning resources • CUFDIG504A Design games.

© Commonwealth of Australia, 2025 Future Skills Organisation

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
Identify project requirements	1. Confirm objectives and desired outcomes of briefs in consultation with ***relevant personnel*** 2. Identify target audience and determine format and ***delivery platform*** of simulations through discussion with relevant personnel
Research and plan	3. Investigate fully the ***real world environment*** that is to be simulated

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
approach	4. Obtain designs, plans and other information that may assist in modelling the real world environment 5. Determine the ***performance objectives***, task complexity and required levels of user skill 6. Determine the required depth of physical and functional fidelity, taking into account ***production requirements*** 7. Research and select appropriate simulation ***authoring tools*** 8. Discuss ideas and collaborate, as required, with relevant personnel to ensure contribution of a range of ideas and creative solutions
Draft simulation design documents	9. Identify the ***processes*** that determine the functional behaviour and specify how this behaviour is to be represented by ***control objects*** 10. Define the underlying functionality in a model that specifies the essential settings, states, conditions and parameters 11. Specify the ***user interface controls*** that enable users to interact with simulations 12. Identify critical impacts, alerts or costs for incorrect user operation 13. Specify positive and negative user feedback 14. Specify the sequencing of levels of difficulty 15. Present draft ***simulation design documents*** for discussion with and feedback from other team members
Finalise simulation design documents	16. Review designs against required project outcomes and performance objectives 17. Review designs to ensure they meet creative, technical and legislative requirements 18. Adjust designs as necessary after discussions with relevant personnel and incorporating user feedback 19. Save and archive user interface controls for other projects

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
Required skills

• communication, teamwork and literacy skills sufficient to:
  • interpret and clarify project briefs
  • establish rapport with clients
  • work collaboratively in a team environment to find the best design solutions
  • clearly and concisely document specifications for the design of the digital simulation
• initiative and enterprise in the context of:
  • generating ideas for the design of digital simulations that meet the specified performance objectives
  • thinking laterally when developing ideas
  • maintaining design integrity
• technical skills sufficient to:
  • create storyboards, state-charts and other diagrams to specify the architecture and navigation of digital simulations
  • design simulations that represent a real world environment to the required level of fidelity
• self-management skills sufficient to:
  • meet deadlines
  • provide appropriate and timely documentation

Required knowledge

• industry knowledge, including:
  • roles and responsibilities of project team members, e.g. designers, content creators, information architects, programmers and coders
  • issues and challenges that arise in the context of designing and developing digital simulations
• typical formats and techniques for documenting the design of digital simulations
• OHS standards as they relate to working for periods of time on computers
• way in which algorithms, laws, rules and mathematical formulas can represent real world processes
• intellectual property rights and copyright clearance procedures

Evidence Guide

EVIDENCE GUIDE
The Evidence Guide provides advice on assessment and must be read in conjunction with the

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential:
	• design specifications for digital simulations that:
	  • are well documented and clearly presented
	  • meet performance requirements
	  • are technically feasible
	• ability to work effectively as a member of a design team.

Context of and specific resources for assessment	Assessment must ensure: • practical demonstration of skills through the design of at least two digital simulations • access to briefs for digital simulations on which designs can be based • access to appropriate learning and assessment support when required • use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of digital simulation designs documented by the candidate and of their quality in terms of meeting performance requirements • written or oral questioning to test knowledge as listed in the required skills and knowledge section of this unit • case studies to assess ability to develop digital simulations for a range of real world environments.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFDIG503A Design e-learning resources • CUFDIG504A Design games

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	• CUFDIG506A Design interaction.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Relevant personnel may include:	• art director • client • designer • expert • graphic artist • head of department • programmer • publisher • script writer • software engineer • other technical and creative staff.
Delivery platforms may include:	• CD/DVD • games console • internet • mobile phone • personal digital assistant (PDA) • other wireless/mobile devices.
Real world environments may include:	• device • equipment • machine • natural habitat • procedure • process • social environment • spatial environment • system • tool.

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
Performance objectives may include:	• control • dexterity • judgement • knowledge • memory • perception • proficiency • recall • reflection • speed and accuracy of decision making and problem solving • understanding.
Production requirements may include:	• budget • schedules • staff expertise • timelines.

Authoring tools may include:	• authoring software, such as:
	  • Dreamweaver
	  • GoLive
	  • Contribute
	  • Breeze
	  • Captivate
	  • Authorware
	  • Flash
	  • Director
	  • PageMill
	  • RoboDemo
	  • simulation software, such as LabView
	• scripting using languages, such as:
	  • CC++
	  • Java
	  • ActionScript
	  • Lingo.

Processes may include:	• astrological • biological • chemical • electrical • environmental • mechanical

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• mental • physical • social.
Control objects may include:	• algorithms • forces • laws • mathematical formulas • rules.
User interface controls may include:	• buttons • clocks • dials • gauges • handles • joysticks • keyboards • keypads • knobs • lamps • levers • meters • sliders • switches • timers • valves • wheels.
Simulation design documents may include:	• diagrams • flow charts • maps • plans • state-charts • storyboards • technical specifications • user interface mock-ups • wire frames.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Unit sector	

Competency field

Competency field	Visual communication - digital content and imaging

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

CUFPOS201A Perform basic vision and sound editing

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to perform basic editing functions in relation to film, television and interactive media productions. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	Editing assistants apply the skills and knowledge described in this unit. Under the direction of an editor or senior editor, they are responsible for digitising, cutting and logging pre-recorded image and audio content. Editors then take this material and complete the editing process. Within clearly defined parameters, editing assistants are also responsible for editing content using the basic functions of editing software. More complex skills associated with digital editing are covered in: • CUFPOS401A Edit screen content for fast turnaround.

Licensing/Regulatory Information

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
Prepare source materials for edit	1. Clarify ***technical and creative requirements*** for ***production*** and online ***editing*** in consultation with relevant ***production personnel*** 2. Obtain and label ***source materials*** and keep in a safe, clean location with appropriate ***documentation*** 3. Organise transfer of source materials to appropriate ***medium*** where necessary 4. Check that sufficient ***storage and memory*** is available to meet content resolution requirements 5. Assess source materials for technical and creative quality and arrange for remedial action where problems are identified 6. Digitise content according to specified ***formats*** and burn time code where applicable, ensuring format is

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	compatible with available ***software*** and ***hardware*** 7. Align, synchronise and organise uncut images and sound in preparation for evaluation and editing 8. In consultation with relevant production personnel, finalise list of shots required for the edit and the method for logging them
Log content for editing	9. Check ***editing facilities*** are operational and arrange for faults or problems to be resolved according to enterprise procedures 10. Obtain required editing ***consumable materials*** and ensure sufficient supplies are available to meet editing schedules 11. Load source materials onto appropriate editing facility, ensuring correct image and sound are ready for use and that images and sound are synchronised or aligned accurately 12. Identify required ***shots*** and sequences from source materials and catalogue them in the agreed way 13. ***Log*** selected edits with reference to ***time codes*** and shot descriptions according to enterprise procedures 14. Use a batch digitise list to digitise selected sequences according to relevant documentation and consistent with technical and creative requirements 15. Create ***edit decision lists*** (EDLs) according to instructions from relevant production personnel 16. Organise and save selected materials according to overall editing requirements 17. Finalise logging sheets and submit EDLs to relevant production personnel by the agreed deadline
Perform basic edits	18. Use ***software functions*** to assemble sequences according to EDLs and within time constraints 19. Review edited sequences to evaluate quality and content and to identify problems 20. Manipulate the editing software to solve identified problems and seek expert advice if required 21. Submit sequences to relevant production personnel for feedback according to enterprise procedures 22. Amend sequences as required and save in appropriate format 23. Ensure source materials, selected materials and back-up copies are stored securely and labelled correctly 24. Complete required documentation, noting variations and

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	issues from original instructions 25. Leave workstation in original or improved condition, ensuring there has been no adverse impact on site

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills

• communication, teamwork and organisational skills sufficient to:
  • arrange film, television and interactive media content logically and accurately
  • liaise with relevant production personnel, e.g. editors, directors
  • understand and follow instructions as required
• technical skills sufficient to:
  • edit simple image and audio sequences and segments, including dialogue
  • digitise pre-recorded content, e.g. film, analogue video
  • follow relevant file management protocols for specified operating systems
• self-management skills sufficient to:
  • prioritise work tasks
  • meet deadlines
  • seek expert assistance when problems arise
• literacy and numeracy skills sufficient to:
  • identify and label accurately source materials and copies
  • implement and record time codes and timings
  • document image and sound components, e.g. completion of logging sheets

Required knowledge

• familiarity with basic picture and sound editing conventions and techniques
• industry knowledge, including:
  • roles and responsibilities of post-production personnel
  • basic understanding of the features and capabilities of facilities and equipment for sound editing and broadcast
  • working knowledge of a range of editing software and equipment
• OHS requirements as they apply to use of computers and keyboards

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • systematic preparation of content segments for editing from source video or film • correct identification and logging of single images, audio grabs and basic sequences • ability to transfer and digitise video and film materials • collaborative approach to work • attention to detail • ability to work to deadlines.
Context of and specific resources for assessment	Assessment must ensure: • access to a range of pre-recorded films and videos • availability of a range of editing facilities - non-broadcast and broadcast • exposure to a range of computer software for editing and documentation of image and audio • access to appropriate learning and assessment support when required • use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of a range of material prepared, logged and edited by the candidate in response to instructions received from a supervising editor • written or verbal questioning to test knowledge as listed in the required skills and knowledge section of this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFDIG301A Prepare video assets • CUFSOU204A Perform basic sound editing • CUFSOU301A Prepare audio assets.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	

Technical and creative requirements may include:	• ADR (additional dialogue recording)
	• audio levels
	• break in control track
	• colour bars
	• drop-outs
	• film leaders
	• graphics
	• production style
	• quality of image/sound
	• rushes
	• script materials
	• sequences, e.g.:
	  • vision cuts
	  • sound editing, e.g. dialogue
	  • voice-over
	  • music
	• sync marks
	• tape black
	• time codes.

Productions may include:	• animated productions • commercials

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• documentaries • feature films • filmed events or performances • music video • pre-recorded television productions • short films • television productions, e.g. music, drama, comedy, variety, sport.
Editing may include:	• computerised data • digital non-linear • film • linear • off-line • online • video.
Production personnel may include:	• assistant editor • CGI (computer generated imagery) personnel • designers • director • director of photography • editing suite personnel • editor • floor manager • laboratory personnel • music composer • picture editing personnel • producer • production designer • production manager • sound editing personnel • sound effects personnel • technical director • other technical/specialist staff.
Source materials may include:	• CDs • DVDs • film • graphics • internet • mini disks (MDs) • stills

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• tape (analogue; camera, digital) • work prints • work tapes.

Documentation may include:	• assembly order
	• budgets
	• call/running sheets
	• camera reports
	• computer generated
	• continuity reports
	• contracts
	• EDLs (edit decision lists)
	• fault reports
	• hire agreements
	• list of sequences with relevant shot numbers
	• logging sheets
	• manually written
	• manufacture schedules
	• manufacturer specifications/instructions
	• marked-up scripts
	• marked-up transcripts
	• memos of instruction
	• operational/project plan
	• production schedules
	• scripts
	• sound reports
	• sound sheets, e.g.:
	  • time-code log sheets for location sound recordings
	  • wild-line and sound effects log sheets.

Medium may include:	• computer disk, e.g. CD/DVD
	• film of any gauge, e.g.:
	  • 16 mm
	  • 35 mm
	  • super 35 mm
	  • 70 mm
	• mini disk
	• sound
	• video of any format, e.g.:
	  • miniDV

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• DVCam • Betacam • SP and digital Betacam • VHS/SVHS • vision.
Storage and memory may include:	• disk space (hard, optical, floppy) • film duplicates • flash memory, e.g. USB drives • solid state, e.g. RAM.
Formats may include:	• audio/sound, e.g.: • DAT • AIFF • WAV • MIDI • MP3 • magnetic tape • computerised data • film of any gauge • graphics • stills • video of any format, e.g.: • DVC • VHS • Beta • HDTV • AVI • MPEG.
Software may include:	• Adobe Premiere Pro • Avid Liquid Pro • Final Cut Pro • Ulead MediaStudio Pro.
Hardware may include:	• computers, e.g. PC, Macintosh, Avid • DVD/CD player • edit controllers, e.g. Lightworks • external hard drives • iPod • source and record machines, e.g. Beta, VHS, DAT • Steenbeck

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• video machines/recorders.
Editing facilities may include:	• digital non-linear, e.g. Mac G5, Avid • editing bins • linear, e.g. Steenbeck, Beta, VHS • off-line • online • pic sync • rewinders • synchronisers • viewers.
Consumable materials may include:	• audio tape • computer disks • DVDs • film cans • labels • marking pens • video/DVD cases • viewer globes.
Shots may include:	• bird's eye • close-ups • cutaways • high-angle, low-angle • long shot, mid shot • medium close-ups • noddy • pans • reverses • tilts • two shot • wide shots • wide-angle.
Log may include:	• can ID • counter reading • drop-outs/faults • in point • out point • shot descriptions • tape ID • time code • timings.

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
Time codes may include:	• burned-in code • clapperboard/slate • frame rates • genlock • keyed-in code • LTC (longitudinal time code) • SMPTE/EBU • synchronisers • time-code rates • VITC (vertical interval time code).

Items to be noted in ***edit decision lists*** may include:	• composition
	• coverage
	• dialogue
	• effects transitions, e.g.:
	  • wipes
	  • dissolves
	  • fades
	  • use of graphics
	• frame ratio and rate
	• framing
	• glitches, faults, drop-outs
	• music
	• pacing
	• script changes
	• soundtrack
	• special effects
	• tempo - duration of shots and segments
	• timing.

Software functions may include:	• adjusting audio levels
	• inserting:
	  • transitions
	  • sound effects
	  • music
	  • voice-overs
	  • basic titles and captions
	  • still images
	  • overlays
	• manipulating still images, e.g.:
	  • panning

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

	• zooming
	• manipulating video and audio clips, e.g.:
	  • cutting
	  • pasting
	  • copying
	  • moving
	  • splitting.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Media and entertainment production - post-production

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

CUFPOS401A Edit screen content for fast turnaround

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to edit screen content for fast turnaround using non-linear editing facilities. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	Editors with a reasonable level of experience apply the skills and knowledge described in this unit. Using non-linear digital facilities to edit screen content, editors occasionally require basic film handling skills. Primarily they are involved in day-to-day editing for daily programs such as news and current affairs. At times they work on more complex programs of a formatted or routine nature. They may also be involved in fast turnaround editing of rushes for feature films. Editors at this level are usually answerable to a senior editor or producer/reporter. More complex skills associated with editing a comprehensive range of film, television material are covered in: • CUFPOS501A Edit complex screen productions.

© Commonwealth of Australia, 2025 Future Skills Organisation

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
Prepare for edit	1. Clarify editing requirements in consultation with relevant ***production personnel*** and with reference to ***documentation*** as required 2. Check operation of ***editing equipment*** and ***software***, and ensure sufficient supplies of ***consumables*** are available 3. Identify and prepare ***source materials*** for off-line and online ***editing*** 4. Assess materials to be edited for required ***technical and creative criteria*** in consultation with relevant production personnel

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	5. Endeavour to visualise completed edit with reference to available materials
Commence editing process	6. Digitise and transfer materials to suitable ***format***, ensuring compatibility with editing equipment and monitoring capture for sound and image quality 7. Where appropriate, create an ***edit decision*** list (EDL) subject to time constraints, noting accurately in and out points for each edit 8. Maintain accurate documentation of editing instructions for use in all stages of post-production as required 9. Prioritise and select materials in terms of their relevance to meet ***production requirements*** 10. Arrange and present selected material to retain the intended meaning of words and images 11. Analyse and plan how preselected ***additional materials*** are to be used to clarify and enhance final edit
Assemble vision and sound	12. Check technical and creative criteria with relevant production personnel to ensure integrity of edit 13. Assemble content in a way that produces coherent images and sound according to standard ***editing conventions*** 14. Ensure that assembled materials meet time requirements for ***productions***, as well as technical and creative criteria for transmission 15. Insert transitions, special effects and preselected additional materials as required 16. Make appropriate compromise between content and quality in order to meet time restrictions 17. Review assembled online or off-line edit with relevant production personnel 18. Implement changes as specified and finalise edit to meet deadlines
Finalise edits	19. Complete necessary documentation and file/archive source materials according to enterprise procedures 20. Report problems in completing edits to meet production requirements 21. Provide information required for successful transmission of edited material 22. Evaluate own performance against technical and creative criteria and discuss with colleagues where appropriate

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication, teamwork and organisational skills sufficient to:
  - arrange screen content logically and accurately
  - work collaboratively with production personnel, e.g. editors, directors
  - understand and carry out instructions and creative directions as required
  - utilise relevant file management protocols for specified operating systems
- initiative and enterprise in the context of:
  - visualising and interpreting basic story-lines in a creative way
  - troubleshooting and solving problems as they arise during the editing process
- self-management and planning skills sufficient to:
  - prioritise work tasks
  - meet deadlines
  - seek expert assistance as required
- technical skills in the context of:
  - editing vision and sound for same-day programs to tight deadlines, e.g. news, current affairs
  - editing content according to a broad brief, e.g. verbal brief
  - digitising pre-recorded content, e.g. film, analogue video
- literacy and numeracy skills sufficient to:
  - identify and label accurately source materials and copies
  - implement and record time codes and timings
  - document image and sound components, e.g. completion of logging sheets

Required knowledge

- current vision and sound editing techniques and application of different editing methods, especially when fast turnaround is required
- thorough knowledge of a range of editing software and equipment
- filmmaking conventions, such as camera shots, angles and viewpoint
- OHS requirements as they relate to working on computers for periods of time
- industry knowledge, including:
  - roles and responsibilities of production and post-production team members
  - sound understanding of the creative and technical elements of a range of film and media productions
  - features of industry-standard post-production facilities and equipment for

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
broadcast and non-broadcast • broadcast language and terminology • issues and challenges that arise in the context of editing vision and sound content for fast turnaround

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential:
	• effective editing of a range of vision and sound content that:
	  • meets production requirements
	  • takes account of technical and resource constraints
	• ability to edit material within tight time constraints
	• collaborative approach to work.

Context of and specific resources for assessment	Assessment must ensure: • access to real-time editing opportunities, together with a reasonable variety of assignments • access to a selection of editing software and equipment as listed in the range statement • opportunities to work with a range of vision and sound formats as listed in the range statement • access to appropriate learning and assessment support when required • use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of a selection of material edited by the candidate for fast turnaround • observation of the candidate editing material for fast turnaround • written or verbal questioning to test knowledge as listed in the required skills and knowledge section of this unit.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFDIG301A Prepare video assets • CUFSOU301A Prepare audio assets • CUSSOU403A Perform advanced sound editing.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Production personnel may include:	• assistant editor • camera operators • CGI (computer generated imagery) personnel • designers • director • floor manager • laboratory staff • producer • production designer • production manager • senior editor • sound editing personnel • sound effects personnel

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• technical director • other technical/specialist staff.
Documentation may include:	• assembly order • camera reports • computer generated • contracts • EDLs (edit decision lists) • fault reports • hire agreements • list of sequences with relevant shot numbers • manually written • manufacturer specifications/instructions • marked-up scripts • marked-up transcripts • memos of instruction • operational/project plan • production schedules • scripts • sound reports • sound sheets, including • time-code log sheets for location sound recordings • wild-line and sound effects log sheets.
Editing equipment may include:	• computers • digital non-linear, e.g. Mac G5, Avid • editing bins • linear, e.g. tape to tape • off-line • online • pic sync • rewinders • synchronisers • viewers.
Software may include:	• after effects package • computer programs, e.g. Final Cut Pro • EDL software • freeware • Illustrator • Photoshop • shareware.

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

Consumables may include:	• computer disks
	• cotton gloves
	• film cans
	• film leader
	• labels
	• sound tapes of any format, e.g.:
	  • DAT
	  • cartridge
	  • compact audio cassette
	  • reel to reel
	• spare videotapes of any format, e.g.:
	  • DVC
	  • Beta
	  • VHS
	  • mini-DVD
	  • HDTV.

Source materials may include:	• audio tapes • camera tapes • CDs • DVDs • film • graphics • internet • stills • work prints • work tapes.
Editing may include:	• computerised data • digital non-linear • film • linear • off-line • online • video.
Technical and creative criteria may include:	• ADR (additional dialogue recording) • audio levels • break in control track • broadcast quality • colour bars • drop-outs

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

	• film leaders
	• graphics
	• non-broadcast quality
	• production style
	• quality of image/sound
	• rushes
	• script materials
	• sequences, e.g.:
	  • vision cuts
	  • sound editing, e.g. dialogue
	  • voice-over
	  • music
	• shots, e.g.:
	  • wide shots
	  • mid shot
	  • close-ups and medium close-ups
	  • two shot
	  • long shot
	  • wide-angle
	  • high-angle
	  • low-angle
	  • bird's eye
	  • pans
	  • tilts
	  • cutaways
	  • two shots
	  • noddy
	  • reverses
	• sync marks
	• tape black
	• time codes.

Formats may include:	• audio/sound, e.g.:
	  • DAT
	  • AIFF
	  • WAV
	  • MIDI
	  • magnetic tape
	• computerised data

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

	• film of any gauge
	• graphics
	• stills
	• video of any format, e.g.:
	  • DVC
	  • VHS
	  • Beta
	  • HDTV.

Editing decisions may include:	• action • composition • coverage • dialogue • frame ratio and rate • framing • glitches, faults, drop-outs • music • narration • pacing • script changes • shot composition • soundtrack • special effects • timing • voice-overs.

Production requirements may include:	• ADR (additional dialogue recording)
	• aesthetic
	• animation
	• atmosphere tracks
	• durations
	• effects
	• graphics
	• music
	• production titles
	• technical
	• time code, e.g.:
	  • SMPTE/EBU
	  • burned-in code
	  • keyed-in code
	• voice-overs.

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

Additional materials may include:	• archival footage:
	  • sound
	  • image
	• file images
	• stock footage:
	  • sound
	  • image.

Editing conventions may include:	• action cutting (before, during and after the action) • consistency of style • continuity (crossing the line, eyeline) • cut away • cut in • cut out • fades and dissolves • freeze frame • jump cut • montage.

Productions may include:	• animated productions
	• commercials
	• documentaries
	• feature films
	• features - television and film
	• filmed events or performances
	• live television
	• music video
	• news and current affairs
	• pre-recorded television productions
	• short films
	• television productions, e.g.:
	  • music
	  • drama
	  • comedy
	  • variety
	  • sport.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Unit sector	

Competency field

Competency field	Media and entertainment production - post-production

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

CUFPOS402A Manage media assets

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to manage media assets for screen and media productions and projects. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	The skills and knowledge outlined in this unit are typically applied by a person working in a large enterprise on projects or productions that require a wide range of media assets. They work directly with asset creators (audio, video, graphics) to ensure that the asset management system accommodates their needs. Though reporting to a producer or manager, a person in this role works with a fair degree of autonomy. They are responsible for setting up the conventions for file naming, sourcing, sorting and storing formal documents and media assets, and recording project or production details. They also set up systems to manage these assets effectively. The systems may need to be built by other personnel within the enterprise or production.

Licensing/Regulatory Information

Not applicable.

© Commonwealth of Australia, 2025 Future Skills Organisation

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
Establish systematic procedures for managing content and outputs	1. Confirm media asset management requirements with ***relevant personnel*** 2. Set up file naming system for ***projects*** based on standard conventions and protocols 3. Source and review storage repository and back-up systems appropriate for the task 4. Set up processes to record ***information*** required for tracking ***formal documents*** and ***media assets*** 5. Establish conventions for recording progress and locations of media assets 6. Develop strategy for tracking and recording media assets 7. Brief team members on the media asset management system, including the process for alerting relevant personnel to problems encountered as the system is

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	implemented
Record information about documents and media assets	8. Document sources of media assets according to established procedures 9. Document progress and details of a range of outputs 10. Maintain records of technical information on work in progress 11. Maintain copyright and permissions information 12. Track media assets and record information according to established system 13. Maintain version control and identify status of interim products, prototypes and other relevant media assets 14. Respond to and resolve problems encountered as the system is implemented
Plan for project completion and storage	15. Confirm schedule for final sign-off with relevant personnel 16. Determine requirements for archiving 17. Confirm procedures for finalisation of projects
Finalise project	18. File and index formal documents according to agreed project or enterprise procedures 19. File and index scripts according to agreed project or enterprise procedures 20. Archive media assets in established system repository system according to industry practice 21. Ensure appropriate access by relevant personnel to formal documents and media assets developed by projects 22. Review the effectiveness of the media asset management system and note areas for future improvement

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• communication, teamwork and literacy skills sufficient to: • interpret project briefs

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• prepare and maintain media asset management documentation • provide verbal and written briefings to team members • work collaboratively as a member of a production team • provide advice and support to team members • technical skills sufficient to track, maintain, record and archive information using accepted industry protocols • initiative and flexibility in the context of anticipating and resolving problems with a media asset management system • self-management and planning skills sufficient to: • set up and administer a file naming system • prioritise work tasks • meet deadlines • seek expert assistance as required
Required knowledge
• industry knowledge, including: • roles and responsibilities of project team members in the relevant industry sector • sound understanding of the relationship between the technical and creative aspects and requirements of screen and media projects • issues and challenges that arise in the context of implementing media asset management systems • copyright and permissions • file and resource repository systems • industry or enterprise standard naming conventions • OHS requirements as they relate to working on computers for periods of time

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • proficient use of information tracking and repository

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	systems • accurate record keeping, updating and tracking • attention to detail • ability to work effectively as a member of a production team.
Context of and specific resources for assessment	Assessment must ensure: • access to industry-standard technology and repository systems that permit file and resource management • access to appropriate learning and assessment support when required • use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of at least two media asset management systems set up and managed by the candidate • written or verbal questioning to test knowledge of the processes followed to manage media assets and the respective roles and responsibilities of team members.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFDIG301A Prepare video assets • CUFDIG303A Produce and prepare photo images • CUFSOU301A Prepare audio assets.

Range Statement

RANGE STATEMENT
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Relevant personnel may include:	• artists • author • designers • media asset creators • producer • programmer • project manager • supervisor • other specialist creative and administrative staff.

Projects may include or be included in:	• aspects or sections of film/video production:
	  • feature
	  • documentary
	  • short film and/or video
	  • animations
	  • commercials
	  • live or pre-recorded performances
	  • music video
	  • television production, e.g. music, drama, comedy, variety, sport
	  • live or pre-recorded television productions
	• e-commence
	• educational product
	• game
	• information product
	• promotional product
	• training product
	• website.

Information about assets may include:	• asset details • copyright • date of transfer • default technical settings • reusability • transfer details • versions • other metadata as required.

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
Formal documents may include:	• agreed terms and conditions • assets rights clearances • confidentiality agreements • contracts with subcontractors • copyright permissions • final proposal • intermediate and final sign-offs • software licences • technical information.
Media assets may include:	• 3D models • animations (2D, 3D) • audio • code and scripts • graphics • photographs • text documents (PDF, MSWord, PowerPoint) • videos • other assets as required by the project.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Media and entertainment production - post-production

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

© Commonwealth of Australia, 2025

CUFPPM404A Create storyboards

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to create storyboards. The creation of storyboards is a critical skill in the design and development of a broad range of digital content, including video, film, animation and interactive media. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	Depending on the type and scale of production, a range of people could be responsible for creating storyboards, including storyboard artists, designers, producers and information architects. In the film and television industry, people creating storyboards work closely with directors to visualise productions.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
Plan storyboards	1. In consultation with ***relevant personnel***, clarify storyboard requirements for ***productions*** with reference to scripts and stories 2. Identify ***factors*** that affect type of storyboard to be created 3. Contribute ideas in pre-production meetings to help refine storyboard requirements 4. Research and select suitable amount of ***storyboard tools*** for a given purpose 5. Obtain sign-off from relevant personnel on the type of storyboard to be created
Draft storyboards	6. Break down content, scripts and stories into ***frames*** 7. Specify ***storyboard elements*** for each frame 8. Specify the logical linear or non-linear frame sequence, showing the connection between each frame 9. Provide ***descriptions*** for each frame

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	10. Seek feedback on work in progress from relevant personnel and incorporate ideas and feedback as appropriate 11. Ensure draft storyboards are clear and legible and show sufficient detail for production teams to use
Finalise storyboards	12. Present draft storyboards to relevant personnel for discussion and feedback 13. Refine storyboards as required to incorporate feedback 14. Ensure that final storyboards present accurate visual interpretations of scripts, stories or text and meet all agreed specifications 15. Make back-up copies of storyboards as required according to organisational procedures 16. Submit storyboards to relevant personnel by agreed deadlines 17. Review the process of creating storyboards and note areas for improvement

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication, teamwork and literacy skills sufficient to:
  - interpret and clarify written or verbal instructions
  - interpret scripts and specifications
  - work collaboratively in a team environment
  - present storyboards to team members for discussion or implementation
  - respond constructively to feedback received from other team members
- analytical skills sufficient to break down content, stories and scripts into discrete elements
- technical skills sufficient to use storyboard techniques
- initiative sufficient to visualise and interpret creative concepts
- self-management and planning skills sufficient to:
  - prioritise work tasks
  - meet deadlines
  - seek expert assistance when problems arise

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
Required knowledge

• industry knowledge, including:
  • roles and responsibilities of project team members
  • sound understanding of the artistic elements of a production for which a storyboard is being created
  • issues and challenges that arise when creating storyboards
• drawing techniques, including drawing to scale
• OHS standards as they relate to working for periods of time on computers

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • creation of clear and logical storyboards that meet specified requirements • ability to visualise creative concepts • ability to work effectively as a member of a production team.
Context of and specific resources for assessment	Assessment must ensure: • access to scripts, stories or texts that can be used as the basis for creating storyboards • access to current industry-standard software as listed in the range statement • access to appropriate learning and assessment support when required • use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	• direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of at least two storyboards created by the candidate • observation of a candidate presenting his/her storyboard to team members and explaining how it meets agreed requirements • written or oral questioning to test knowledge of the process followed to create a storyboard and the respective roles and responsibilities of team members.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • BSBCRT402A Collaborate in a creative process • CUFDIG402A Design user interfaces • CUFDIG502A Design web environments • CUFDIG503A Design e-learning resources • CUFDIG504A Design games • CUFDIG505A Design information architecture • CUFDIG506A Design interaction • CUFDIG507A Design digital simulations.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Relevant personnel may include:	• asset creators • authors • clients • content experts • directors • graphic designers

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• information architects • navigation designers • other writers • producers • programmers • scriptwriters • user interface designers • other technical/specialist staff.

Productions may include:	• animated films
	• animations
	• commercials
	• feature films
	• interactive media products, such as:
	  • e-learning products
	  • websites
	  • games
	  • promotional products
	  • information products
	• music videos
	• short films
	• television productions.

Factors may include:	• animation requirements
	• availability of personnel
	• availability of resources
	• budget
	• delivery platform, including:
	  • internet
	  • CD/DVD
	  • video
	  • film
	  • games console
	  • kiosk
	  • mobile telephone
	  • personal digital assistant (PDA)
	  • print media
	• graphic requirements
	• length of script or story
	• style of production, including:
	  • comic

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• drama • educational • light entertainment • target audience • timelines.
Storyboard tools may include:	• digital software, such as: • PowerPoint • Inspiration • StoryBoard Artist Studio • StoryBoard Pro • paper and cards • pen and pencil • storyboard sheets • templates.
Frames may include:	• key frames for animation • moments for film and video • pages for websites • scenes • screens for interactive media • shots.
Storyboard elements may include:	• actor's movement • backgrounds • camera angles • camera shots, such as: • extreme close-up • close-up • medium shot • long shot • extreme long shot • decisions • directions • frame composition • lighting • props • sets.
Descriptions for frames may include:	• dialogue • duration • media • narration

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

	• script elements
	• sequence number
	• shot composition, such as:
	  • static
	  • zoom
	  • tilt
	  • pan
	  • dolly
	  • track
	• sound effects
	• speech bubbles
	• text content
	• transitions, such as:
	  • simple cut
	  • black
	  • fade in and fade out.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Media and entertainment production - production planning and management

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

© Commonwealth of Australia, 2025

CUFSOU204A Perform basic sound editing

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to for basic digital sound editing. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	Assistant sound editors and production personnel in the community broadcasting sector apply the skills and knowledge described in this unit. They are responsible for preparing, organising and digitally editing relatively simple sound sequences or programs for radio, television, film and interactive media. They are expected to contribute to creative outcomes, including selection and acquisition of sound materials. In a production house environment, they typically work under the supervision of a picture editor or senior sound editor, and are often involved in editing both sound and vision. Combined editing skills at a basic level are covered in: • CUFPOS201A Perform basic vision and sound editing. More complex skills associated with editing sound, including dialogue, are covered in:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• CUSSOU403A Perform advanced sound editing.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
Prepare for editing sound	1. In consultation with relevant ***production personnel***, clarify editing requirements, including creative and technical expectations of ***productions***
	2. Obtain and label ***source materials*** and ***additional materials*** as required and keep them in a safe, clean location with appropriate ***documentation***

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	3. Organise transfer of source materials to appropriate equipment where necessary, ensuring sufficient ***digital storage*** capacity is available 4. Check ***editing equipment*** is operational and suited to the designated editing processes and according to enterprise procedures 5. Organise ***additional equipment*** and ***consumables*** needed to minimise interruptions during the editing process 6. If required, obtain sign-off to proceed with edits
Assemble sequences for editing	7. Digitise ***audio content*** and additional sound materials in the specified ***format***, ensuring format is compatible with available ***software*** and editing equipment 8. Monitor digital output and arrange for problems to be fixed where necessary 9. Identify ***sound edit*** positions using appropriate documentation and optimise quality where applicable 10. Log and assess ***sound sequences*** according to ***production requirements*** and arrange digital back-up copies as insurance against editing errors 11. Consider how materials may be edited efficiently to meet ***technical and creative criteria***
Edit sound sequences	12. Edit audio sequences according to production requirements and accurately document ***details*** of each edited sound sequence 13. Generate an appropriate track list to facilitate subsequent stages of sound mixing processes 14. Accurately chart positions and durations of sound sequences, noting requirements for transitions where applicable 15. Apply effects and digital enhancements to maximise creative outcomes of sound sequences according to production requirements 16. ***Manipulate editing software and equipment*** to produce required sequences and to resolve identified problems 17. Seek feedback on work in progress from relevant production personnel and refine edits as required 18. Submit final edits by the agreed deadline in accordance with enterprise procedures
Finalise sound edits	19. Archive edited audio files and complete associated documentation according to enterprise procedures 20. Advise relevant production personnel of editing

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	equipment requiring maintenance and leave workstation in original or improved condition 21. Participate in post-production debriefing sessions as required 22. Evaluate own performance against technical and creative criteria and discuss with colleagues where appropriate

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication, teamwork and organisational skills sufficient to:
  - arrange sound media logically and accurately
  - liaise with relevant production personnel
  - understand and follow instructions
- technical skills sufficient to:
  - edit a range of audio sequences and segments
  - digitise pre-recorded content, e.g. digital and analogue audio, sound effects
  - change audio from one format to another
  - follow relevant file management protocols for specified operating systems
  - identify faults that occur in audio production environments
- initiative and enterprise in the context of editing sound to meet creative production requirements
- aural discrimination skills in the context of listening critically to, and enhancing the quality of, sound elements and sequences
- self-management skills sufficient to:
  - prioritise work tasks and meet deadlines
  - seek expert assistance when problems arise
- literacy and numeracy skills sufficient to:
  - identify and label accurately source materials and copies
  - read and interpret sound documentation and plans
  - implement and record codes and timings
  - document sound components, e.g. maintenance of logging sheets

Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

• familiarity with basic sound editing conventions, practices and techniques
• editing and audio terminology
• understanding of the roles and skills associated with other post-production personnel
• sound editing software and equipment for both broadcast and non-broadcast
• varied characteristics of sound in a range of environments
• OHS standards in relation to:
  • using a computer and keyboard for periods of time
  • observing safe noise levels

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • a range of digitally edited sound sequences that meet production requirements • collaborative approach to work • attention to detail • ability to work to deadlines.
Context of and specific resources for assessment	Assessment must ensure: • access to a range of pre-recorded sound footage • access to industry-current sound editing software as listed in the range statement • access to appropriate learning and assessment support when required • use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of a range of sound sequences edited by the candidate in response to instructions received from a supervising editor • observation of the candidate preparing and editing sound sequences • written or verbal questioning to test knowledge as listed in the required skills and knowledge section of this unit.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFPOS201A Perform basic vision and sound editing • CUFSOU301A Prepare audio assets • CUFSOU302A Compile audio material for broadcast.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Production personnel may include:	• assistant editor • broadcasters • CGI (computer generated imagery) personnel • director • musicians • producer • production manager • sound designer • sound editor • sound effects personnel • sound engineer

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• sound recording studio personnel • station manager • supervisor • technical director • volunteers coordinator • other technical/specialist personnel.

Productions may include:	• animated productions
	• CD/DVD
	• commercials
	• documentaries
	• feature films
	• features - television and film
	• filmed events or performances
	• interactive media products
	• music
	• music videos
	• news and current affairs
	• podcasts
	• promotional trailers
	• radio broadcasts
	• short films
	• television programs, e.g.:
	  • music
	  • drama
	  • comedy
	  • variety
	  • sport
	• websites.

Source materials may include:	• archival recordings • atmosphere • CD/DVD recordings • foley effects • live captured effects • music • SFX (sound effects) • synthesised sound • voice recordings/dialogue.
Additional materials may include:	• archival sound footage • file images

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• stock sound footage.
Documentation may include:	• assembly order • computer generated • duration print-outs • EDLs (edit decision lists) • fault reports • hire agreements • list of sequences with relevant shot numbers • log sheets for location • manually written • marked-up scripts • marked-up transcripts • memos of instruction • operational/project plan • production schedules • scripts • sound recordings • sound/audio reports • wild-line and sound effects log sheets.
Digital storage may include:	• cassettes • CD • DAT • DMSS (digital mass storage systems) • DVD • hard disks • internal sound cards • magneto-optical • optical • tape.
Editing equipment may include:	• amplifiers • audio converters • audio desk/mixers • CD player/burner • CDs • DAT (digital audio tape) • digital and analogue recording devices • digital non-linear (online) editing systems • DVDs • effects rack • hard disk recorder

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• headphones • linear (off-line) editing systems • mini disks • mixing console/desk analogue, digital, digitally controlled analogue (hybrid) • sequence sampler • speakers • tape machines.
Additional equipment may include:	• cassette player/recorder • CD player/recorder • DVD player/recorder • headphones • iPod • microphones • sound cables • speakers.

Consumables may include:	• computer disks
	• labels
	• marker pens
	• mini disks
	• sound tapes, e.g.:
	  • DAT
	  • cartridge
	  • compact audio cassette
	  • reel-to-reel
	  • 16 mm magnetic.

Audio content may include:	• atmosphere recordings • dialogue • foley effects • interviews • live recordings • music • sound effects • synthesised audio.

Formats may include:	• audio/sound, e.g.:
	  • DAT
	  • AIF (AIFF)
	  • WAV
	  • WAV (BWF - broadcast WAV format)

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• WMA • MIDI • OGG • AAC (advanced audio coding) • Apple lossless • magnetic tape • Real Audio • QuickTime • MP3 • computerised data.
Software may include:	• after effects package • computer programs, e.g.: • Pro Tools • Sound Forge • Adobe Audition • Final Cut Pro • Adobe After Effects • EDL software • freeware • shareware.
Sound edit may include:	• computerised data • digital non-linear • edit of rough and fine cuts • edit of source and recorded materials • film and video audio assets • initial edit of sound rushes • integration of the picture (image) editing process to ensure sound and picture are in sync • linear • off-line • on-line.
Sound sequences may include:	• atmosphere tracks • dialogue • foley effects • music • sound effects tracks that have been: • pre-recorded (using sound effects libraries) • recorded live (foley sound effects, production sound effects)

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• electronically generated (synthesised/computer generated sound effects) • voice-overs.
Production requirements may include:	• ADR (additional dialogue recordings) • aesthetic • atmosphere tracks • durations • effects • music • technical • vision and sound edit • voice-overs.
Technical and creative criteria may include:	• ADR (additional dialogue recordings) • audio levels • balance between track levels • balance of background music • compression factors, e.g. codecs • consistency of voice levels • continuity of background ambience in location recordings • distortion • durations • editorial requirements • enhancement of visual images • foley • natural pausation • sound balance, e.g. music • synchronisation of sound and vision.
Details may include:	• copyright details • durations • in and out points • quality assessment • source details • specific content • take options • technical notes.
Manipulating editing software and equipment may include:	• adjusting and normalising audio levels • inserting, e.g.: • transitions

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• sound effects • music • voice-overs • overlays • manipulating audio clips, e.g.: • cutting • pasting • copying • moving • splitting.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Media and entertainment production - audio/sound

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

CUFSOU301A Prepare audio assets

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to prepare audio assets for inclusion in interactive media. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	The size of an enterprise or project determines who undertakes the role described in this unit. In a large-scale environment, the person responsible for this task would typically be supervised by an audio asset creator or audio engineer and an audio programmer or interactive media author. In a radio station, the prime focus of the task involves converting radio programs into podcast material or in a form appropriate to streaming or downloading, and this may be a dedicated role under the supervision of a producer. In a smaller enterprise or project, an audio programmer, interactive author or audio/sound engineer would absorb this task into their role. In all cases, they are collaborating closely with other team members.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Skills associated with other aspects of audio/sound production at this level are covered in: • CUSSOU201A Assist with sound recordings • CUFSOU204A Perform basic sound editing.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
Identify audio assets	1. Obtain analogue or digital sources of audio 2. Identify the ***source file formats***

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	3. Identify the output ***purpose***, ***destination*** and ***platform***
	4. Discuss with ***relevant personnel*** the required ***output file format*** and ***audio codecs*** for specified bandwidths
	5. Discuss with relevant personnel the appropriate ***audio encoding software***
Prepare audio assets	6. Open appropriate audio encoding software and load audio file
	7. Eliminate or treat defects on sound recordings
	8. Equalise sound output levels where necessary
	9. Ensure duration of audio sequences meets that required by the specification, and adjust if necessary
	10. Determine and apply appropriate audio codecs
	11. Batch optimise audio files where possible
	12. Save files in appropriate output file format using standard naming conventions
Package audio assets	13. Assign ***metadata tags*** if required
	14. Group files logically in folder system using standard naming conventions
	15. Store in share drive or repository for production team access

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication and literacy skills sufficient to interpret and clarify written or verbal instructions
- ability to work as a member of a production team, both independently on assignment and under direction
- technical skills sufficient to:
  - use audio software to prepare audio sequences for inclusion in interactive media
  - manage files using standard naming conventions
  - apply appropriate metadata tags to describe files
- self-management and planning skills sufficient to:
  - prioritise work tasks

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• meet deadlines • seek expert assistance when problems arise
Required knowledge

• industry knowledge, including:
  • roles and responsibilities of project team members, e.g. designers, content creators, information architects, programmers and coders
  • basic understanding of the relationship between the technical and creative aspects and requirements of interactive media projects
  • features of a range of delivery platforms
  • basic understanding of what happens when audio files are compressed for inclusion in interactive media products
  • appropriate codecs for various platforms and destinations
  • digital audio source and output formats
  • equalisation techniques
• techniques for saving and preparing digital audio output to optimise file size
• OHS standards as they relate to working for periods of time on computers
• OHS principles of safe listening (including safeguards against hearing loss)

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • preparation of a range of audio sequences to be included in interactive media products that meet appropriate technical specifications • proficient use of audio encoding software.
Context of and specific resources for assessment	Assessment must ensure: • access to industry-current audio encoding software • access to appropriate learning and assessment support when required • use of culturally appropriate processes and

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of audio assets prepared by the candidate on a number of occasions • written or verbal questioning to test knowledge of codecs for various platforms and understanding of file compression.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFDIG301A Prepare video assets.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Source file formats may include:	• WAV • AIFF • AU • MP3 • WMA • AAC (Apple lossless) • OGG.

Purposes may include:	• audio sequences, e.g.:
	  • SFX (sound effects)
	  • music
	  • foley

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• atmospherics • dialogue • additional dialogue, e.g. rerecorded and narration • audio sequences incorporated into a: • website • podcast • game • learning object • interactive application • animation.
Destinations may include:	• computer-based playback software, e.g. iTunes • downloading server • internet audio players, e.g.: • Quicktime • Windows Media Player • RealPlayer • progressive downloading (buffering) server • streaming server.
Platforms may include:	• CD • digital audio players (e.g. iPod, MP3) • DVD • games console • internet • kiosk • mobile phone • PDA (personal digital assistant).
Relevant personnel may include:	• audio engineer • clients • producer • programmers and technical support people • supervisor • other specialist creative and administrative personnel as appropriate.
Output file formats include:	• AAC (advanced audio coding) • AMR-NB • Apple lossless • MP3 • RAM

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• WMA.
Audio codecs may include:	• bit depth • bit sampling rates • mono or stereo • standardised and preset codecs.

Audio encoding software may include:	• audio editing tools, e.g.:
	  • Audacity
	  • Adobe Audition
	  • Pro Tools
	• specialised audio compression tools.

Metadata tags may include:	• album • artist • defaults • description • episode • resolution • track • version.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Media and entertainment production - audio/sound

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

© Commonwealth of Australia, 2025

CUSSOU302A Record and mix a basic music demo

Modification History

Release	Comments
Release 2	Created to fix formatting errors only. Released with CUS09 Music Training Package version 1.2

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to undertake the technical side of making a basic music demo. There are two stages to the process - making a multi-track recording of the music performance and then mixing the recording down to a stereo format. An ability to work collaboratively with musicians is essential, together with an ability to troubleshoot equipment problems.

Application of the Unit

The skills and knowledge described in this unit would typically be applied in a home-based studio equipped with a digital audio workstation (DAW). The unit complements CUSMPF304A Make a music demo, which covers the process of making a demo from the perspective of performers.

More complex skills associated with mixing music are covered in:

- CUSSOU405A Mix recorded music

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Pre-Requisites

Not applicable

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Information

Not applicable

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Clarify music demo requirements	1.1 In consultation with ***relevant personnel*** confirm the ***purpose*** of the demo 1.2 Contribute to the development of a recording plan that takes into account a range of ***factors*** as required 1.3 Agree on ***method*** and ***format*** for final recording
2. Record performers	2.1 Position performers, musical instruments and equipment for optimum sound quality 2.2 Check that ***equipment*** is installed and aligned correctly 2.3 Ensure that microphones are operational at all times 2.4 Route test signals to the correct signal path and check that level of test signal is correct 2.5 Create a headphone mix for musicians 2.6 Capture sound sources according to the agreed method
3. Mix sound sources	3.1 Use appropriate panel controls to mix and balance sound sources to achieve required artistic effects 3.2 Produce transitions between sounds that are technically accurate and produce the required effect 3.3 Apply ***sonic effects*** and ***signal processing*** as required 3.4 Ensure that monitoring levels meet current safety standards 3.5 Ensure that the level of the composite signal is within technical limits and desired dynamic range
4. Finalise music demo	4.1 Assess the mix on speakers appropriate to the particular end use

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	4.2 Assess each track for correctness and quality and evaluate the mix in terms of meeting demo requirements 4.3 Listen to final mix with relevant personnel and agree on changes required to improve the quality of the mix 4.4 Incorporate final adjustments to the sound mix as required 4.5 Produce a master in the agreed format and make a backup 4.6 Keep ***documentation*** as required 4.7 Clean ***work environment*** after use and restore to pre-use condition

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- critical-listening and aural-discrimination skills
- literacy skills sufficient to:
  - log and label tracks
  - note and report faults and problems
  - read and understand mixing documentation
- numeracy skills sufficient to calculate duration of tracks
- communication and teamwork skills sufficient to:
  - liaise with sound-production personnel and performers
  - understand and follow instructions
- planning and organisational skills sufficient to:
  - prioritise work tasks
  - meet deadlines
  - seek expert assistance when problems arise
- problem-solving skills sufficient to identify faults that may occur in audio-production environments and refer problems to relevant personnel
- learning skills in the context of acting on constructive feedback about own work performance
- technology skills sufficient to operate:
  - a variety of mixing consoles
  - signal-processing and effects devices

Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

- basicaudio principles and practice, including:
  - range of microphones and contexts in which they are used
  - microphone characteristics, e.g. frequency response, sensitivity and polar patterns
  - effect of microphone placement on quality of sound
  - characteristics of sound in a range of environments
  - signal-to-noise ratio, signal phase and audio level/headroom control
  - audible defects in analogue and digital technologies
  - features of mixers, amplifiers, speakers and effects racks
  - signal distortion
- basic principles of acoustics, including:
  - frequency
  - pitch
  - amplitude
  - loudness
  - velocity
  - wavelength
  - acoustical phase
  - timbre
  - sound envelope
- basic understanding of psychoacoustic principles, including:
  - spatial hearing
  - direct sound
  - early sound
  - reverberant sound
  - room design
- characteristics of musical instruments in the context of recording and mixing
- techniques for manipulating input signals and gaining structure through use of:
  - equalisers
  - filters
  - compressors/expanders
  - faders and auxiliaries
  - effects devices
- issues and challenges that typically arise in the context of recording and mixing a basic music demo
- OHS requirements, including:
  - safe manual-handling techniques
  - working safely with electricity and hazardous substances
  - principles of safe listening, such as safeguards against hearing loss

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • record and mix at least two basic music demos • work cooperatively with performers to achieve the required effect.
Context of and specific resources for assessment	Assessment must ensure: • access to performers requiring a basic music demo • access to industry-current sound mixing equipment • use of culturally appropriate processes, and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	The following assessment methods are appropriate for this unit: • observation or video recording of the candidate during recording and mixing sessions • evaluation of authenticated audio recordings where the candidate was responsible for recording and mixing music • written or oral questioning to test industry knowledge as listed in the required knowledge section of this unit.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFSOU204A Perform basic sound editing • CUSSOU201A Assist with sound recordings • CUSSOU303A Set up and disassemble audio equipment.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold

© Commonwealth of Australia, 2025 Future Skills Organisation

italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Relevant personnel may include:	• artists, musicians and performers • audio and sound engineers • broadcasters • producers • post-production personnel • program managers • camera operators.
Purpose may include:	• pitching a product at record labels • pursuing work at live music venues • getting work via live music or advertising agencies • getting air play on media outlets • accompanying a funding application • uploading onto music and/or social networking websites • developing media for band or solo artist websites • supporting applications for study and/or remote auditions • expanding a music portfolio • documenting a music project or other creative body of work.

Factors may include:	• musical style
	• contractual arrangements
	• copyright
	• budget
	• timelines
	• availability of personnel, including:
	  • musicians
	  • sound recordists
	  • sound mixers
	  • post-production personnel
	• promotional materials
	• distribution strategies
	• recording location, including:
	  • live music venue
	  • recording studio
	  • private residence

© Commonwealth of Australia, 2025 Future Skills Organisation

	• rehearsal requirements • number of recording sessions required • equipment requirements • hire of equipment or venue • instruments • props • costumes • make-up.
Method may include:	• live to two-track stereo • live multi-tracking • multi-tracking with click • combination live recording and prerecorded samples • recording to analogue tape • recording to hard disk or digital tape • remixing existing music • video • using music production software for mixing and mastering.

Format may include:	• compact disc (CD)
	• audio file formats for upload and distribution within virtual environments and/or onto relevant media players, such as:
	  • MP3
	  • WAV
	  • AIFF
	• audiotape
	• video:
	  • digital (high resolution)
	  • digital (compressed for online environment)
	  • analogue.

Equipment may include:	• digital audio workstation (DAW) with software, such as:
	  • Pro Tools
	  • Logic
	  • Cubase
	  • Ableton Live
	  • Reason
	  • Nuendo
	  • Garage Band

© Commonwealth of Australia, 2025 Future Skills Organisation

	• Digital Performer • Soundscape • Sonic Studio • hard disk recorders • multi-track recorder • stereo recorders • microphones, such as: • dynamic • condenser • lavalier • shotgun • directional • radio • microphone stands • microphone accessories • microphone windscreens • headphones • amplifiers • speakers • mixing console/desk, including: • analogue • digital • digitally controlled analogue (hybrid) • effects rack • sequence sampler • cables and connectors.
Sonic effects may include:	• change in pitch • change in speed • echo • pan • fade in and fade out • filter • invert • normalise • repeat • reverb • modulation • wahwah.
Signal processing may include:	• amplification • compression • noise processing

© Commonwealth of Australia, 2025 Future Skills Organisation

	• spectrum signal processing • equalisation • time signal processing.
Documentation may include:	• pre-mix scripts • mixing sheets • track sheets • cue sheets • dubbing sheets • queries • notes • manuals.
Work environment may include:	• dubbing theatre • outside broadcast • post-production studio • recording studio • sound stage • home studio.

Unit Sector(s)

Media and entertainment production - audio/sound

© Commonwealth of Australia, 2025 Future Skills Organisation

CUSSOU403A Perform advanced sound editing

Modification History

Release	Comments
Release 2	Created to fix formatting errors only. Released with CUS09 Music Training Package version 1.2

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to perform advanced sound editing. This involves assessing the quality of original recorded sound against production requirements, determining the scope of the sound-editing project, preparing source materials for sound editing, editing sound in line with production requirements, and applying sound effects to enhance the final product.

Application of the Unit

This unit applies to sound editors who edit music and sound effects for film, television, interactive media and music productions as well as to technicians who work in film and sound archives.

This work is undertaken with minimal supervision and guidance. Sound editors at this level could also be responsible for supervising others.

This units builds on the skills covered in the imported unit:

- CUFSOU204A Perform basic sound editing.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Pre-Requisites

Not applicable

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Information

Not applicable

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for sound editing	1.1 Participate in pre-production meetings with ***relevant personnel*** to discuss ***production requirements and procedures*** 1.2 Check that necessary copyright releases have been organised 1.3 Consider the impact of different ***release sound formats*** when planning editing work 1.4 Check sound ***equipment*** to ensure it is operational and appropriate for the task 1.5 Prepare a team work plan as required and brief relevant personnel accordingly 1.6 Obtain original ***sound sources*** and assess their quality against production requirements 1.7 Check any ***documentation*** in the receipt and preparation of original recordings and copies for ***productions*** 1.8 Advise where sound sources do not meet quality and production requirements and propose options to resolve issues as required 1.9 Anticipate problems that may arise during the editing process and plan accordingly
2. Edit complex sound sequences	2.1 Check the ***format*** of all sound sources, ensuring it is compatible with editing software, equipment and ***media*** output 2.2 Critically listen to sound sources to determine the extent and range of required edits

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	2.3 ***Manipulate editing software*** and equipment to produce required outcomes and to resolve identified problems 2.4 Work sensitively and constructively with relevant personnel to achieve best production outcomes
3. Create overall sound context	3.1 Determine the ***purpose*** for which sound is being used in productions 3.2 Identify, select and/or ***produce*** appropriate sound effects or elements 3.3 Apply knowledge and understanding of ***sonic lexicon*** to enhance final creative outcomes 3.4 Note sound effects and elements on spotting sheets 3.5 Incorporate sound effects and elements to meet creative requirements
4. Finalise editing operations	4.1 Participate in spotting sessions with relevant personnel and make adjustments to mix as required 4.2 Ensure that final files are in the correct format 4.3 Manage the quality check of the final sound mix in line with enterprise procedures and production requirements 4.4 Archive edited audio files and complete associated documentation according to enterprise procedures 4.5 Ensure that ***work environment*** is left clean and ready for the next user 4.6 In collaboration with support personnel, organise and maintain sound effects libraries for future productions 4.7 Provide feedback to other team members as required 4.8 Evaluate own performance against technical and creative criteria and note areas for improvement

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication and teamwork skills sufficient to:
  - work collaboratively with project team personnel and sound-production personnel
  - provide feedback to project personnel on appropriate editing techniques
  - provide critical feedback on problems with technical quality of masters and condition of equipment

© Commonwealth of Australia, 2025 Future Skills Organisation

- literacy skills sufficient to:
  - log and label recorded material
  - accurately note sound effects on spotting sheets
  - read and interpret an edit decision list (EDL)
- numeracy skills sufficient to calculate duration and capacity of media at various speed/sample rates
- initiative and enterprise skills in the context of:
  - finding creative solutions to sound-editing challenges
  - applying critical-listening skills to analyse sound recordings and finding solutions to creative and/or technical problems
- learning skills sufficient to maintain currency of knowledgeof editing software and equipment upgrades
- planning and organisational skills sufficient to:
  - prioritise work tasks
  - meet deadlines
  - locate sound effects
- problem-solving skills sufficient to promptly and effectively rectify sound defects, system failures and mechanical breakdowns
- technology skills sufficient to:
  - use a variety of sound-editing equipment and software on both PC and MAC operating systems
  - manage file systems
  - make regular backups

Required knowledge

- principles of sonic storytelling, e.g. using sound (or silence) to:
  - focus attention
  - intensify action
  - set pace
  - set mood
  - evoke feelings
- well-developed understanding of psychoacoustic principles, including:
  - spatial hearing
  - direct sound
  - early sound
  - reverberant sound
  - studio and control room design
  - ergonomics
- well-developed understanding of audio principles, including:
  - frequency
  - pitch

© Commonwealth of Australia, 2025 Future Skills Organisation

  - amplitude
  - loudness
  - velocity
  - wavelength
  - acoustical phase
  - timbre
  - sound envelope
- intellectual property implications in relation to sound design
- picture and sound synchronisation, including:
  - time codes
  - frame rates
  - sample rates
  - clock leader 2 pips
- principles and techniques of sound editing, including:
  - manipulating sound to achieve technical and creative outcomes
  - using effects to achieve a range of functional sound requirements
  - eliminating audible defects
  - compatibility of different digital standards
  - identification/logging requirements
  - file formats, technical standards and compression
- issues and challenges that typically arise in the context of performing complex sound edits
- OHS principles of:
  - safe listening, including safeguards against hearing loss
  - using a computer and keyboard for periods of time

Evidence Guide

The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • use all features of a range of current industry sound-editing software and equipment • make critical editing decisions that enhance the quality and impact of the final sound • incorporate a range of sound effects into the final mix

© Commonwealth of Australia, 2025 Future Skills Organisation

	• work cooperatively in a team environment • meet deadlines.
Context of and specific resources for assessment	Assessment must ensure: • access to current industry-standard equipment as listed in the range statement • use of culturally appropriate processes, and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	The following assessment methods are appropriate for this unit: • observation of candidate undertaking complex sound edits, including the incorporation of sound effects • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance by candidate • authenticated recordings of material edited by the candidate • case studies and scenarios as a basis for discussing issues and challenges that arise in the context of complex sound editing.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUSSOU404A Edit dialogues.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Relevant personnel may include:	• performer • composer • sound supervisor • supervising sound editor • preservation supervisor • archivist • effects editor

© Commonwealth of Australia, 2025 Future Skills Organisation

	• effects mixer • sound mixer • recordist • re-recording mixer • audio assistant • audio and sound engineer • director • producer • post-production picture editor • post-production manager • program manager • sound designer.
Production requirements and procedures may include:	• creative • technical • file formats • agreement on file naming structures • work flow after capture • prerelease screenings to check quality of sound mix • technical checks • spotting sessions • attributions • audience • budget • confidentiality • content • contractual arrangements • copyright • deadlines • direct quotes • duration • intellectual property • interviews • location • purpose • schedule • style.

Release sound formats may include:	• IMAX multichannel system
	• 5.1 surround sound:
	  • cinema
	  • television

© Commonwealth of Australia, 2025 Future Skills Organisation

	• 4-track Dolby stereo • 2-track stereo • internet • games • radio.

Equipment may include:	• digital audio workstation (DAW) with software, such as:
	  • Pro Tools
	  • Nuendo
	  • Pyramix
	  • Fairlight
	  • Sound Forge
	  • Adobe Audition
	  • Final Cut Pro
	  • Avid
	  • EDL software
	• mixing consoles
	• outboard gear, such as:
	  • re-verb unit
	  • sub-base harmoniser
	  • de-esser
	  • compressor.

Sound sources may include:	• dialogues and voice-overs • special effects • music • walla • ambient sound • atmospheric sound • foley.
Documentation may include:	• pre-mix scripts • mixing sheets • track sheets • de-noising documents • cue sheets • dubbing sheets • queries • notes • manuals.
Production may include:	• commercial • print advertisement

© Commonwealth of Australia, 2025 Future Skills Organisation

	• corporate video • feature film and/or video • filmed event and/or performance • interactive media product • internet production • electronic game production • music recording and/or video • promotional trailer • radio broadcast • short film and/or video • television program • training film and/or video • oral histories • voice-over.

Format may include:	• audio/sound, such as:
	  • DAT
	  • AIF (AIFF)
	  • WAV
	  • broadcast WAV format (BWF)
	  • WMA
	  • MIDI
	  • OGG
	  • advanced audio coding (AAC)
	  • Apple Lossless
	  • magnetic tape
	  • Real Audio
	  • QuickTime
	  • MP3
	• computerised data.

Media may include:	• radio • video • CD • DVD • DAT • computer hard drive • internet • mobile device • film.
Manipulating editing software may include:	• adjusting and normalising audio levels • inserting:

© Commonwealth of Australia, 2025 Future Skills Organisation

	• transitions • sound effects • music • voice-overs • overlays • manipulating audio clips, such as: • cutting • pasting • copying • moving • splitting.
Purpose may include:	• breakingÂ theÂ screenÂ plane • definingÂ space • focusingÂ attention • establishingÂ locale • creatingÂ environment • emphasisingÂ action • intensifyingÂ action • depictingÂ identity • settingÂ pace • providingÂ counterpoint • creatingÂ humour • symbolisingÂ meaning • creatingÂ metaphor • unifyingÂ transition • creating silence.
Producing sound effects may involve:	• creating and synchronising effects in a post-production studio • recording during shooting • collecting in the field • generating effects electronically.
Sonic lexicon may refer to genres, such as:	• silent film • natural history • drama productions • animation • comedy • horror.
Work environment may include:	• dubbing theatre • on location, including interior and exterior • outside broadcast • post-production studio

© Commonwealth of Australia, 2025 Future Skills Organisation

	• recording studio • sound stage • cultural institution • archive.

Unit Sector(s)

Media and entertainment production - audio/sound

© Commonwealth of Australia, 2025 Future Skills Organisation

CUSSOU502A Produce sound recordings

Modification History

Release	Comments
Release 2	Created to fix formatting errors only. Released with CUS09 Music Training Package version 1.2

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to produce a musical recording.

Application of the Unit

Music producers and sound engineers apply the skills and knowledge described in this unit. They are responsible for working collaboratively and creatively with artists and performers to produce musical recordings which can be distributed through record companies and in a range of media, such as television, film, video and the internet.

Even though their particular focus is on performers and their skills to produce a creative work, they are responsible also for the quality and balance of the final recording. In addition, they need a range of musical, technical, personal, business and management skills.

Skills associated with managing the process of sound recordings are covered in:

- CUSSOU602A Manage production of sound recordings.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

© Commonwealth of Australia, 2025 Future Skills Organisation

Pre-Requisites

Not applicable

Employability Skills Information

Not applicable

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Confirm concept for recording project	1.1 Apply knowledge of commercial music trends, market niches, new musical styles and artists to develop the musical vision and concept for a ***recording project***
	1.2 Establish and discuss ***production requirements*** with ***relevant personnel***
	1.3 Apply musicianship knowledge and awareness of sound design possibilities to develop the underlying artistic style and creative concept for the recording
	1.4 Discuss and confirm vision for sound concepts with relevant personnel to achieve consensus on artistic values and agreed project outcomes
	1.5 Address ***copyright requirements*** to ensure that the recording process and product comply with legislation
2. Confirm recording project arrangements	2.1 Confirm repertoire, artists, project vision and operational details in consultation with relevant personnel
	2.2 In collaboration with artists, ensure that adequate time and facilities are provided to achieve the agreed performance standard within time and budget constraints
	2.3 Plan and agree on communication processes and time schedules with artists and technical production

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	personnel 2.4 Ensure that time schedules are drawn up and distributed to each artist for all proposed rehearsal and recording sessions 2.5 Liaise with technical staff regarding appropriate ***recording sites***
3. Manage recording sessions	3.1 Confirm that sessions are scheduled to allow adequate rehearsal and sound testing prior to main recording sessions 3.2 Ensure recording site, ***sound equipment*** and recording ***formats*** are appropriate for the ***media*** and project requirements 3.3 Communicate criticism of performers' work in a balanced, constructive and supportive manner that includes positive and achievable options for meeting desired artistic goals 3.4 Ensure that individual perspectives are considered and conflicting requirements are recognised and constructively negotiated 3.5 Continuously monitor all aspects of the recording and ensure that any necessary adjustments are made in line with creative and technical requirements 3.6 Collaborate with relevant personnel to ensure that sound balances are artistically appropriate
4. Evaluate the recording process and product	4.1 Discuss and obtain agreement on ***evaluation techniques*** for evaluating the recording process and completed product 4.2 Seek and obtain feedback from relevant personnel to assess the recording process and product 4.3 Evaluate own role in the production of recordings and note areas for improvement 4.4 Use evaluation results to improve future practice

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication and teamwork skills sufficient to:
  - interpret and clarify written proposals and creative briefs

© Commonwealth of Australia, 2025 Future Skills Organisation

  - understand artists' requirements
  - work effectively with artists and sound engineers
  - work constructively with group dynamics
  - identify and deal effectively with conflict
  - direct and monitor the work of others
- listening skills sufficient to:
  - use aural imagination to develop coherent and innovative artistic sound outcomes within the scope of planned artistic and commercial objectives
  - discriminate and enhance texture and tone colour in line with objectives
  - understand appropriate intonation, dynamics, phrasing, rhythm and expression to produce the required sound
  - listen critically to the creative and technical work of others
  - listen critically to and adjust performance of others to achieve the required sound
  - continuously evaluate and adjust the production of musical work
- planning and organisational skills sufficient to:
  - clarify roles
  - work within budgets and timeframes
  - plan recording projects
  - use time-management strategies to set priorities
  - develop systems for required documentation
- initiative, enterprise and creative skills sufficient to:
  - demonstrate artistic leadership
  - use innovative approaches to recording to enhance the interpretation and performance of music or to create new possibilities through artistic and technical effects
  - interpret music appropriately to ensure a sympathetic and appropriate approach to sound production
- technical skills sufficient to apply knowledge of acoustics:
  - in sound production to recording projects
  - to instruments/voices in placements and settings for sound balance in recording

Required knowledge

- well-developed understanding of psychoacoustic principles, including:
  - spatial hearing
  - direct sound
  - early sound
  - reverberant sound
  - studio and control room design
  - ergonomics
- industry knowledge, including:

© Commonwealth of Australia, 2025 Future Skills Organisation

    - varied characteristics of sound in a range of recording and performance environments
    - musical repertoire, styles, forms, systems, practices and customs
    - appropriate styles of musical interpretation and sound production
    - relevant musical terminology
    - features and characteristics of a range of instruments
    - performance customs of music genres relevant to selected area of music recording
    - copyright law and permissions
    - issues and challenges that arise in the context of producing musical recordings
- sound understanding of recording techniques, such as:
    - microphone and instrument/voice placement
    - application of effects
    - mixing sound sources
- issues and challenges that typically arise in the context of producing sound recordings
- OHS principles of safe listening, including safeguards against hearing loss

Evidence Guide

The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• produce at least two sound recordings that demonstrate:
	  • well-developed critical-listening and aural-discrimination skills
	  • a creative and appropriate musical concept that demonstrates knowledge of musicianship, repertoire, recording techniques and an awareness of sound design possibilities
	• work creatively, collaboratively and constructively with performers to produce a sound recording.

Context of and specific resources for assessment	Assessment must ensure: • access to: • relevant instruments and equipment

© Commonwealth of Australia, 2025 Future Skills Organisation

	• scores, charts or other written music resources • participants, such as performers and technical crew • appropriate recording facilities with adequate space and acoustic qualities • use of culturally appropriate processes, and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	The following assessment methods are appropriate for this unit: • observation of a recording session where the candidate is the producer • written or oral questioning to test knowledge as listed in the required knowledge section of this unit • authenticated musical recordings where the candidate was the producer • authenticated samples of project plans prepared by the candidate • case studies and scenarios as a basis for discussion about issues and challenges that arise in the context of producing musical recordings.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • BSBPMG510A Manage projects • CUFCMP501A Manage and exploit copyright arrangements • CUSSOU504A Create a final sound balance • CUSSOU603AManage production of sound recordings.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Recording projects may be for:	• solo artists • solo artists with backing

© Commonwealth of Australia, 2025 Future Skills Organisation

	• groups/ensembles • vocal • vocal and instrumental • instrumental, acoustic and/or electronic.
Production requirements may include:	• technical • creative • artistic • attributions • audience • budget • confidentiality • content • contractual arrangements • copyright • deadlines • direct quotes • duration • intellectual property • interviews • location • purpose • schedule • style.

Relevant personnel may include:	• clients
	• artists, musicians and performers
	• directors
	• producers
	• post-production personnel
	• program managers
	• sound designers and editors
	• video and sound recorders
	• audio personnel:
	  • sound engineers
	  • sound technicians
	  • sound editors
	  • sound designers
	  • sound effects personnel
	  • recordists
	  • re-recording mixers
	• broadcasters
	• broadcast engineers.

© Commonwealth of Australia, 2025 Future Skills Organisation

Copyright requirements may include:	• provisions of current Copyright Act
	• copyright permission procedures
	• attribution
	• moral rights and performer's rights
	• negotiating with copyright organisations, such as:
	  • owners of copyright: publishers, composers, etc.
	  • Australasian Performing Rights Association (APRA)
	  • Phonographic Performance Company of Australia Limited (PPCA)
	  • Australasian Mechanical Copyright Owners Society (AMCOS)
	  • Copyright Agency Limited (CAL)
	  • archives.

Recording site may include:	• dubbing theatre • on location, including interior and exterior • outside broadcast • post-production studio • recording studio • sound stage.

Sound equipment and accessories may include:	• amplifiers
	• analogue to digital converters
	• cables
	• compact disc (CD) and digital versatile disc (DVD) players and burners
	• computer technology and associated software
	• recording devices:
	  • hard disk recorder, e.g. digital audio workstation (DAW)
	  • digital audiotape recorder, e.g. S-DAT and R-DAT
	  • digital videotape recorder (DVTR)
	  • mini disc recorder (MD)
	  • modular digital multi-track recorder (MDM)
	• digital audio players, such as:
	  • iPod
	  • MP3
	• headphones
	• microphones and accessories

© Commonwealth of Australia, 2025 Future Skills Organisation

	• mixing consoles and desks • monitors and speakers • signal processors and plug-ins.
Formats may include:	• quarter inch audiotape • WAV • AIFF • Apple Lossless • WMA • MP3 • Vorbis • ATRAC • AAC.
Media may include:	• radio • video • CD • DVD • computer hard drive • internet • mobile device • film.

Evaluation techniques may include:	• interviews
	• surveys
	• questionnaires
	• focus groups
	• demographic data
	• feedback
	• reviews
	• evaluation may include:
	  • clients
	  • record companies
	  • stakeholders
	  • audience
	  • project personnel
	  • specialists.

Unit Sector(s)

Media and entertainment production - audio/sound

© Commonwealth of Australia, 2025 Future Skills Organisation

ICPMM321C Capture a digital image

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to use digital camera technology for the production of colour separated images.

Application of the Unit

Application of the unit	This unit requires the individual to use digital camera technology for the production of colour separated images.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Assess digital camera qualities	1.1. Camera software compatibility with hardware system is assessed and the appropriate software is selected for the job 1.2. Pixel resolution of the camera is matched to the required quality and resolution of outcome 1.3. The RAM capacity of the camera is checked to be appropriate to the number of images required to be captured 1.4. Shutter speed, focal lengths and camera feature modes (eg flash, scrollage, icon menu, close-up, wide angle and telephoto capacity) are assessed suitable for the quality and use of photographic images required 1.5. Lithium batteries are handled and stored according to OHS requirements
2. Set up for image capture	2.1. Camera is set up for image composition according to job specifications 2.2. ***Lighting*** is arranged according to job specifications 2.3. Light intensity is set for the correct exposure
3. Preview image	3.1. Tone curves are adjusted according to job specifications 3.2. The neutral balance of the image is arranged and adjusted 3.3. Adjustments to image composition and exposure are made
4. Photograph and upload a digital image	4.1. The digital camera is loaded and operated according to manufacturer's specifications appropriate to the quality of image to be photographed 4.2. The computer card interface/disk is uploaded onto

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	the relevant computer and the image saved on hard disk 4.3. Photographic image files are created and stored on the computer according to software procedures 4.4. Photographic images are enhanced, cropped and altered electronically to deliver the required image 4.5. Photographic images are checked for fitness of purpose and conformance to the job brief 4.6. Photographic images are assessed fit for the relevant delivery mode (eg print, CD-ROM) and delivered appropriately

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- OHS in relation to operating machinery such as safely switching off machinery before cleaning is started
- communication of ideas and information by consulting with supervisors over the processing of digital images
- collecting, analysing and organising information by assessing the suitability of shutter speed, focal lengths and camera feature modes (eg flash, scrollage, icon menu, close-up, wide angle and telephoto capacity) for the photographic image required
- planning and organising activities by planning and coordinating digital image capture sessions
- teamwork when maintaining the production process in association with others
- mathematical ideas and techniques by choosing the correct shutter speed and focal length to capture digital images
- problem-solving skills applied by identifying and correcting problems of image quality
- use of technology applied by using digital camera technology

Required knowledge

- digital camera use
- pixel resolution and how this affects the resolution of the image
- relevance of the RAM capacity of a digital camera

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• importance of shutter speeds and focal lengths • safety requirements for handling and storing lithium batteries • uploading and processing digital images using a computer • uploaded data to a computer from the computer card interface/disk • process for filing and creating photographic image files on the computer • enhancing, crop and altering photographic images electronically • considerations that need to be made to assess a digital photograph suitable for a newspaper, glossy brochure and CD-ROM • manuals, safety and other documentation that are relevant to this task and where are they kept and information that is included in these documents

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • photographed image meets the quality and look/ feel requirements of the brief. The digital camera functions are used to capture the required image • underlying skills of capturing a digital image using a digital camera should be transferable across the associated sectors of the printing industry • demonstrate an ability to find and use information relevant to the task from a variety of information sources • assess the capacity of, and operate, a digital camera to upload and process THREE digital images using industry hardware and software to deliver a designated quality of image outcome • evidence for assessment may be gathered from assessment of the unit of competency alone or through an integrated assessment activity.
Context of and specific resources for assessment	Assessment must ensure: • assessment may take place on the job, off the job or a combination of these. Off the job assessment must be

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	undertaken in a closely simulated workplace environment.
Method of assessment	The following assessment method is appropriate for this unit: • direct questioning/observation combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Lighting may include:	• direct (main) fill in lighting/fill reflector
Types of systems may include:	• digital cameras used in the pre-press sector and associated sectors with which a pre-press organisation may be required to work

Unit Sector(s)

Unit sector	

Competency field

Competency field	Multimedia

© Commonwealth of Australia, 2025 Future Skills Organisation

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

ICPMM346C Incorporate video into multimedia presentations

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to edit, combine and incorporate video into multimedia presentations.

Application of the Unit

Application of the unit	This unit describes the competency required to edit, combine and incorporate video into multimedia presentations.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Identify and describe formats of digital video	1.1. The distinguishing features and uses of a range of digital video software are determined 1.2. Current video software appropriate to a range of given outcomes is selected 1.3. Limiting factors of computer hardware on video production for a specified job are determined 1.4. Differences of image quality and image size required to deliver the desired outcome are determined 1.5. Data input, processing and output relevant to video are explained 1.6. The formats employed to create a given computer video sequence for a specified outcome are analysed
2. Design digital video	2.1. Appropriate digital video software for the job is assessed and selected 2.2. Digital video editing software is used to combine video assets 2.3. Variations in video frame rates are controlled as required for the job to be undertaken 2.4. Time stamping techniques are applied to the video frames as required for the job to be undertaken 2.5. Digital video is saved using the appropriate file techniques
3. Edit digital video	3.1. Single and multiple video tracks are edited to achieve a defined outcome 3.2. Multiple tracks of digital video are joined according to job specifications 3.3. Digital effects are employed to modify and integrate digital video tracks according to job specifications 3.4. Time encoding is applied to single and multiple

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	edited digital video tracks according to job specifications 3.5. A video track is inserted into a multimedia production sequence according to job specifications
4. Present a digital video sequence	4.1. Digital video is tested and combined with other ***digital imaging***, ***sound*** and/or animation to create a multimedia sequence 4.2. The multimedia sequence including video is saved and presented to the client

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- OHS in relation to operating machinery such as safely switching off machinery before cleaning is started
- collecting, analysing and organising information by analysing formats to create a video sequence
- planning and organising activities by determining limiting factors of computer hardware
- mathematical ideas and techniques by determining differences of image quality and image size
- problem-solving skills by determining limiting factors of computer hardware
- use of technology by incorporating video into multimedia presentations

Required knowledge

- digital video formats
- distinguishing features of a selected video software program
- limiting factors of video production on computer
- differences of image quality and image size obtained
- contemporary video software
- combining given video assets
- features and differences between current video software packages.
- principles of video production
- how variations in video frame rates are controlled
- why time stamping techniques are applied to video frames
- digital medium for video

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• considerations when combing digital video with other digital imaging, sound and/or animation to create a multimedia sequence • manuals, safety and other documentation that are relevant to this task and where are they kept and information that is included in these documents

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • design, compile, edit and test multimedia sequences incorporating video, according to job specifications and the Performance Criteria • design, compile, edit and test at least TWO multimedia sequences incorporating video, according to job specifications and the Performance Criteria • evidence for assessment may be gathered from assessment of the unit of competency alone or through an integrated assessment activity.
Context of and specific resources for assessment	Assessment must ensure: • assessment may take place on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment.
Method of assessment	The following assessment method is appropriate for this unit: • a range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended,

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	for example: • CUFMEM06A Design a multimedia product • CUFMEM07A Apply principles of visual design and communication to the development of a multimedia product.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Digital imaging may include:	• titles/text, graphic images, 2D and 3D animation, 3D modelling, opticals, transitions such as dissolves, fade ins, fade outs, supers, subtitles, special effects.
Sound may include:	• sound effects, music, atmospherics, dialogue, additional dialogue, eg re-recorded and narration.
Multimedia products or presentations may include:	• educational game, promotional information, training, e-commerce and a range of others.
Industry standard software may include:	• a wide range of current programs examples of which are Adobe Premier, QuickTime, Media 100. Note: these programs are constantly being upgraded and replaced and appropriate up-to-date programs should be selected.
Documentation may include:	• computer-generated manually written, scripts, production schedules, manufacturer's specifications/instructions, contracts, edit decision lists (EDLs), list of sequences with relevant shot numbers, assembly order , marked-up scripts, marked-up transcripts, sound sheets including timecode log sheets for location sound recordings, wild line and sound effects log sheets.

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
Visual effects may include:	• keyers to combine, DVEs to move and distort, colour corrections to modify, texture generation to add blur, trackers to follow parts of the picture, production of titles, production of optical effects, graphic images, opticals, transitions such as dissolves, fade ins, fade outs, supers, subtitles, special effects.
Video format may include:	• VHS • SVHS • DVC • Umatic • SP • Beta-cam • Digital Beta-cam.
Editing equipment may include:	• computer hardware • non-linear digital editing and graphics software programs • monitors • keyboard and mouse • external hard drive • external disk drive • additional computer hardware • source and record machines • computer software programs • graphics computer program • digital video effects system (DVE) • digital disk recorder (DDR) • video transfer recorder (VTR).
Editing consumable materials may include:	• computer disks • paper for hardcopy • compact discs.
Memory may include:	• disk • hard drive • internal • external.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Unit sector	

Competency field

Competency field	Multimedia

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTBWN3082A Perform tests on optical communication system and components

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to test optical communication systems and components in the field using portable test instruments. It covers testing of point-to-point networks as well as next generation optical fibre networks which use passive optical network (PON) technologies in fibre to the home (FTTH) deployment. Licensing, legislative, regulatory and certification requirements apply to working at heights. If an elevated work platform (EWP) is required, verify state or territory law requirements for a licence to operate an EWP. Users should confirm requirements with the relevant federal, state or territory authority. If working at heights, achievement of the unit 'CPCPCM2015A Work safely on roofs' from the CPC08 Construction and Plumbing Services Integrated framework training Package fulfils this requirement.

Application of the Unit

Application of the unit	Installation contractors, technical staff and field officers from telecommunications service providers or other private and public organisations or regulatory authorities apply the skills and knowledge in this unit. They combine technical skills with organisational and administrative skills to perform tests on broadband passive optical networks (PON), fibre to the x (FTTx) networks,

© Commonwealth of Australia, 2025 Future Skills Organisation

	hybrid fibre coaxial (HFC) networks and dense wavelength division multiplexing (DWDM) systems during installation, maintenance, commissioning and troubleshooting phases.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to use optical measuring instruments	1.1. Obtain ***relevant legislation***, ***codes***, ***regulations and standards*** and prepare for the given work 1.2. Notify ***customer*** for site access, security arrangements and location details of ***optical system*** and test purpose 1.3. Identify site ***hazards*** and notify appropriate personnel to make site safe 1.4. Devise and implement risk control measures of hazards with handling optical fibres and lasers in consultation with appropriate personnel 1.5. Prepare a ***testing plan*** indicating the ***type of measurement*** at the nominated ***wavelength*** and seek approval from customer 1.6. Select the appropriate ***tools*** and ***test instruments*** according to the required measurement and enterprise practice
2. Conduct optical measurements	2.1. Set up test instrument according to manufacturer's instructions according to occupational health and safety (***OHS***) ***and environmental requirements*** 2.2. Perform measurement using knowledge of appropriate testing techniques and in a safe manner to assess the performance of optical system and component 2.3. Record test results and compare with standard test specifications from manufacturer and enterprise guidelines 2.4. Evaluate the test results and report on the functionality of the optical component or equipment and the performance of the optical system
3. Document measurement results	3.1. Document test results for future reference and make recommendations on optimising component and system performance 3.2. Clean work site and make safe according to the enterprise requirements and to customer satisfaction 3.3. Notify appropriate personnel of job completion for sign off and present test documentations

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with customers and enterprise staff
- literacy skills to read and interpret work instructions and document work
- numeracy skills to gather and record data from measurements
- planning and organisational skills to plan, prioritise and manage own work
- safety awareness skills to:
  - apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
  - select and use required personal protective equipment conforming to industry and OHS standards
  - work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- technical skills to:
  - clean an optical connector to an acceptable industry standard
  - safely inspect an optical connector for contamination and determine if cleaning is necessary
  - safely operate:
    - optical loss test set (OLTS)
    - optical time domain reflectometer (OTDR)
    - PON power meter

Required knowledge

- consequences of mating contaminated optical connectors
- downstream and upstream signals
- DWDM metro and long haul system architecture
- HFC architecture (optical section)
- logarithmic power levels (decibels, dBm)
- optical connector types
- optical fibre safety, practices, handling and theory
- optical spectrum limits, wavelengths used in various applications and International Telecommunications Union (ITU) grid
- optical transmitters and receivers
- PON architecture
- safe handling procedures with optical fibres
- transmission system line rates:
  - optical Ethernet

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• synchronous digital hierarchy (SDH) • wavelength division multiplexing (WDM), coarse wavelength division multiplexing (CWDM) and DWDM principles and optical multiplexers

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • measure optical power level • measure insertion loss of a passive device • measure end-to-end fibre loss (bi-directional) • measure splice loss • measure distance to fault, event, end of fibre using OTDR • comply with all related OHS requirements and work practices.
Context of and specific resources for assessment	Assessment must ensure: • sites on which optical measurements can be conducted • tools and equipment required for measurements • manufacturer's documentation for test instruments and equipment under test.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate performing optical measurements • review of a written reports and test results completed by the candidate • oral or written questioning to assess required knowledge.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTBWN3100A Work safely with live fibre to test and commission a fibre to the x installation • ICTBWN3205A Use optical and radio frequency measuring instruments. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
regional contexts) may also be included.	

Relevant legislation, ***codes***, ***regulations and standards*** may include:	• appropriate licences:
	  • crane
	  • EWP
	  • forklift
	  • winch
	• Australian Construction Industry Forum (ACIF) standards and codes
	• AS Communications Cabling Manual (CCM) Volume 1
	• AS/NZS 3000:2007
	• AS/NZS 3080:2003
	• AS/NZS 3084:2003
	• AS/NZS 3085.1:2004
	• AS/NZS IEC 61935.1:2006
	• AS/NZS IEC 61935.2:2006
	• AS/NZS ISO/IEC 14763.3:2007
	• AS/NZS ISO/IEC 15018:2005
	• AS/NZS ISO/IEC 24702:2007
	• cabling security codes and regulations
	• Environmental Protection Acts
	• OHS
	• technical standards AS/ACIF S008:2006 and AS/ACIF S009:2006.

Customer may be:	• asset manager • installation manager • maintenance manager • nominated customer representative • outage manager • project manager.
Optical system may contain:	• add-drop multiplexer • DWDM system • fibre hub • HFC network • optical line termination (OLT) • optical network termination (ONT) • optical amplifier • optical splitter.
Hazards may include:	• building debris

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• earth potential rise • glass fibre • live power lines • manual handling • mud and water • natural gas and other gas build up • optical fibre cable may contain hazardous light • radio frequency (RF) equipment emitting radiation • remote power feeding services which operate at above telecommunications network voltage • vermin.
Testing plan may include:	• correct test set-up • recording and evaluation of measurements • test layout • test procedures • test purpose • test sites and location • type of measurements • use of appropriate test equipment.

Type of measurement may include:	• end-to-end continuity using visual fault locator
	• fibre loss (bi-directional)
	• insertion loss:
	  • coupler
	  • filter
	  • optical splitter
	  • WDM
	• optical power level at:
	  • drop terminal
	  • OLT
	  • ONT
	  • optical transmitter
	  • patch panel
	• optical return loss (ORL)
	• splice loss
	• total end-to-end loss, including splices and connectors.

Wavelengths may include:	• 850 nm • 1310 nm

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• 1490 nm • 1550 nm.

Tools may include:	• alcohol swabs
	• dry type cleaning cassette for optical connectors
	• hand tools
	• lint-free dry wipes
	• microscope for examining optical connector with:
	  • integral safety infra-red filter
	  • video microscope display
	• optical connector adaptors
	  • FC to LC
	  • FC to SC
	  • FC to ST
	  • SC to ST
	• optical reference cable
	• optical termination.

Test instruments may include:	• bi-directional automated optical loss test set • hand-held optical power meter • hand-held optical source • launch cable for OTDR • OFI-FTTx active ONT detector • OLTS • ORL test set • OTDR multimode • OTDR single mode • PON - OTDR • PON meter • visual fault locator (VFL).

OHS and environmental requirements may include:	• decommissioning and isolating worksite and lines prior to commencement
	• identifying other services, including power and gas
	• personal protective equipment:
	  • earmuffs
	  • gloves
	  • head protection
	  • masks

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• protective suits • safety boots • safety glasses • safe working practices, such as the safe use and handling of: • chemicals • materials • tools and equipment • work platforms • safety equipment: • flashing lights • safety barriers • warning signs and tapes • witches hats • special access requirements • environmental considerations: • clean-up protection • stormwater protection • waste management.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Competency field

Competency field	Broadband and wireless networks

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTBWN3088A Install optical fibre splitters in fibre distribution hubs

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to install optical fibre splitters in fibre distribution hubs (FDH) as part of a fibre to the premises (FTTP) network. Optical networks and FTTP are part of the strategies by service providers using wave division multiplexing (WDM) to deliver very high speed broadband capacity through the access network for the National Broadband Network (NBN) initiative. Assessment by a TITAB registered assessor is recommended. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Technicians and cable installers who install and maintain optical network cables and equipment in Access Networks apply the skills and knowledge in this unit to provide services in Next Generation Networks (NGN) using emerging technologies. NGN services include internet protocol TV (IPTV), video on demand (VoD), interactive TV, mesh networks and

© Commonwealth of Australia, 2025 Future Skills Organisation

	cloud computing.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Set up and prepare for installation	1.1. Obtain ***relevant legislation***, ***codes***, ***regulations and standards*** for compliance when conducting work 1.2. Scope the work by obtaining project plan from

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	appropriate personnel and arrange for site access to comply with security arrangements 1.3. Notify appropriate personnel of identified ***safety hazards*** at the work site 1.4. Determine type of ***FDH enclosure*** and ***optical splitter module*** from project plan and identify splitter installation requirements using work instructions 1.5. Obtain ***tools and safety equipment*** and material to perform tasks safely and efficiently 1.6. Select and use required protective equipment and make site safe and secure for installation work 1.7. Obtain splitter module and visually inspect for ***splitter module damage*** and replace if necessary
2. Install splitter module in FDH	2.1. Follow occupational health and safety (***OHS***) ***and environmental requirements*** for the given work and identify and avoid ***other services*** 2.2. Open the enclosure and asses the suitability of the FDH according to the project plan 2.3. Locate next available slot in splitter module area of FDH for installation 2.4. Insert splitter module and secure according to manufacturer's specifications 2.5. Inspect installed splitter module and surrounding area for completeness of job
3. Prepare and connect splitter input fibres to feeder cable	3.1. Locate feeder port to be connected and remove protective cover in preparation 3.2. Use an optical power meter to verify feeder port is not active 3.3. Clean the adapter according to manufacturer's specifications and route splitter input fibre to correct feeder port 3.4. Remove dust cap and clean end face according to manufacturer's specifications to prevent possible damage from mating ***contaminated connectors*** 3.5. Connect input fibre to feeder port and record connection according to organisational policy
4. Connect output fibres and test splitter	4.1. Determine output fibre to be connected and required adapter in distribution field 4.2. Clean adapter and fibre end-face according to manufacturer's specifications 4.3. Route output fibre and connect with adapter in

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	distribution field 4.4. Test operation of optical splitter for optical power levels at the operating ***WDM optical wavelengths*** 4.5. Record connections, test results and park unused fibre leads for safety reasons according to organisational policy
5. Clean up work site	5.1. Seal any internal enclosures and close FDH 5.2. Remove installation waste and debris from worksite and dispose of according to environmental requirements 5.3. Notify appropriate personnel of job completion and obtain sign off

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to work effectively within a group
- literacy skills to interpret work instructions
- numeracy skills to gather and record data from measurements
- safety awareness skills to:
  - apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
  - select and use required personal protective equipment conforming to industry and OHS standards
  - work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- technical skills to:
  - clean optical end face
  - connect optical fibre to feeder port
  - operate WDM test equipment and optical power meter
  - recognise optical devices in a communication system

Required knowledge

- organisational policy and procedures

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• personal safety issues • propagation of light in optical communication systems • role of transmitters and receivers in optical communication systems • site engineering • specific OHS requirements relating to the handling of optical fibre and the use of laser light sources • WDM applications • workplace and industry environment

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • use optical power test equipment • measure optical signals at three WDM wavelengths • install splitter in the enclosure • connect input and out optical fibres to the splitter • test optical splitter • complete connection recording • comply with all related OHS requirements and work practices.
Context of, and specific resources for assessment	Assessment must ensure: • a telecommunications operations site where installation of optical fibre splitters in FDH may be conducted • a fibre distribution hub and relevant optical splitter • use of tools, equipment and personal protective equipment currently used in industry • relevant regulatory and equipment documentation that impacts on work activities.
Methods of assessment	A range of assessment methods should be used to assess

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of candidate installing optical fibre splitters in FDH • direct observation of candidate applying all related OHS requirements and work practices • oral or written questioning to assess required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, e.g. • ICTBWN3090A Install lead-in module and cable for fibre to the premises • ICTBWN3100A Work safely with live fibre to test and commission a fibre to the x installation. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Relevant legislation, ***codes***, ***regulations and standards*** may include:	• Australian Communications Industry Forum (ACIF) standards and codes • AS Communications Cabling Manual (CCM) Volume 1 • AS/NZS 3000:2007 • AS/NZS 3080:2003 • AS/NZS 3084:2003 • AS/NZS 3085.1:2004 • AS/NZS IEC 61935.1:2006 • AS/NZS IEC 61935.2:2006 • AS/NZS ISO/IEC 14763.3:2007 • AS/NZS ISO/IEC 15018:2005 • AS/NZS ISO/IEC 24702:2007 • cabling security codes and regulations • Environmental Protection Acts • ISO Draft 11801 (International) • OHS • regulated or industry codes of practice including appropriate Australian Communications and Media Authority (ACMA) standards • relevant Institute of Electrical and Electronics Engineers (IEEE) standards • technical standards AS/ACIF S008:2006 and AS/ACIF S009:2006.
Appropriate personnel may be:	• consultant • project engineer • project supervisor • site supervisor.

Safety hazards may refer to:	• access points that may contain:
	  • hazardous light (non-visible laser)
	  • radio frequency (RF) emission
	• active lasers with no safety labels

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

	• active optical fibres
	• contact with remote power feed
	• electrical supply that require mandatory separation from communications cable
	• exposed fibres
	• unsafe support structures
	• unsafe weather:
	  • heavy rains
	  • high winds
	  • severe heat or cold
	  • thunderstorms.

FDH enclosure may include:	• external cabinet • internal cabinet.
Optical splitter module may include:	• 4 port • 8 port • 16 port • 32 port.

Tools and safety equipment may include:	• personal protective equipment
	• safety equipment
	• test equipment:
	  • passive optical network (PON) meter
	  • optical time domain reflectometer (OTDR)
	• tools:
	  • fibre cleaning kit
	  • fibre splicer
	  • labeller
	  • screw drivers
	  • spanners
	  • tagging tool.

Splitter module damage may include:	• broken connector • kinks in fibre leads • no end caps on connectors • physical damage to module body.

OHS and environmental requirements may relate to:	• identifying other services, including power and gas
	• personal protective equipment:
	  • earmuffs
	  • gloves:

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• leather • plastic • rubber • head protection • masks • protective suits • safety boots • safety glasses • safe working practices, such as the safe use and handling of: • chemicals • materials • tools and equipment • safety equipment: • flashing lights • safety barriers • warning signs and tapes • witches hats • special access requirements • environmental considerations: • clean-up protection • stormwater protection • waste management.
Other services may include:	• alarms • electrical services • fire sprinkler systems • gas and water mains • high voltage (HV) power • other service provider networks.
Contaminated connectors may include:	• chips • dry residue • dust • liquids • scratches.
WDM optical wavelengths are set at:	• 1310 nm • 1490 nm • 1550 nm.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

Competency field

Competency field	Broadband and wireless networks

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTBWN3090A Install lead-in module and cable for fibre to the premises

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to install a lead-in module and its associated cable for a fibre to the premises (FTTP) installation. Optical networks and FTTP are part of the strategies by service providers using wave division multiplexing (WDM) to deliver very high speed broadband capacity through the Access Network for the National Broadband Network (NBN) initiative. FTTP services can be underground or aerial and may include hybrid fibre coaxial (HFC) installations. Assessment by a TITAB registered assessor is recommended. Licensing, legislative, regulatory and certification requirements apply to working at heights. If an elevated work platform (EWP) is required, verify state or territory law requirements for a licence to operate an EWP. Users should confirm requirements with the relevant federal, state or territory authority. If working at heights, achievement of the unit 'CPCPCM2015A Work safely on roofs' from the CPC08 Construction and Plumbing Services Integrated framework training Package fulfils this requirement.

© Commonwealth of Australia, 2025 Future Skills Organisation

Application of the Unit

Application of the unit	Technicians and cable installers who install and maintain optical network cables and equipment in Access Networks apply the skills and knowledge in this unit to provide services in Next Generation Networks (NGN) using emerging technologies. NGN services include internet protocol TV (IPTV), video on demand (VoD), interactive TV, mesh networks and cloud computing.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent

© Commonwealth of Australia, 2025 Future Skills Organisation

	with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Set up and prepare for installation	1.1. Obtain ***relevant legislation***, ***codes***, ***regulations and standards*** for compliance when conducting work 1.2. Scope the work by obtaining project plan from ***appropriate personnel*** and arrange for site access to comply with security arrangements 1.3. Notify appropriate personnel of identified ***safety hazards*** at the work site 1.4. Determine type of ***lead-in module*** and cable from project plan and identify ***installation requirements*** using work instructions 1.5. Obtain ***tools and safety equipment*** and material to perform tasks safely and efficiently 1.6. Select and use required protective equipment and make site safe and secure for installation work 1.7. Obtain lead-in module and visually inspect for ***lead-in module damage*** and replace if necessary
2. Install lead-in module in enclosure	2.1. Follow occupational health and safety (***OHS***) ***and environmental requirements*** for the given work and identify and avoid ***other services*** 2.2. Identify position in ***enclosure*** to secure module and install mounting bracket according to manufacturer's specifications 2.3. Splice lead-in module tail to distribution joint 2.4. Attach lead-in module to mounting bracket and secure in position
3. Install optical fibre lead-in cable to premises	3.1. Unpack and prepare lead-in cable according to manufacturer's specifications 3.2. Haul optical fibre lead-in cable to premises observing ***maximum strain*** on cable for underground installation 3.3. Coil excess cable length within enclosure 3.4. Install aerial lead-in using catenary and bearer wire to meet relevant height and minimum sag requirements
4. Terminate the lead-in	4.1. Access the optical network terminating (ONT) unit

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
cable at the premises	to expose lead-in cable to retrieve fibre and connector 4.2. ***Clean ONT adapter and connector*** according to manufacturer's specifications 4.3. Mate fibre connector with ONT adapter ensuring free of ***contaminants*** 4.4. Route fibre cable within ONT and secure in position 4.5. Test operation of lead-in at the ONT for optical power levels at the designated operating ***WDM optical wavelength*** 4.6. Record connections, test results and park unused fibre leads for safety reasons according to organisational policy
5. Clean up work site	5.1. Seal ONT and enclosure 5.2. Remove installation waste and debris from worksite and dispose of according to environmental requirements 5.3. Notify appropriate personnel of job completion and obtain sign off

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to work effectively within a group
- literacy skills to interpret work instructions
- numeracy skills to gather and record data from measurements
- safety awareness skills to:
  - apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
  - select and use required personal protective equipment conforming to industry and OHS standards
  - work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- technical skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• clean optical end face • connect optical fibre to feeder port • operate WDM test equipment and optical power meter • recognise optical devices in a communication system • splice optical fibre lead in tail to distribution joint
Required knowledge
• licence requirements for working at heights • organisational policy and procedures • personal safety issues • propagation of light in optical communication systems • role of transmitters and receivers in optical communication systems • site engineering • specific OHS requirements relating to the handling of optical fibre and the use of laser light sources • WDM applications • workplace and industry environment

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • use optical power test equipment • measure optical signals at three WDM wavelengths • install lead-in module in the enclosure for both an aerial and underground installation • demonstrate successful completion of the procedures • complete connection recording • comply with all related OHS requirements and work practices.
Context of, and specific resources	Assessment must ensure:

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
for assessment	• access to a telecommunications operations site where installation of lead-in module and cable for FTTP may be conducted • a fibre lead-in module, distribution pit, premises conduit and relevant ONT • use of tools, equipment and personal protective equipment currently used in industry • relevant regulatory and equipment documentation that impacts on work activities.
Methods of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate installing lead-in module and cable for FTTP applying all related OHS requirements and work practices • direct observation of the candidate measuring optical signals at three WDM wavelengths • oral or written questioning to assess required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplaces and job role is recommended, for example: • ICTBWN3088A Install optical fibre splitters in fibre distribution hubs • ICTBWN3100A Work safely with live fibre to test and commission a fibre to the x installation. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	

Relevant legislation, ***codes***, ***regulations and standards*** may include:	• appropriate licences:
	  • winch
	  • crane
	  • forklift
	  • EWP
	• Australian Communications Industry Forum (ACIF) standards and codes
	• AS Communications Cabling Manual (CCM) Volume 1
	• AS/NZS 3000:2007
	• AS/NZS 3080:2003
	• AS/NZS 3084:2003
	• AS/NZS 3085.1:2004
	• AS/NZS IEC 61935.1:2006
	• AS/NZS IEC 61935.2:2006
	• AS/NZS ISO/IEC 14763.3:2007
	• AS/NZS ISO/IEC 15018:2005
	• AS/NZS ISO/IEC 24702:2007
	• cabling security codes and regulations
	• Environmental Protection Acts
	• OHS

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• road and traffic control legislation and codes • technical standards AS/ACIF S008:2006 and AS/ACIF S009:2006.
Appropriate personnel may be:	• consultant • project engineer • project supervisor • site supervisor.

Safety hazards may refer to:	• access points that may contain:
	  • hazardous light (non-visible laser)
	  • radio frequency (RF) emission
	• active lasers with no safety labels
	• active optical fibres
	• contact with remote power feed
	• electrical supply that require mandatory separation from communications cable
	• exposed fibres
	• unsafe support structures
	• unsafe weather:
	  • heavy rains
	  • high winds
	  • severe heat or cold
	  • thunderstorms.

Lead-in module may include:	• 1310 nm • 1490 nm • 1550 nm.
Installation requirements may refer to:	• aerial • underground • combination of underground and aerial.

Tools and safety equipment may include:	• personal protective equipment
	• safety equipment
	• test equipment:
	  • passive optical network (PON) meter
	  • optical time domain reflectometer (OTDR)
	  • local area network (LAN) Cat tester
	  • network analyser
	• tools:
	  • fibre cleaning kit
	  • fibre splicer
	  • labeller

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• screw drivers • spanners • tagging tool.
Lead-in module damage may include:	• cuts in fibre sheathing • end caps on connectors • kinks in fibre leads • physical damage to module body.

OHS and environmental requirements may relate to:	• identifying other services, including power and gas
	• personal protective equipment:
	  • earmuffs
	  • gloves:
	  • leather
	  • plastic
	  • rubber
	  • head protection
	  • masks
	  • protective suits
	  • safety boots
	  • safety glasses
	• safe working practices, such as the safe use and handling of:
	  • chemicals
	  • materials
	  • tools and equipment
	• safety equipment:
	  • flashing lights
	  • safety barriers
	  • warning signs and tapes
	  • witches hats
	• special access requirements
	• environmental considerations:
	  • clean-up protection
	  • stormwater protection
	  • waste management.

Other services may include:	• alarms • electrical services • fire sprinkler systems

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• gas and water mains • high voltage (HV) power • other service provider networks.
Enclosure may include:	• cabinet • FTTP cabinet • HFC housing • housing • pit.
Maximum strain may relate to:	• typically 600 nm • verify with manufacturer's for specific value.
Clean ONT adapter and connector may use:	• dry clean • lint-free swabs • lint-free wipes • wet clean.
Contaminants may include:	• chips • dry residue • dust • liquids • scratches.
WDM Optical wavelength is one of:	• 1310 nm • 1490 nm • 1550 nm.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Competency field

Competency field	Broadband and wireless networks

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTBWN3100A Work safely with live fibre to test and commission a fibre to the x installation

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to work safely on a live optical fibre installation to test and commission a wave division multiplexing (WDM) system or connect a splitter for fibre to the x (FTTx) deployment. Optical networks and FTTx are part of the strategies by service providers using WDM to deliver very high speed broadband capacity through the access network for the National Broadband Network (NBN) initiative. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Technicians and cable installers who install and maintain optical network cables and equipment in Access Networks apply the skills and knowledge in this unit to provide services in Next Generation Networks (NGN) using emerging technologies. NGN services include internet protocol TV (IPTV), video on demand (VoD), interactive TV, mesh networks and cloud computing.

© Commonwealth of Australia, 2025 Future Skills Organisation

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICTOHS2170A	Follow Occupational Health and Safety and environmental policy and procedures

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Set up and prepare for working with live fibre	1.1. Obtain ***relevant legislation***, ***codes***, ***regulations and standards*** for compliance when conducting work 1.2. Scope the work by obtaining project plan from ***appropriate personnel*** and arrange for site access to comply with security arrangements 1.3. Notify appropriate personnel of identified ***safety***

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	hazards at the worksite 1.4. Determine type of ***FTTx equipment***, ***components of optical distribution network*** (***ODN***) and ***WDM components*** from project plan for testing and commissioning 1.5. Obtain ***tools and safety equipment*** and materials to perform tasks safely and efficiently 1.6. Select and use required protective equipment and make site safe and secure for commissioning work 1.7. Create a safe working environment by following ***safe work practices*** and identifying ***optical fibre hazards*** that could cause ***possible injuries*** when handling optical fibres and laser-based equipment
2. Connect a splitter input fibre to the feeder cable	2.1. Follow occupational health and safety (***OHS***) ***and environmental requirements*** for the given work and identify and avoid ***other services*** 2.2. Locate the feeder fibre port to be connected 2.3. Determine the state (live or not) of the fibre port to be connected and notify transmitter to ensure that power is turned off at the source if the fibre port is live 2.4. Connect up connectorised splitter input fibres as instructed by the manufacturer 2.5. Arrange for power to be turned back on to the newly connected feeder port
3. Perform live WDM commission testing of a ODN installation used in FTTx network	3.1. Locate the appropriate test points in the ODN from manufacturer's instructions for WDM testing 3.2. Test live wavelengths for the WDM tests following safety precautions 3.3. Test the optical signal strengths for the ***operating wavelengths*** incoming into the optical network termination (ONT) and determine if signal strengths are within the ***range of acceptable power levels*** 3.4. Test the losses between the WDM outputs and the individual LM for each wavelength and determine if within ***maximum and minimum power losses*** 3.5. Conduct all ***acceptance tests*** as specified by manufacturer 3.6. Record and tabulate all tests results for commissioning requirements
4. Clean up work site	4.1. Seal and secure any enclosures and cabinets 4.2. Remove waste and debris from worksite and dispose

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	of according to environmental requirements 4.3. Notify appropriate personnel of job completion and obtain sign off

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills

• communication skills to work effectively within a group
• literacy skills to interpret work instructions
• numeracy skills to gather and record data from measurements
• safety awareness skills to:
  • apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
  • select and use required personal protective equipment conforming to industry and OHS standards
  • work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
• technical skills to:
  • clean optical end face
  • connecting optical fibre to feeder port
  • operate WDM test equipment and optical power meter
  • recognise optical devices in a communication system

Required knowledge
• organisational policy and procedures • personal safety issues • propagation of light in optical communication systems • role of transmitters and receivers in optical communication systems • site engineering • specific OHS requirements relating to the handling of optical fibre and the use of laser light sources • WDM applications • workplace and industry environment

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • use optical power test equipment • evaluate tests results • connect input and output optical fibres to the splitter • conduct live tests measuring optical signals at three WDM wavelengths on optical devices • conduct acceptance tests for commissioning • demonstrate successful completion of the procedures • complete connection recording • comply with all related OHS requirements and work practices.
Context of, and specific resources for assessment	Assessment must ensure: • a telecommunications operations site where an FTTP installation may be tested and commissioned • access to a WDM system and relevant optical splitter • use of tools, equipment and personal protective equipment currently used in industry • relevant regulatory and equipment documentation that impacts on work activities.
Methods of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate using optical power test equipment applying all related OHS requirements and work practices • direct observation of the candidate conducting live tests measuring optical signals at three WDM wavelengths • direct observation of the candidate conducting acceptance tests for commissioning • oral or written questioning to assess required

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTBWN3082A Perform tests on optical communication system and components • ICTBWN3088A Install optical fibre splitters in fibre distribution hubs • ICTBWN3090A Install lead-in module and cable for fibre to the premises. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Relevant legislation, ***codes***, ***regulations and standards*** may include:	• Australian Communications Industry Forum (ACIF) standards and codes • AS Communications Cabling Manual (CCM) Volume 1 • AS/NZS 3000:2007 • AS/NZS 3080:2003 • AS/NZS 3084:2003 • AS/NZS 3085.1:2004 • AS/NZS IEC 61935.1:2006 • AS/NZS IEC 61935.2:2006 • AS/NZS ISO/IEC 14763.3:2007 • AS/NZS ISO/IEC 15018:2005 • AS/NZS ISO/IEC 24702:2007 • cabling security codes and regulations • Environmental Protection Acts • ISO Draft 11801 (International) • OHS • regulated or industry codes of practice including appropriate Australian Communications and Media Authority (ACMA) standards • relevant Institute of Electrical and Electronics Engineers (IEEE) standards • technical standards AS/ACIF S008:2006 and AS/ACIF S009:2006.
Appropriate personnel may be:	• consultant • project engineer • project supervisor • site supervisor.

Safety hazards may refer to:	• access points that may contain:
	  • hazardous light (non-visible laser)
	  • radio frequency (RF) emission
	• active lasers with no safety labels
	• active optical fibres
	• contact with remote power feed
	• electrical supply that require mandatory separation from communications cable

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

	• exposed fibres
	• unsafe support structures
	• unsafe weather:
	  • heavy rains
	  • high winds
	  • severe heat or cold
	  • thunderstorms.

FTTx equipment may include:	• add-drop multiplexer • Bragg grating device • lead-in fibre cable • optical amplifier • optical filter • optical splitter.
Components of the optical distribution network (***ODN***) may include:	• distribution fibre • distribution joint acting as and feeding LMs (DLM) • fibre access point (FAP) • fibre distribution hub (FDH) • FDH tail cable • lead-in joint with multiple lead-in ports (LM) • main fibre cable • multi-dwelling unit (MDU) • network termination device (NTD) • optical network termination (ONT) • passive optical network (PON) • power supply unit (PSU) • single dwelling unit (SDU).
WDM components may include:	• dispersion compensation module • optical add/drop multiplexer • optical amplifier • optical de-multiplexer • optical multiplexer • transponder • variable optical attenuator.

Tools and safety equipment may include:	• personal protective equipment
	• safety equipment
	• test equipment:
	  • PON meter
	  • optical time domain reflectometer (OTDR)

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

	• tools:
	  • fibre cleaning kit
	  • fibre splicer
	  • labeller
	  • screw drivers
	  • spanners
	• tagging tool.

Safe work practices may relate to:	• applying relevant Australian standards of required health and safety precautions when working with visible and infra-red lasers • avoiding contact with chemicals, breathing in fumes and vapours, and digesting such materials • clearing fibre particles, hazardous solvents or chemicals from site at the completion of the work • ensuring all solvent residues are disposed of according to environmental policy when using a wet cleaning process • gently releasing stored energy in coiled fibre cable • installing dust caps on unplugged fibre connectors • knowing action and treatment of potential accidents • knowing the colour codes used to identify the various types of fibre and what sort of signals these cables would normally carry • labelling active equipment to warn other people of possible hazards • leaving caps at the end of unconnected fibres and unused laser outputs • never unplugging patch leads without first turning off the active equipment • not damaging or obscuring manufacturer warnings or instruction labels of the laser product during installation • not looking directly into the end of a fibre as it may be carrying laser light • not looking into transmitter ports as they may be of active • not using magnifiers in the presence of laser

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	radiation • restraining cable ends to prevent damage to eyes or body • using only built-in or another form of safe light source when examining connectors with a microscope for contamination, chips or fractures • using protective eyewear designed specifically for laser work • using sharps container to dispose of fibre off-cuts.
Optical fibre hazards may relate to:	• cleaning alcohol, epoxy resins and other solvents and chemicals may be carcinogenic, cause allergies or be dangerous to health in other ways • cleaning fluids, solvents and other chemicals may be highly inflammable • fibre off-cut damage to eyes and skin • inhalation of fibre off-cuts and particles from vacuum cleaning of worksite • laser damage to eyes • causing personal injury by activating equipment without notifying other staff who may be working remotely on the network.
Possible injuries may include:	• damage to lungs from inhalation of fibre off-cuts or particles • damage to retina in eyes • damage to skin from fibre off-cuts • personal injury from cable end whipping when releasing coiled cable.

OHS and environmental requirements may include:	• identifying other services, including power and gas
	• personal protective equipment:
	  • earmuffs
	  • gloves:
	  • leather
	  • plastic
	  • rubber
	  • head protection
	  • masks
	  • protective suits

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• safety boots • safety glasses • safe working practices, such as the safe use and handling of: • chemicals • materials • tools and equipment • safety equipment: • flashing lights • safety barriers • warning signs and tapes • witches hats • special access requirements • environmental considerations: • clean-up protection • stormwater protection • waste management.
Other services may include:	• alarms • electrical services • fire sprinkler systems • gas and water mains • high voltage power • other service provider networks.
Operating wavelengths may include:	• 1310 nm • 1490 nm • 1550 nm.
Range of acceptable power levels may include:	• -2 to + 2 dBm @ 1310 nm • -26 to -6 dBm @ 1490 nm • -11.5 to +5 dBm @ 1550 nm.
Maximum and minimum power losses may include:	• 23.3 dB to 15.0 dB @1310 nm • 21.6 dB to 8.0 dB @1490 nm • 20.9 dB to 9.5 dB @1550 nm.
Acceptance tests may include:	• delay • dispersion • optical attenuation and loss measurements • optical power levels • phase.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

Competency field

Competency field	Broadband and wireless networks

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTCBL2065A Splice and terminate optical fibre cable for carriers and service providers

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to splice and terminate optical fibre cable within an optical telecommunications transmission environment. This work is essential in provisioning of National Broadband Network (NBN) infrastructure for high speed and high bandwidth transmissions. Assessment by a TITAB registered assessor is recommended. All customer cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an Australian Communications and Media Authority (ACMA)-accredited registrar.

Application of the Unit

Application of the unit	Technical staff who splice and terminate optical fibre cable for telecommunications projects apply the skills and knowledge in this unit. They may carry out new installations, upgrade an optical backbone or access network provisioning for greater bandwidth and capacity required by emerging technology convergence for Next Generation Networks (NGN).

© Commonwealth of Australia, 2025 Future Skills Organisation

	This unit may be applied to commercial or industrial fibre to the premises (FTTP) installations.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Prepare for splicing	1.1. Select safety equipment to protect self and public according to enterprise guidelines and occupational

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	health and safety (***OHS***) ***practices*** 1.2. Confirm layout of job using installation according to ***physical conditions*** at site and ***relevant legislation***, ***codes***, ***regulations and standards*** 1.3. Inform appropriate personnel of identified ***hazards*** on worksite 1.4. Locate other services from ***relevant authorities*** according to enterprise guidelines and safe practices 1.5. Test for ***dangerous gases*** and place ***guards*** around open manholes following ***OHS and environmental requirements*** 1.6. Obtain approval for alterations to the design according to enterprise guidelines
2. Check existing optical fibre cable	2.1. Verify that cable was installed according to the installation plan and visually inspect ***cable*** for signs of sheath damage 2.2. Maintain minimum bend ratios according to manufacturer's specifications to prevent cable damage and signal degradation 2.3. Secure cable according to safe industry practice to avoid cable and sheath damage
3. Splice optical fibre cable	3.1. Verify fibre is not live using ***appropriate equipment*** to maintain safe working practice and ensure correct fibre has been identified 3.2. Prepare cable end to expose ***optical fibres*** according to splicing method and manufacturer's specifications 3.3. Prepare and ***splice fibres*** using safe industry practice according to enterprise specifications 3.4. Test the splice joint to manufacturer's and design requirements
4. Terminate optical fibre cable	4.1. Select connector unit to suit terminating frame according to design specifications 4.2. Terminate the cable using the ***type of termination*** specified in the plan and according to manufacturer's specifications 4.3. Test the termination for transmission loss and strength and re-terminate if the transmission loss exceeds the manufacturer's specifications 4.4. Install protection devices on connectors and fibres to protect from exposure and contaminants 4.5. Label and lay up cables in enclosure according to

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	manufacturer's instructions and enterprise guidelines
5. Finish job and report	5.1. Remove waste and reinstate site according to enterprise guidelines 5.2. Prepare reports including test results and alterations to plans according to enterprise policy 5.3. Notify client of work completion and obtain sign off

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - liaise with internal and external personnel on technical and operational matters
  - relate to work associates, supervisors, team members and clients
- literacy skills to interpret technical documentation such as equipment manuals, specifications and requirements for optical fibre cable installation
- numeracy skills to take and analyse measurements
- planning and organisational skills to organise and maintain equipment
- problem solving skills to solve equipment and logistics problems
- safety awareness skills to:
  - apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
  - apply work site OHS
  - select and use required personal protective equipment conforming to industry and OHS standards
  - work safely with optical fibre and lasers
  - work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- technical skills to:
  - install customer access network (CAN) cable
  - operate test equipment to perform measurements on optical fibre
  - perform fault clearance
  - use diagnostic equipment
  - use optical fibre jointing techniques

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• use specialised tools and test equipment • use hand and power tools
Required knowledge

• causes of signal strength loss in optical fibre
• colour coding of fibres
• detailed knowledge of AS/NZS 2211:2006 Safety of laser products (parts 1 and 2)
• features and operating requirements of test equipment for optical fibre cable
• industry and organisational policy and procedures when splicing optical fibre cable
• information required to operate equipment according to a test specification
• manufacturer's requirements for safe operation of optical fibre equipment
• safety precautions when working with laser based systems
• specific OHS requirements relating to the activity and site conditions
• techniques for types of termination including:
  • direct termination
  • fusion splicing
  • mechanical splicing
• test methods and performance requirements
• types of optical cable and termination
• workplace and industry environment

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • splice, terminate and test optical fibre cable applying safety precautions when working with laser -based systems • splice at least 12 fibres and house these in splicing cassettes and trays within industry recognised enclosures according to manufacturer's instructions • install a connector type for fusion, mechanical

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	splicing and direct terminations • complete relevant documentation to manufacturer's and design requirements • provide report documenting the installation and test results to client • comply with all related OHS requirements and work practices.
Context of and specific resources for assessment	Assessment must ensure: • sites where splicing and termination of optical fibre cable may be conducted • use of optical fibre testing equipment currently used in industry • relevant regulatory and equipment documentation that impact on optical fibre cable installation activities.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of a hands-on project completed by the candidate • review of an oral and written report, including installation and test results • direct observation of the candidate carrying out splicing of optical fibre within an optical communication system.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTCBL3010A Install and terminate optical fibre cable on customer premises. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
OHS practices may relate to:	• determining that optical fibre cable is not live according to guidelines and standards • handling optical fibre cable in a safe manner to avoid risk of injury • labelling of fibre cable and laser devices • locating and identifying adjoining services according to enterprise guidelines and OHS practices • observing AS/NZS 2211:2006 Safety of laser products (parts 1 and 2) • testing for presence of dangerous gases according to enterprise guidelines.
Physical conditions may relate to:	• above ground • in cabinet • in joint enclosure.
Relevant legislation, ***codes***,	• Australian Communications Industry Forum

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
regulations and standards may include:	(ACIF) standards and codes • AS Communications Cabling Manual (CCM) Volume 1 • AS/NZS 2211:2006 Safety of laser products (parts 1 and 2) • AS/NZS 3000:2007 • AS/NZS 3080:2003 • AS/NZS 3084:2003 • AS/NZS 3085.1:2004 • AS/NZS ISO/IEC 14763.3:2007 • AS/NZS ISO/IEC 15018:2005 • AS/NZS ISO/IEC 24702:2007 • cabling security codes and regulations • OHS • regulated or industry codes of practice including ACMA technical standards • technical standards AS/ACIF S008:2006 and AS/ACIF S009:2006.

Hazards may include:	• earth potential rise (EPR)
	• optical cable:
	  • bare fibres
	  • hazardous laser light
	• remote power feeding.

Relevant authorities may include:	• cable location services (Dial Before you Dig)
	• environment protection
	• local government
	• private owners
	• utility providers such as:
	  • electricity
	  • fire services
	  • gas
	  • other telecommunications providers
	  • water.

Dangerous gases may include:	• asphyxiating gas • carbon dioxide • carbon monoxide • combustible • natural gas • noxious gas.

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
Guards may include:	• barricades • plates • temporary fencing.

OHS and environmental requirements may relate to:	• identifying other services, including power and gas
	• need to decommission and isolate worksite and lines prior to commencement
	• personal protective clothing:
	  • earmuffs
	  • gloves:
	  • leather
	  • plastic
	  • rubber
	  • head protection
	  • kneepads
	  • masks
	  • protective suits
	  • safety boots
	  • safety glasses
	• safe working practices, such as the safe use and handling of:
	  • asbestos
	  • chemicals
	  • materials
	  • tools and equipment
	  • work platforms
	• safety equipment:
	  • flashing lights
	  • gas and other hazard detection equipment
	  • safety barriers
	  • trench guards
	  • warning signs and tapes
	  • witches hats
	• suitable light and ventilation
	• special access requirements
	• environmental considerations:
	  • clean-up protection
	  • stormwater protection

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• waste management.
Cable may include:	• air blown • armoured • external • internal • loose tube • tight buffered.
Appropriate equipment may include:	• hand-held optical power meter • OFI-fibre to the x (FTTx) active optical network terminal (ONT) detector • passive optical network (PON) meter • optical time domain reflectometer (OTDR).
Optical fibres may include:	• multi-mode • polymer • single mode.
Splice fibres may relate to:	• fusion splice • mechanical splice • preparing connection ends to a smooth flat surface to ensure no optical path redirection from joint • removing all coatings from exposed optical fibre and removing all possible contaminants.
Type of termination may include:	• direct termination • fusion splicing • mechanical splicing.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Co-requisite units		

Competency field

Competency field	Cabling

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTCBL2136A Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to safely install, maintain and modify customer premises communications cabling required according to Australian Communications and Media Authority's (ACMA) 'Restricted' Cabling Provider Rule. Restricted cabling is used in typical domestic premises, small offices, home offices and small business premises. Restricted cablers can install cable in large commercial and industrial premises provided the cabling is behind a compliant device and is not via jumperable distributors or patch panels. The telecommunications Cabling Provider Rules (CPRs) 2000 place various limitations on Restricted cablers. These include a prohibition on them performing cabling work where they may have access to a reticulated electrical supply that exceeds typical domestic single-phase and three-phase electrical supply voltages - nominally 240 volts AC (for single phase) or 415 volts AC (for three-phase). Assessment by a TITAB registered assessor is recommended. All customer cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an ACMA-accredited registrar.

© Commonwealth of Australia, 2025 Future Skills Organisation

Application of the Unit

Application of the unit	This unit applies to customer cabling terminated on sockets and network termination devices (NTD). It applies to the installation, maintenance and modification of indoor and external cabling. Customer cabling, for the purpose of the 'Restricted' Cabling Provider Rule, may be used to connect devices for a range of applications including telecommunications, simple data and computer use, security alarm panels and fire control panels. Cabling may be metallic or optical fibre and may be aerial or underground. The cabling task may be a new cable installation or upgrade of cable capacity for an existing network or subsystem for convergence to Next Generation Networks (NGN) applications. The cabling installer may provide services in telephony, voice over internet protocol (VoIP), internet protocol TV (IPTV) and computer data over a single metallic customer cable or optical fibre cable in a specific customer location.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Work within the constraints imposed by customer premises and ACMA regulatory environment	1.1. Prepare for ***restricted cabling work*** within the ***regulatory environment***, ***cabling environment***, ***cable type***, ***cable identification***, ***termination systems***, ***earthing and protection***, ***records*** and ***relevant legislation***, ***codes***, ***regulations and standards*** 1.2. Identify ***building infrastructure*** which places critical constraints on ***cabling*** 1.3. Develop ***strategies to manage other infrastructure*** in relation to cabling 1.4. Notify appropriate personnel of ***safety hazards*** at the cabling work site
2. Manage remote power feed	2.1. Identify and avoid the risks posed by contact with remote power feeding services when performing cabling activity 2.2. Make site safe by identifying remote power feeding services which operate at above telecommunications network voltage (TNV) inside customer premises
3. Install cables and protective earth wires	3.1. Install cables according to manufacturer's application specifications, including tension and bending stress requirements 3.2. Identify and avoid sources of possible damage to cable, including hot pipes, sharp edges and cable burn

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	3.3. Allow sufficient excess at cable ends to facilitate ***termination***
	3.4. Place and secure cable to maintain safety and interference segregation according to legislative and industry standards
	3.5. Install cable ties with correct tension to prevent cable sheath damage or transmission impairment and trimmed flush to prevent risk of personal damage
	3.6. Install underground cables to minimum depth of cover and segregation from hazardous electrical and other services according to AS/ACIF S009:200
	3.7. Install underground cables excluding blown fibre tube systems to incorporate a blocking agent within the cable to prevent the ingress of water
	3.8. Install aerial cables to minimum clearance, segregation from hazardous electrical and other services and minimum height requirements according to AS/ACIF S009:2006
	3.9. Install over-voltage protection devices according to AS/ACIF S009:2006 to all cable pairs, where required, to suppress voltage surges and protect from earth potential rise (EPR) hazards and protectively earth the devices
	3.10. Protect earth wire insulation against damage and segregate protective earths according to relevant legislative and industry standards
4. Terminate and test cables and earth wires	4.1. Remove cable sheath to allow for correct termination length and without damage to underlying conductors and their insulation
	4.2. Install NTD terminating modules according to manufacturer's specifications and cable pairs neatly and sequentially fanned for termination
	4.3. Terminate conductors according to recommended colour code sequence using appropriate termination tools in the manufacturer's specified manner
	4.4. Earth cable shield, if applicable, to manufacturer's specifications, relevant industry codes of practice and AS/ACIF S009:2006
	4.5. Conduct visual inspection to confirm termination colour code sequence has been followed prior to end-to-end testing of wire and pair termination integrity
	4.6. Terminate earth wires with connectors

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	recommended by manufacturers according to accepted industry codes of practice and AS/ACIF S009:2006 4.7. Maintain earth wire continuity throughout and observe interface requirements with electrical systems 4.8. Test earthing installation for continuity, insulation resistance and conductive resistance according to accepted industry standards including AS/ACIF S009:2006 4.9. Confirm compatibility of alterations with existing systems and test new work both in isolation and when integrated with existing systems
5. Inspect cable route to ensure correct separations	5.1. Inspect ***separations*** along the entirety of the cable route and rectify separations which do not comply with regulations 5.2. Install barriers to achieve separations where sufficient spatial separation cannot be met
6. Create records	6.1. Provide the client with a job sign-off, telecommunications cabling advice form, at the completion of each cabling task 6.2. Complete NTD record cards for the work undertaken
7. Monitor work activity	7.1. Supervise cablers not holding appropriate registration for the task to ensure cabling activity is according to legislative requirements for safety and network integrity including AS/ACIF S008:2006 and AS/ACIF S009:2006

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• communication skills to liaise with work associates, supervisors, team members and clients • literacy skills to interpret: • related legislation, codes regulations and standards

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

- technical documentation, such as equipment manuals and specifications
- numeracy skills to take and analyse measurements
- planning and organisational skills to organise and maintain equipment
- problem solving skills to solve equipment and logistics problems
- safety awareness skills to:
  - check environmental conditions are suitable for termination
  - make site safe and secure for cable installation
  - work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- task management skills to:
  - apply work practices which avoid cable damage
  - conform to work specifications and relevant industry standards
- technical skills to:
  - check cable route for obstructions and make clear using suitable methods
  - handle cable according to manufacturer's specifications so that conductors, sheath and insulation are not damaged during installation
  - select cabling system to meet customer performance needs
  - read and interpret drawings related to:
    - cable coding system, identifiers and distributor locations
    - cable layouts
    - outlet location
  - terminate copper twisted pair, including indoor, external, aerial and underground cabling
  - use diagnostic equipment
  - use hand and power tools

Required knowledge

- ACMA cabling provider rules, cabler registration rules, regulations and standards
- features and operating requirements of recognised cabling specific industry test equipment
- information required to operate equipment according to a test specification
- legislation, codes of practice and other formal agreements that impact on the work activity
- manufacturer's requirements for safe operation of equipment
- specific occupational health and safety (OHS) requirements relating to the activity and site conditions
- test methods and performance requirements
- typical issues and challenges that occur on site

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• complete a cabling installation and termination:
	  • three different types of telephone sockets:
	  • Australian modular socket
	  • United States modular socket
	  • Mode 3 alarm socket
	  • one network termination device (NTD)
	  • one alarm panel including completion of a TCA compliance form and NTD records
	  • one Ethernet cable
	• apply cable conductor identification codes
	• conduct and interpret cable test results
	• interpret and apply standards and regulations
	• comply with all related OHS requirements and work practices.

Context of and specific resources for assessment	Assessment must ensure: • a site on which communications cabling activities may be carried out • use of cabling and field equipment currently used in industry • licensing requirements and other site related documentation.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate undertaking cabling installations and tests, and applying cable conductor identification codes • oral or written questioning to assess knowledge of test results, standards requirements and specific technical procedures.
Guidance information for	Holistic assessment with other units relevant to the

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
assessment	industry sector, workplace and job role is recommended, for example: • ICTCBL2137A Install, maintain and modify customer premises communications cabling: ACMA Open Rule. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Restricted cabling work	• aerial and underground cabling work on private

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
refers to:	property • cabling work that is performed only in relation to a customer's premises • customer cabling that terminates directly at the network boundary on a socket or network termination device.
Regulatory environment refers to:	• accredited registrars and registration • ACMA • Certified Components List • Communications Alliance • labelling requirements • Telecommunications Act 1997.

Cabling environment may refer to:	• indoor environments, including concealed locations:
	  • ceilings and false ceilings
	  • internal wall space
	  • modular workstations
	  • under floor
	• outdoor environments, including cable installations:
	  • aerial telecommunications cabling for restricted cabling work but does not include installations on poles shared with low voltage (LV) or high voltage (HV) electrical power cables or terminations
	  • external walls
	  • underground cabling in an exclusive trench or shared trench with electrical LV cables and other utilities.

Cable type may include:	• aerial • coaxial • copper twisted pair • data cables: • Category 5, 6, 6A, 7 or &A • external • indoor • optic fibre cable • underground.

Cable identification refers to:	• cable conductor identification codes:
	  • banded
	  • colour coded
	  • lettered
	  • numbered.

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

Termination systems must include:	• network termination device
	• socket types:
	  • Australian modular socket
	  • Mode 3 alarm socket
	  • United States modular socket.
	• (Note: jumperable distributors are not included in this requirement).

Earthing and protection must include:	• earthing for protection • surge suppression.
Records may include:	• NTD record cards • telecommunication cabling advice forms TCA1 and TCA2.
Relevant legislation, codes, regulations and standards include:	• accredited registrars and registration • Australian Communications Industry Forum (ACIF) standards and codes • ACMA • AS/NZS 3000:2007 • AS/ACIF S008:2006 and AS/ACIF S009:2006 • Certified Components List (CCL) • AS Communications Cabling Manual (CCM) -restricted • labelling • Overview Telecommunications Act 1997.
Building infrastructure may include:	• availability and suitability of existing cabling trays and fixing systems • building hazards • elevated working • high voltage (HV) power • restricted access.
Cabling may include:	• aerial customer • external customer • indoor customer • underground customer.
Strategies to manage other infrastructure may include:	• appropriate separations • correct use of cable trays and support systems • fastening techniques.

Safety hazards may refer to:	• access points that may contain:
	  • hazardous light or non-visible laser
	  • radio frequency (RF) emission

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• electrical supply and areas of earth potential rise (EPR) that require mandatory separation from communications cable • hazardous conduit as according to AS 1345:1995 conduit colours associated with a hazardous service.
Termination may include:	• Australian modular socket • Ethernet connectors terminated at both ends of an Ethernet cable and tested • Mode 3 alarm socket • NTD • United States modular socket • (Note: jumperable distributors are not included).

Separations refer to:	• correct separations between communications cable and other services:
	  • LV
	  • HV single core
	  • HV multi-core
	  • open terminations
	• separations covered by AS/ACIF S009:2006.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Competency field

Competency field	Cabling

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTCBL2137A Install, maintain and modify customer premises communications cabling: ACMA Open Rule

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to safely install, maintain and modify customer premises communications cabling required according to Australian Communications and Media Authority's (ACMA) 'Open' Cabling Provider Rule. This rule is associated with small installations connected to sockets and larger commercial and industry installations involving many lines, multi-pair cables, backbone cabling, multi-story buildings and more complicated termination modules and distributors. The cabling activity may be a new cable installation or upgrade of cable capacity for an existing network or subsystem, or cabling infrastructure for convergence to Next Generation Networks (NGN). Convergence in the telecommunications and IT areas is the emergence of a single infrastructure for a range of telephony and IT services. Telephone, voice over internet protocol (VoIP), internet protocol TV (IPTV) and computer data may all travel over a single metallic customer cable, optical fibre cable or wireless link in a specific location. Assessment by a TITAB registered assessor is recommended. This unit meets the minimum ACMA prescribed level of knowledge and skill that safeguards matters of health, safety, network integrity and addresses matters of interoperability where customer equipment and standard telephone service are involved only.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Note: • Completion of this unit does not imply industry competency using specialised cabling, such as coaxial, optical fibre and structured cabling. • Completion of the following 6 cabling units: ICTCBL2005A, ICTCBL2006A, ICTCBL2008A, ICTCBL2012A, ICTCBL2017A and ICTCMP2022A exceed the requirements of this standard and fulfil the requirements for ACMA Cabling Provider Rules: Open Cabling Category for Cabler Registration • To be permitted to work with lift cabling, cablers are required to have completed the relevant Electrotechnology qualification such as the Certificate III in Electrotechnology Electrician or equivalent.

Application of the Unit

Application of the unit	This unit applies to customer cabling terminated on distributors. It applies to installation, maintenance and modification of indoor, external, underground cabling on private and public property. Customer cabling, for the purpose of this standard, may be used to connect devices for a range of applications, including telecommunications, Ethernet, video and multimedia, security and alarms, and fire protection. The cabling task may be a new cable installation or upgrade of cable capacity for an existing network or subsystem for convergence to NGN applications. Cabling installers providing services in telephony, VoIP, IPTV and computer data over a single metallic customer cable or optical fibre cable in a specific customer location apply the skills and knowledge in this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
	ICTCBL2136A	Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Work within the constraints imposed by customer premises and ACMA	1.1. Prepare for ***open cabling work*** according to the ***regulatory environment***, ***cabling environment***, ***cable type***, ***cable identification***, ***termination systems***, ***earthing and protection***, ***records*** and ***relevant***

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
regulatory environment	***legislation***, ***codes***, ***regulations and standards*** 1.2. Identify ***building infrastructure*** which places critical constraints on ***cabling*** 1.3. Develop ***strategies to manage other infrastructure*** in relation to cabling 1.4. Notify appropriate personnel of identified ***safety hazards*** at cabling worksite
2. Manage remote power feed	2.1. Identify and avoid the risks posed by contact with remote power feeding services when performing cabling activity 2.2. Make site safe identifying remote power feeding services which operate at above telecommunications network voltage (TNV) inside customer premises
3. Install and modify cable support, earthing and termination infrastructure	3.1. Install fixings and ***cable support structures*** of adequate strength safely and aligned with the environment according to manufacturer's and customer's specifications 3.2. Secure catenary supports to building structure and tension, where necessary, to ensure cable weight can be carried in operating conditions with interference and safety segregation maintained including adherence to AS/ACIF S009:2006 3.3. Install protective earthing of metal work to industry standards where required 3.4. Inspect installed support structure to ensure cable will not be exposed to damage during installation and general operation 3.5. Position terminating equipment and fixing to accepted industry codes of practice, standards and customer requirements 3.6. Inspect back-mount and outlet layout for compliance to manufacturer's specifications and allow adequate work space for ease of access and avoid overlaying 3.7. Segregate incoming and outgoing cables for ease of access and avoid overlaying
4. Install cables and earth wires	4.1. Install cables according to manufacturer's application specifications, including tension and bending stress requirements 4.2. Identify and avoid sources of possible damage to cable, including hot pipes, sharp edges and cable burn 4.3. Allow sufficient excess at cable ends to facilitate

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	termination 4.4. Label telecommunication outlet ends of cable uniquely to match identifier at originating location 4.5. Place and secure cable to maintain safety and interference segregation according to legislative and industry standards 4.6. Install cable ties with correct tension to prevent cable sheath damage or transmission impairment and trimmed flush to prevent risk of personal damage 4.7. Install aerial cables supported by catenaries in external environment to meet minimum above ground clearances and clearances from hazardous electrical services according to AS/ACIF S009:2006 4.8. Install underground cables to minimum depth of cover and segregation from hazardous electrical and other services according to AS/ACIF S009:200 4.9. Install cables underground (excluding blown fibre tube systems) to incorporate a blocking agent within the cable to prevent the ingress of water 4.10. Install over-voltage protection devices to all cable pairs, where required, according to AS/ACIF S009:2006, to suppress voltage surges with the devices protectively earthed 4.11. Conduct a visual inspection to verify telecommunications reference conductor (TRC)/ communications earthing system (CES)/earth wire insulation is protected against damage and TRC/CES/ protective earths segregated according to relevant industry and legislative standards and AS/ACIF S009:2006
5. Terminate and test cables and earth wires	5.1. Remove cable sheath to allow for correct termination length and without damage to underlying conductors and their insulation 5.2. Install terminating modules according to manufacturer's specifications and cable pairs neatly and sequentially fanned for termination 5.3. Terminate conductors according to recommended colour code sequence using appropriate termination tools in the manufacturer's specified manner 5.4. Earth cable shield, if applicable, to manufacturer's specifications, relevant industry codes of practice and AS/ACIF S009:2006 5.5. Conduct visual inspection to confirm termination

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	colour code sequence has been followed prior to end-to-end testing of wire and pair termination integrity 5.6. Terminate TRC/CES/earth wires with connectors recommended by manufacturers according to accepted industry codes of practice and AS/ACIF S009:2006 5.7. Maintain TRC/CES/earth wire continuity throughout to meet interface requirements with electrical systems 5.8. Test TRC/CES/earthing installation for continuity, insulation resistance and conductive resistance according to accepted industry standards including AS/ACIF S009:2006 5.9. Confirm compatibility of alterations with existing systems and test new work both in isolation and when integrated with existing systems 5.10. Test cable according to performance specifications
6. Inspect cable route to ensure correct separations	6.1. Inspect ***separations*** along the entirety of the cable route and rectify separations which do not comply with regulations 6.2. Install barriers to achieve separations where sufficient spatial separation cannot be met
7. Evaluate earthing needs for cable systems on customer premises	7.1. Locate existing earthing systems in customer premises and analyse the earthing needs of cable systems in a range of building types 7.2. Calculate the upper and lower limits of resistance for a variety of cable system earths using relevant cable characteristics
8. Label earthing systems	8.1. Identify label requirements for all types of earthing systems 8.2. Attach label to earthing systems according to industry regulations
9. Create or update cable plans and records	9.1. Document ***installation details*** on record sheets and plans and store according to customer requirements 9.2. Label cable pairs clearly to provide an accurate identification according to manufacturer's, industry and client standards 9.3. Record ***cabling details*** in cable pair record books to provide an accurate record according to industry codes of practice and AS/ACIF S009:2006

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	9.4. Complete telecommunications cabling advice (TCA) form
10. Monitor work activity	10.1. Maintain close supervision of cablers not holding appropriate registration for the task to ensure installation and maintenance activity is strictly according to legislative requirements and industry standards for safety and network integrity including AS/ACIF S008:2006 and AS/ACIF S009:2006

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with on team members, supervisors and customers on technical and operational matters
- interpersonal skills related to work associates, supervisors, team members and clients
- literacy skills to interpret:
  - relevant legislation, codes, regulations and standards
  - technical documentation, such as equipment manuals and specifications
- numeracy skills to take and analyse measurements
- planning and organisational skills to organise and maintain equipment
- problem solving skills to solve equipment and logistics problems
- safety awareness skills to:
  - check environmental conditions are suitable for installation
  - make site safe and secure for cable installation
  - work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- task management skills to:
  - apply work practices which avoid cable damage
  - conform to work specifications and relevant industry standards
- technical skills to:
  - check cable route for obstructions and make clear using suitable methods
  - handle cable according to manufacturer's specifications so that conductors, sheath and insulation are not damaged during installation

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

• read and interpret drawings related to:
  • cable coding system, identifiers and distributor locations
  • cable layouts
  • outlet location
• select cabling system to meet customer performance needs and conform to work specifications and relevant industry standards
• terminate copper twisted pair, including indoor, external, aerial and underground cabling
• use diagnostic equipment
• use hand and power tools

Required knowledge
• ACMA cabling provider rules, cabler registration rules, regulations and standards • features and operating requirements of recognised cabling specific industry test equipment • information required to operate equipment according to a test specification • legislation, codes of practice and other formal agreements that impact on the work activity • manufacturer requirements for safe operation of equipment • protection earthing • specific occupational health and safety (OHS) requirements relating to the activity and site conditions • test methods and performance requirements • typical issues and challenges that occur on site

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • terminate systems at both distributor and outlet locations • install and terminate one jumperable distributor

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	(campus distributor or building distributor) with a capacity of 100 pair or greater • terminate one non-jumperable distributor (LD) and a patch panel • terminate at least one 50 pair, one 4 pair and one Ethernet cables including accurate completion of installation records, drawing alterations and compliance forms • place cables on support structures and building faces for both internal and external locations • secure methods for the above locations • demonstrate work practices which avoid cable damage • install the three common types of earthing system used in customer premises for cabling systems • read and interpret drawings related to cable layouts, outlet location, cable coding system, and identifiers and distributor locations • conduct and interpreting cable test results • interpret and apply relevant legislation, codes, regulations and standards • comply with all OHS requirements and work practices.
Context of, and specific resources for assessment	Assessment must ensure: • a site on which communications cabling activities may be carried out • use of cabling and field equipment currently used in industry • licensing requirements and other site related documentation.

Methods of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• direct observation of the candidate terminating:
	  • systems at both distributor and outlet locations
	  • one jumperable distributor (campus distributor or building distributor) with a capacity of 100 pair or greater
	  • one non-jumperable distributor (LD) and a patch panel
	  • at least one 50 pair, one 4 pair and one Ethernet

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	cables • review of completed documentation prepared by the candidate, including accurate completion of installation records, drawing alterations and compliance forms • oral or written questioning to assess required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTCBL2138A Install, maintain and modify customer premises communications cabling: ACMA Lift Rule. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Open cabling work refers to:	• aerial and underground cabling work on private and public property • customer cabling that terminates directly at the network boundary on a socket, network termination device (NTD)or a distributor.
Regulatory environment refers to:	• accredited registrars and registration • ACMA • Certified Components List • Communications Alliance • labelling requirements • Telecommunications Act 1997.

Cabling environment may refer to:	• indoor environments, including concealed locations:
	  • ceilings and false ceilings
	  • internal wall space
	  • modular workstations
	  • under floor
	• outdoor environments, including cable installations:
	  • aerial telecommunications cabling for restricted cabling work but does not include installations on poles shared with low voltage (LV) or high voltage (HV) electrical power cables or terminations
	  • external walls
	  • underground cabling in an exclusive trench or shared trench with electrical LV cables and other utilities.

Cable type may include:	• aerial • coaxial • copper twisted pair • data cables: • Category 5, 6, 6A, 7 or 7A • external • indoor

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• optic fibre cable • underground.

Cable identification refers to:	• cable conductor identification codes:
	  • banded
	  • colour coded
	  • lettered
	  • numbered.

Termination systems may include:	• jumperable distributor (campus distributor or building distributor) • non-jumperable distributor (local distributor) and a patch panel.
Earthing and protection may include:	• earthing of screened cable, barriers and cable trays for the reduction or elimination of interference from electromagnetic, radio frequency (RF) and power sources • equi-potential bonding conductors to multiple earth neutral (MEN) and use of earth stakes • functional earths, including (TRC) and (CES) types to provide customer switching system facilities • protective earth barriers for segregation, cable tray, duct and metal equipment enclosures • protective earths for over-voltage and surge or spike suppression according to AS/ACIF S009:2006.

Records may include:	• building, cabling and equipment location plans
	• labelling of:
	  • distributor pairs
	  • distributor verticals
	  • equipment closets
	  • NTD record cards
	  • patch panels
	  • rooms
	  • telecommunication outlets
	• record books and cards:
	  • campus distributors (CD)
	  • building distributors (BD)
	  • floor distributors (FD)
	  • local distributors (LD)
	• TCA forms (TCA1 andTCA2).

Relevant legislation,	• accredited registrars and registration

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
codes, regulations and standards may include:	• Australian Communications Industry Forum (ACIF) standards and codes • ACMA technical standards • AS/ACIF S008:2006 • AS/ACIF S009:2006 • AS/NZS 3000:2007 • cabling security codes and regulations • Certified Components List (CCL) • labelling • Overview Telecommunications Act 1997 • AS Communications Cabling Manual (CCM) -Open.
Building infrastructure may include:	• availability and suitability of existing cabling trays and fixing systems • building hazards • elevated working • HV power • restricted access.
Cabling may include:	• aerial customer • external customer • indoor customer • underground customer.
Strategies to manage other infrastructure may include:	• appropriate separations • correct use of cable trays and support systems • fastening techniques.

Safety hazards may refer to:	• access points that may contain:
	  • hazardous light or non-visible laser
	  • RF emission
	• electrical supply and areas of earth potential rise (EPR) that require mandatory separation from communications cable
	• hazardous conduit as according to AS 1345:1995 conduit colours associated with a hazardous service.

Cable support structures may include:	• cable ducts may be closed or open
	• cable trays may be:
	  • galvanised steel or PVC
	  • perforated with low or high side
	  • single or multi channel
	• line poles
	• pits and pipes

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

	• suspension catenary wire
	• wall and island mounted patched and jumperable distributors:
	  • BD
	  • CD
	  • FD
	  • LD.

Termination may include:	• Australian modular socket • Ethernet connectors terminated at both ends of an Ethernet cable • jumperable distributor (campus distributor or building distributor) with a capacity of 100 pair or greater • Mode 3 alarm socket • NTD • non-jumperable distributor (local distributor) and a terminated patch panel • United States modular socket.

Separations refer to:	• correct separations between communications cable and other services:
	  • LV
	  • HV single core
	  • HV multi-core
	  • open terminations
	• separations covered by AS/ACIF S009:2006.

Installation details may include:	• cable infrastructure • cable location and type.
Cabling details may include:	• interconnections • pair locations • pair numbering and labelling.

Unit Sector(s)

Unit sector	Telecommunications

© Commonwealth of Australia, 2025 Future Skills Organisation

Co-requisite units

Co-requisite units		

Competency field

Competency field	Cabling

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTCBL2139A Apply safe technical work practices for cabling registration

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to gain proficiency in current work practices and methodologies used for Open and Restricted Cabling Registration. It covers safe installation practices and in particular the Mode 3 socket for an alarm system connected to a monitoring station using an asymmetric digital subscribers' line (ADSL) connection. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Cablers, installers and technicians in the field apply the skills and knowledge in this unit in the context of technology convergence and digital subscribers' lines (DSL) technologies as applied in the telecommunications industry. It can be applied to installation, maintenance or upgrades of existing systems in voice, data or security systems.

© Commonwealth of Australia, 2025 Future Skills Organisation

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Build and test DC and AC circuits and telephone earthing	1.1. Identify any hazards and occupational health and safety (OHS) issues for a safe worksite and notify appropriate personnel 1.2. Connect a series and a parallel ***DC and AC circuit configuration*** following ***safe work practices*** 1.3. Choose the appropriate ***test equipment*** and measure the values of electrical quantities of the circuits 1.4. Use ***calculations*** to verify the measured values of

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	the ***electrical quantities*** in a series and in a parallel circuit configuration 1.5. Compare the measured values to the calculated values and determine the reasons for any variations 1.6. Evaluate the results and determine the ***probable faults*** if relevant 1.7. Measure the resistance of the telephone local loop 1.8. Measure the voltages present on a telephone line and compare to exchange battery voltage 1.9. Measure the resistance to earth ensuring an electrical earth in a telecommunications installation
2. Configure a safe ADSL circuit configuration with Mode 3 connection	2.1. Determine the effects of bandwidth, frequency and attenuation on ***xDSL circuits*** as used for broadband customer access 2.2. Design and configure an ***ADSL circuit*** from the network boundary through to a Mode 3 socket for an alarm system connected to a monitoring station 2.3. Configure the connection to ensure that an ADSL circuit is not disconnected for safety reasons when an alarm activation in conjunction with a Mode 3 socket disconnects the plain old telephone service (POTS) circuit 2.4. Use a ***level 3 tester*** to verify correct termination and installation practices on a digital transmission line
3. Diagnose and rectify faults	3.1. Determine the urgency and impact of faults and required response timeframe for clearance 3.2. Identify ***type of fault*** and determine most probable causes of fault from data and historical trends where available 3.3. Select tools and test equipment relevant to the system and type of fault 3.4. Diagnose fault in a methodical and safe manner using suitable ***fault-finding technique*** 3.5. Isolate fault progressively to remove likely variables from diagnostic 3.6. Determine options to rectify the fault and present to customer for decision on rectification 3.7. Document test methods and results and file with other system installation records
4. Alter existing services	4.1. Identify existing and proposed cable systems for ***altering services*** to an existing installation

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	4.2. Plan alterations to cause minimal disruption to ongoing client activity 4.3. Use ***appropriate tools*** to safely ***terminate telecommunications cables and outlets*** 4.4. Identify and rectify any ***cable fault*** 4.5. Carry out alterations in a safe manner and according to both mandatory and recommended industry standards 4.6. Identify the risks posed by contact with remote power feeding services 4.7. Test alteration and obtain sign off with customer

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to listen and liaise with clients on technical and operational matters related to sign off for alteration of services
- literacy skills to interpret technical documentation and incorporate technical language into written tasks, such as reporting on recommendations to minimise recurrent fault occurrence
- numeracy skills to:
  - interpret technical data, such as specifications of telecommunications networks
  - perform mathematical problem solving in AC and DC tasks and fault-finding
- problem solving skills to apply AC and DC fault finding techniques to different situations
- research skills to access technical information and sources to understand fundamental principles of telecommunication networks
- safety awareness skills to:
  - apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
  - select and use required personal protective equipment conforming to industry and OHS standards
  - work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- technical skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• select and use appropriate test equipment and practices to perform basic AC and DC testing • perform fault-finding tasks • alter services
Required knowledge

• application of binary number conversion and interpretation
• AC and DC electrical quantities, including SI units, OHS issues and the application of Ohm's law
• fault-finding techniques and use of testing equipment, including:
  • multimeter to measure DC voltage, current and resistance
  • continuity tester to check continuity wiring
  • testing of open circuits and short circuits
• overview of:
  • ADSL circuitry and configurations
  • digital transmission concepts, including installation practices and testing
  • procedures in altering existing services, including sign off
  • the distinction between analog and digital signals

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • use concepts of ADSL application and design • use fault-finding techniques to locate cabling faults in telecommunications networks • use Ohm's law to solve DC and AC electrical problems • apply digital transmission principles and testing • use test equipment • alter existing customer services complying with all

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	related OHS requirements and work practices.
Context of and specific resources for assessment	Assessment must ensure: • a site where altering existing services for a customer may be conducted • appropriate AC and DC testing equipment • manufacturer's documentation and equipment • correct tools and measuring equipment currently used in industry.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate undertaking AC and DC measurements and fault-finding • oral or written questioning to assess knowledge of fundamental concepts of telecommunications practices and recurrent fault-finding techniques • evaluation of written ADSL design concepts • direct observation of visual checks and evaluation of written procedures in altering existing services • direct observation of the candidate altering existing customer services.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTOHS2170A Follow OHS and environmental policy and procedures • ICTTEN2140A Use hand and power tools • ICTTEN2136A Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	

DC and AC circuit configuration may include:	• DC circuit:
	  • resistances
	  • single DC voltage source:
	  • battery
	  • DC voltage supply
	  • solar panel
	• AC circuit:
	  • inductors, capacitors and resistances
	  • single AC voltage source:
	  • AC generator
	  • AC voltage supply
	  • alternator
	  • low voltage (LV) AC source.

Safe work practices may relate to:	• component tolerances are not exceeded - fire risk

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

	• correct use of power supply and test equipment
	• identifying any electrical safety hazards
	• isolation from main supply
	• overdrawing of current
	• power down during set-up procedure
	• well laid out circuitry:
	  • avoid contact with external sources
	  • avoid shorting of components.

Test equipment may include:	• digital multimeter • multimeter • ohmmeter • voltmeter.
Calculations may include:	• application of Ohm's law • engineering notation • power calculations • power consumption and efficiencies • voltage dividers • voltage, resistance and current calculations.
Electrical quantities may include:	• current • power • voltage.
Probable faults may include:	• faulty component • faulty source voltage • open circuits • short circuits.
xDSL circuits may include:	• ADSL • ADSL2 • ADSL2+.
ADSL circuit may include:	• ADSL filters connected at a main distribution frame (MDF) • central filters and splitters installed at a network termination device (NTD) • central filters and splitters installed internally • domestic installations and small shops that use a telecommunications outlet (TO) or NTD as a network boundary • DSL and Mode 3 connections.
Level 3 tester may include:	• continuity

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• F set • local area network (LAN) Cat tester • split pair • wire map.
Type of fault may include:	• cable • electrical • hardware • software • system.
Fault-finding technique may include:	• half term testing • isolation of sections • logical mapping • using testing equipment.
Altering services may include:	• changing cable installation • client interaction • identifying mission critical services • identifying remote power feeding • upgrading a service.
Appropriate tools may include:	• basic hand tools • F sets for cable identification • Krone termination tool • multimeter • wire strippers.

Terminate telecommunications cables and outlets may include:	• stripping a:
	  • 2 pair internal rated
	  • 3 pair external rated cable
	  • 4 pair Category 5 unshielded twisted pair (UTP) cable
	• terminating a TO
	• termination using screw terminals.

Cable fault may include:	• earth contact • foreign battery • no voltage • open circuit • short circuit • split pair.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

Competency field

Competency field	Cabling

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTOPN4116A Use advanced optical test equipment

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to test optical communication systems and components using advanced optical test equipment. It involves using the optical time domain reflectometer (OTDR), optical spectrum analyser (OSA) and optical return loss (ORL) test set for performance testing and link budget calculation. Licensing, legislative, regulatory and certification requirements apply to working at heights. If an elevated work platform (EWP) is required, verify state or territory law requirements for a licence to operate an EWP. Users should confirm requirements with the relevant federal, state or territory authority. If working at heights, achievement of the unit 'CPCPCM2015A Work safely on roofs' from the CPC08 Construction and Plumbing Services Integrated framework training Package fulfils this requirement.

Application of the Unit

Application of the unit	Installation contractors, technical staff and field officers from telecommunications carriers or other private and public organisations, or regulatory authorities apply the skills and knowledge in this unit. They combine technical skills with organisational and administrative skills to perform specialised testing of complex optical faults, optical network monitoring and link budget calculations on broadband passive optical network (PON), fibre to the x (FTTx) networks, hybrid

© Commonwealth of Australia, 2025 Future Skills Organisation

	fibre coaxial (HFC) networks and dense wavelength division multiplexing (DWDM) systems during installation, maintenance, commissioning and troubleshooting phases.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to use advanced optical measuring instruments	1.1. Obtain ***relevant legislation***, ***codes***, ***regulations and standards*** for compliance when conducting work 1.2. Notify ***customer*** for site access, security arrangements and location details of ***optical system*** and test purpose 1.3. Identify site ***hazards*** and notify appropriate personnel to make site safe 1.4. Devise and implement risk control measures of hazards with handling of optical fibres and lasers in consultation with appropriate personnel 1.5. Prepare a ***testing plan*** indicating the ***type of measurement***, procedures and nominated ***wavelength*** and seek approval from customer 1.6. Select the appropriate ***tools*** and ***test instruments*** according to the required measurement and enterprise practice
2. Evaluate optical performance and link budget using advanced optical test equipment	2.1. Set up test instrument according to manufacturer's instructions and occupational health and safety (***OHS***) ***and environmental requirements*** 2.2. Perform measurement using knowledge of appropriate testing techniques and advanced test equipment in a safe manner to evaluate the performance of optical system and component 2.3. Record test results and compare with standard test specifications from manufacturer's and enterprise guidelines 2.4. Perform end-to-end measurements on an optical link to a customer and record test results and test points 2.5. Calculate the optical losses for a link budget figure of an optical link to determine if within operational margins as specified in manufacturer's manual 2.6. Evaluate the test results and report on the functionality of the optical component or equipment and the performance of the optical link
3. Document measurement results	3.1. Document test results for future reference and make recommendations on optimising component and system performance 3.2. Clean worksite and make safe according to the enterprise requirements and to customer satisfaction 3.3. Notify appropriate personnel of job completion for sign off and present test documentations

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with customers and enterprise staff
- literacy skills to read and interpret work instructions and document work
- numeracy skills to gather and record data from measurements
- planning and organisational skills to plan prioritise and manage own work
- safety awareness skills to:
  - apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
  - select and use required personal protective equipment conforming to industry and OHS standards
  - work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- technical skills to:
  - clean an optical connector to an acceptable industry standard
  - safely inspect an optical connector for contamination and determine if cleaning is necessary
  - safely operate:
    - optical loss test set (OLTS)
    - optical time domain reflectometer (OTDR)
    - PON power meter

Required knowledge

- consequences of mating contaminated optical connectors
- decibels, dBm
- downstream and upstream signals
- DWDM metro and long haul system architecture
- measurement of DWDM signals
- measurement of gain and gain flatness of optical amplifier
- measurement of laser spectral stability, drift and unexpected variation in spectral transmission characteristics
- non-linear effects, four-wave mixing
- optical connector types
- optical signal to noise ratio (OSNR)
- optical spectrum limits, wavelengths used in various applications and International Telecommunications Union (ITU) grid

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

• optical transmitters and receivers
• ORL
• OTDR dead zones, dynamic range and launch cable
• reflectance
• safe handling procedures with optical fibres
• transmission system line rates:
  • optical Ethernet
  • optical transport network (OTN)
  • synchronous digital hierarchy (SDH)
• wavelength division multiplexing (WDM), coarse wavelength division multiplexing (CWDM) and DWDM principles and optical multiplexers

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to :
	• use OTDR, OSA and ORL advanced optical test equipment to:
	  • measure optical power level
	  • measure insertion loss of optical network
	  • measure end-to-end fibre loss (bi-directional)
	  • test and calculate optical link budget
	  • comply with all related OHS requirements and work practices.

Context of and specific resources for assessment	Assessment must ensure: • sites on which optical measurements can be conducted • tools and equipment required for measurements • manufacturer's documentation for test instruments and equipment under test.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate performing optical measurements • review of a written report for the OTDR, the OSA and the ORL test set • oral or written questioning to assess required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTOPN5118A Plan and configure dense wavelength division multiplexing systems • ICTOPN5119A Perform acceptance and commissioning tests on optical network • ICTOPN5120A Plan for an optical system upgrade and cut over • ICTOPN5121A Test and commission a dense wavelength division multiplexing transmission system • ICTOPN5122A Test the performance of specialised optical devices • ICTOPN5123A Analyse and integrate specialised optical devices in the network. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	

Relevant legislation, ***codes***, ***regulations and standards*** may include:	• appropriate licences:
	  • crane
	  • EWP
	  • forklift
	  • winch
	• Australian Construction Industry Forum (ACIF) standards and codes
	• AS Communications Cabling Manual (CCM) Volume 1
	• AS/NZS 3000:2007
	• AS/NZS 3080:2003
	• AS/NZS 3084:2003
	• AS/NZS 3085.1:2004
	• AS/NZS IEC 61935.1:2006
	• AS/NZS IEC 61935.2:2006
	• AS/NZS ISO/IEC 14763.3:2007
	• AS/NZS ISO/IEC 15018:2005
	• AS/NZS ISO/IEC 24702:2007
	• cabling security codes and regulations
	• Environmental Protection Acts
	• OHS

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• technical standards AS/ACIF S008:2006 and AS/ACIF S009:2006.
Customer may be:	• asset manager • installation manager • maintenance manager • nominated customer representative • outage manager • project manager.
Optical system may contain:	• add-drop multiplexer • Bragg filters • DWDM system • fibre hub • HFC network • optical amplifier • optical line termination (OLT) • optical links • optical network termination (ONT) • optical splitter.
Hazards may include:	• building debris • earth potential rise • glass fibre • live power lines • manual handling • mud and water • natural gas and other gas build up • optical fibre cable may contain hazardous light • radio frequency (RF) equipment emitting radiation • remote power feeding services which operate at above telecommunications network voltage (TNV) • vermin.
Testing plan may include:	• correct test set up • recording and evaluation of measurements • test layout • test procedures • test purpose • test sites and location • type of measurements • use of appropriate test equipment.
Type of measurement may include:	• dedicated ORL test set:

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

	• optical power meter ORL
	• ORL versus wavelength.
	• OSA and ORL
	• PON splitter ORL
	• OSA:
	  • bandwidth of a device (multiplexer)
	  • central wavelength and channel spacing
	  • device flatness
	  • DWDM channel uniformity
	  • insertion loss:
	  • coupler
	  • filter
	  • optical splitter
	  • WDM
	  • non-linear effects (four-wave mixing)
	  • optical power level:
	  • at drop terminal
	  • at optical transmitter
	  • at patch panel
	  • at the OLT
	  • at the ONT
	  • optical signal to noise ratio (OSNR)
	  • ripple
	  • spectral purity of a source
	  • spectral stability and drift of a source
	• OTDR:
	  • break and fault location
	  • certification of new cabling
	  • characterisation of events in path
	  • detailed event table
	  • fibre attenuation
	  • fibre attenuation rate
	  • fibre attenuation uniformity
	  • identification of 'gainers'
	  • identification of 'ghost' events
	  • insertion loss of connectors and splices
	  • macro-bend detection
	  • ORL

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• segment length.
Wavelength may include:	• 850 nm • 1310 nm • 1490 nm • 1550 nm.

Tools may include:	• alcohol swabs
	• dry type cleaning cassette for optical connectors hand tools
	• launch cable for OTDR
	• lint-free dry wipes
	• microscope for examining optical connector with:
	  • integral safety infra-red filter
	  • video microscope display
	• optical connector adaptors
	  • FC to LC
	  • FC to SC
	  • FC to ST
	  • SC to ST
	• optical fibre mandrel (single mode fibre low reflection termination)
	• optical termination
	• optical reference cable.

Test instruments may include:	• ORL test set • OSA • OTDR multimode • OTDR single mode • PON optimised OTDR.

OHS and environmental requirements may include:	• decommissioning and isolating worksite and lines prior to commencement
	• identifying other services, including power and gas
	• personal protective equipment:
	  • earmuffs
	  • gloves
	  • head protection
	  • masks
	  • protective suits
	  • safety boots
	  • safety glasses
	• safe working practices, such as the safe use and

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	handling of: • chemicals • materials • tools and equipment • work platforms • special access requirements • environmental considerations: • clean-up protection • stormwater protection • waste management.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

Competency field

Competency field	Optical networks

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTOPN5119A Perform acceptance and commissioning tests on optical network

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to conduct acceptance tests and commissioning tests on optical networks, including the optical portion of broadband hybrid fibre coaxial (HFC) networks, fibre to the x (FTTx) passive optical networks (PONs) and metropolitan and long haul dense wavelength division multiplexing (DWDM) networks. It ensures readiness of the new system through the application of appropriate inspections and tests to confirm compliance and specified performance. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Technicians who install and maintain optical network equipment in access networks apply the skills and knowledge in this unit to provide services in Next Generation Networks (NGN) using emerging technologies. This unit applies to experienced field officers, technicians or technical supervisors working for telecommunications carriers, contractors or other service providers.

© Commonwealth of Australia, 2025 Future Skills Organisation

	NGN services include internet protocol TV (IPTV), video on demand (VoD), interactive TV, mesh networks and cloud computing.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Prepare to conduct	1.1. Obtain ***installation and commissioning documents***

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
acceptance tests	and planning specifications from ***appropriate personnel*** to ensure the installed ***optical network*** is as planned and specified 1.2. Conduct visual inspection of new installation and verify compliance of the system against ***relevant legislation***, ***codes***, ***regulations and standards*** and accepted industry practice 1.3. Select and obtain required ***test equipment*** for suitability of acceptance testing 1.4. Prepare acceptance schedule and ***test criteria*** in consultation with appropriate personnel
2. Conduct acceptance testing	2.1. Conduct and evaluate ***performance tests*** to ensure measurements meet with predetermined specifications and approved operating margins 2.2. Verify performance levels to be within tolerance specifications set in manufacturer's instructions 2.3. Test ***protection mechanisms*** to ensure performance criteria meets the specified standard 2.4. Test ***alarms*** for satisfactory operation and refer identified problems to appropriate personnel for remedial action 2.5. Record all acceptance test procedures and results
3. Complete administrative tasks	3.1. Complete acceptance documentation including recommendations 3.2. Notify appropriate personnel and obtain sign off

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills

• analytical skills to interpret test equipment settings and readings
• communication skills to:
  • liaise with customers and technical staff to ensure requirements are known and can be met within timeframes
  • prepare reports and technical documentation
• literacy skills to interpret technical specifications, standards documents and related

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

documentation
• numeracy skills to make calculations and necessary calibration changes
• planning and organisation skills to develop activity plans to undertake inspections and tests in efficient manner
• safety awareness skills to:
  • apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
  • work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
• technical skills to correctly handle, connect and calibrate test equipment

Required knowledge
• cabling, terminations and supporting structures that may be encountered in the system under inspection • common performance levels and standards • electrical and optical properties to be measured • occupational health and safety (OHS) issues appropriate to the environment under inspection • overview of typical network topologies, switching, routing and transmission techniques • transmission type and signals that may be encountered • various test equipment types suitable for tests to be made

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • verify 'as built' installation against installation plans • undertake acceptance and commissioning tests and analysis against specified performance criteria • complete report, including acceptance test procedures, results and recommendations

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	• comply with all related OHS requirements and work practices.
Context of and specific resources for assessment	Assessment must ensure: • sites on which acceptance tests may be conducted • use of testing equipment currently used in industry • relevant regulatory and equipment documentation.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate undertaking acceptance tests • oral or written questioning to assess knowledge of tests and inspections types of systems and applications • review of completed acceptance documentation for systems and equipment prepared by the candidate, including recommendations.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTTEN5059A Commission telecommunications network equipment • ICTTEN5092A Undertake outage management. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Installation and commissioning documents may include:	• agreed modifications to original design plan • commissioning test results • preliminary test results • recommendations from commissioning procedures.
Appropriate personnel may include:	• network manager • planning manager • project manager.
Optical network may include:	• 10 Gbps ethernet local area network (LAN) services over the emerging global standard called optical transport network (OTN) • DWDM long haul system • DWDM metro system • gigabit Ethernet • optical portion of HFC network.
Relevant legislation, ***codes***, ***regulations and standards*** include:	• Australian Communications Industry Forum (ACIF) standards and codes • Australian Communications and Media Authority (ACMA) technical standards • International Standards ISO 9000 and 9001 • ITU Standards

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• OHS • Privacy Act • private property law.
Test equipment may include:	• advanced network tester - synchronous optical network (SONET)/synchronous digital hierarchy(SDH) • optical power meters • optical return loss test set • optical spectrum analyser • optical time domain reflectometer (OTDR) • protocol analyser.

Test criteria may include:	• 24 - 72 hours test duration
	• live traffic tests
	• test environment
	• test margins and errors
	• testing at highest data rate:
	  • 10 Gbps
	  • 40 Gbps
	  • 100 GBps
	• topology:
	  • point to point link
	  • protected ring
	• normal and extreme load tests
	• using installed optical fibre during test.

Performance tests may include:	• end-to-end bit error rate (BER) test:
	  • stressful pseudo random binary sequence (PRBS) pattern
	• forward error correction (FEC) testing
	• G.709 testing
	• receive interface specification:
	  • received optical power
	• stability tests
	• transmit interface specification:
	  • optical output power.

Protection mechanisms may include:	• 1:1 protection • 1+1 protection • optical channel path protection • path protection • wavelength protection.

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
Alarms may include:	• audible alarms • on-screen display and monitoring systems • visual indicators.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

Competency field

Competency field	Optical networks

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTOPN5120A Plan for an optical system upgrade and cut over

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to plan the activities of a major upgrade of optical systems from specifications provided by the planning and design section. Major upgrades in enterprise networks or telecommunications service provider's networks involve cut over activities to integrate additional work into existing network. The exponential growth of internet protocol (IP) traffic is driving IP optical integration, in particular the convergence of IP and dense wavelength division multiplexing (DWDM) networks in Next Generation Networks (NGN), necessitating regular system upgrades. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Field officers, technicians or technical supervisors from carriers, contractors or other service providers whose work involves upgrading optical systems and equipment in enterprise networks and service providers' core and access networks apply the skills and knowledge in this unit. They are involved in maintenance, upgrades and cut overs of emerging technologies in IP based telecommunications networks.

© Commonwealth of Australia, 2025 Future Skills Organisation

	Relevant jobs roles include a supervisor in charge of installation and maintenance teams responsible for the new installations and upgrades of telecommunications networks.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Gather information to prepare upgrade activity plan	1.1. Obtain ***relevant legislation***, ***codes***, ***regulations and standards*** for compliance when conducting work 1.2. Obtain design specifications from the planning and design section to determine the scope and ***nature*** of the ***upgrade*** 1.3. Analyse the design specification and design plan and determine the accuracy of the design plan to site installation and requirements with ***customer*** 1.4. Determine the ***network equipment*** types and obtain installation details from manufacturer 1.5. Prepare an equipment and component list and source vendors for procurement
2. Prepare upgrade activity plans	2.1. Prepare a detailed ***installation plan*** of the upgrade for the installer 2.2. Prepare a detailed ***installation procedure*** to carry out the upgrade to minimise impact to the customer 2.3. Prepare pre-installation ***optical tests*** on existing equipment to determine benchmarks and performance levels prior to the upgrade 2.4. Prepare post-installation optical tests on upgrade to ensure upgraded system is achieving the desired results 2.5. Prepare monitoring schedule to progressively assess the ***progress of the upgrade*** 2.6. Prepare ***contingency plan*** for backing out if upgrade is not progressing according to schedule and disruptions to customer are excessive 2.7. Prepare cut over procedures
3. Complete documentation	3.1. Update and produce ***documentation*** for submission 3.2. Submit planning activity document to planning and design section for approval

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

Required skills

- analytical skills to evaluate impact of upgrades on customer, equipment and systems
- communication skills to provide advice and guidance and liaise with other technical staff on operational matters
- literacy skills to:
  - prepare:
    - installation plans
    - installation procedures
    - pre-installation tests
    - post-installation tests
    - contingency plans
    - cut over plan
  - read and interpret:
    - enterprise procedures, manuals and specifications
    - technical data, technical and non-technical information from a range of sources
    - test results
- numeracy skills to interpret technical data
- PC skills to monitor installed software
- planning and organisational skills to plan and prioritise own work
- problem solving skills to:
  - deal with unexpected situations on the basis of safety and specified work outcomes
  - prepare upgrade plan
  - troubleshoot common equipment and network problems
- safety awareness skills to:
  - apply precautions and required action to minimise, control or eliminate hazards
  - follow enterprise occupational health and safety (OHS) procedures
  - work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- technical skills to:
  - analyse the impact of applications on traffic flow in the network
  - determine customer requirements and an upgrade plan
  - determine the impact of upgrading hardware and software on network functionality
  - identify the technical requirements, constraints and manageability issues for a given customer network requirement
  - implement upgrade of equipment and software

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• use test equipment and monitoring tools • use tools and equipment to assemble and disassemble equipment
Required knowledge
• alarms • backup systems • computer knowledge • escalation and outage procedures • network management systems • overview knowledge of telecommunications networks and equipment • telecommunications monitoring tools • telecommunications test equipment and test setups • telecommunications wiring practices • upgrade and post-upgrade routines

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• prepare an upgrade plan incorporating the essential activities listed:
	  • detailed installation plan and installation procedures
	  • pre-installation and post-installation tests
	  • monitoring schedule to assess progress of the upgrade
	  • contingency plan.

Context of and specific resources for assessment	Assessment must ensure: • site where upgrade and cut over may be planned • use of equipment, software, test and monitoring equipment currently used in industry

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	• relevant regulatory, equipment, enterprise and vendor documentation that impacts on work activities.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate performing upgrade • direct observation of the candidate performing tests and monitoring alarms • review of documents prepared by the candidate providing upgrade plan and assessing impact of upgrade taking into consideration customer feedback • oral or written questioning to assess knowledge of upgrade, testing and monitoring procedures.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTTEN4073A Cut over customer premises equipment major upgrades • ICTTEN4076A Complete equipment and software upgrades • ICTTEN4086A Undertake routine maintenance of the telecommunications network • ICTTEN5061A Cut over new and replacement network equipment. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Relevant legislation, ***codes***, ***regulations and standards*** may include:	• Australian Communications Industry Forum (ACIF) standards and codes • AS Communications Cabling Manual (CCM) Volume 1 • AS/NZS 3000:2007 • AS/NZS 3080:2003 • AS/NZS 3084:2003 • AS/NZS 3085.1:2004 • AS/NZS IEC 61935.1:2006 • AS/NZS IEC 61935.2:2006 • AS/NZS ISO/IEC 14763.3:2007 • AS/NZS ISO/IEC 15018:2005 • AS/NZS ISO/IEC 24702:2007 • cabling security codes and regulations • Environmental Protection Acts • OHS Acts • technical standards AS/ACIF S008:2006 and AS/ACIF S009:2006.
Nature of upgrade work may include:	• commission of new system • installation of new additional equipment • installation of new software

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• integration of new equipment into existing system • provision of temporary service • removal of redundant equipment • test on new system.

Upgrade may include:	• introducing dispersion compensation devices
	• moving to 40 Gbps technology
	• network capacity upgrade:
	  • additional optical fibres to be added
	  • additional DWDM wavelength channels and associated hardware to be added
	  • increase data rate by changing transmitter and receiver cards
	  • replace optical fibre with a type more suited towards 40 Gbps
	• upgrading from erbium doped fibre amplifiers (EDFA) to Raman optical amplifiers
	• upgrading laser transmitter power.

Customer may be:	• asset manager • contractor • network planner • nominated customer representative • project manager • service provider.
Network equipment may include:	• asynchronous transfer mode (ATM) switch • dispersion compensation devices • enclosures • hubs • optical add drop multiplexer (OADM) • optical amplifier • optical filters • optical splitters • patch panels • regenerator • synchronous digital hierarchy (SDH) multiplexers • transponder shelf.
Installation plan may include:	• cable trays • detailed drawings and equipment layout • detailed list of equipment and types

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• earthing specifications • equipment locations • equipment mounting details • interconnecting cabling between racks • monitoring equipment • power feeds • rack positions • testing procedures • tools.

Installation procedures may include:	• setup procedures
	• monitoring progress according to plan
	• notification of network operations centre (NOC)
	• sourcing hardware and software
	• upgrade activity:
	  • installing optical equipment
	  • post-upgrade testing
	  • pre-update testing
	  • shutdown installation
	• rectifying faults.

Optical tests may include:	• bit error rate test (BERT) • default settings • functional test • optical power levels • optical return loss • optical signal to noise ratio (OSNR) • performance tests.
Progress of upgrade may include:	• rate of deliverables against project timeline • risk management • timing.
Contingency plan may:	• be developed as part of the upgrade planning and design • be escalated and referred to more specialist team • invoke partial upgrade to be continued at later stage • invoke reversion procedure to pre-update condition.
Documentation may include:	• configuration details • implementation and testing procedures

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• network impact statement • software test results • system updates • test results and recommendations • upgrade details • vendor, equipment and enterprise specific details.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

Competency field

Competency field	Optical networks

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTOPN5122A Test the performance of specialised optical devices

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to test the performance of specialised optical devices for integration into existing optical networks. The integration of specialised optical devices into existing networks may be required as part of an upgrade for higher bandwidths required by services and applications of Next Generation Networks (NGN). No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Technical staff from telecommunications carriers, service providers or other private and public organisations who have experience in optical transmission apply the skills and knowledge in this unit. They combine this technical expertise with a range of analytical, research and planning skills to develop integration solutions for particular business needs. Relevant job roles include design and planning of networks using emerging technology.

© Commonwealth of Australia, 2025 Future Skills Organisation

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Prepare to test specialised optical devices	1.1. Obtain ***relevant legislation***, ***codes***, ***regulations and standards*** and follow occupational health and safety (***OHS***) ***and environmental requirements*** for the given work 1.2. Work safely according to relevant safety legislation and company work practices identifying ***hazards*** and

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	using ***personal protective equipment***
	1.3. Determine the type of ***optical device*** using the design plan from ***appropriate person*** and obtain manufacturer's ***specifications*** for testing
	1.4. Determine the test procedures and ***test equipment*** required to evaluate suitability of the optical device
2. Test the specialised optical device	2.1. Set up the test layout according to safe industry practice and connect the specialised optical device into the test set-up
	2.2. Undertake a ***test regime*** to determine the performance characteristics of the specialised optical device
	2.3. Analyse the test results to determine the suitability and compatibility of the optical device for integration into the network
3. Document the performance of the specialised optical device	3.1. Prepare an evaluation report with recommendations on the suitability of the specialised optical device
	3.2. Present test results and evaluation report to appropriate person with copies filed for later reference according to organisation's policies

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills

• analytical skills to interpret test results
• communication skills to:
  • liaise with internal and external personnel on technical and operational matters
  • relate to work associates, supervisors, team members and clients
• literacy skills to:
  • interpret technical documentation, such as equipment manuals, specifications and service orders
  • write reports using standard formats
• numeracy skills to interpret results and evaluate different types of technical data
• planning and organisational skills to plan, prioritise and monitor own work and that

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

of others
• problem solving and contingency management skills to:
  • adapt testing procedures to requirements of particular situations
  • modify activities depending on operational contingencies, risk situations and environments
• safety awareness skills to:
  • apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities especially when dealing with infra-red laser light
  • select and use required personal protective equipment conforming to industry and OHS standards
  • work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
• technical skills to:
  • backup and restore
  • clean optical fibre connector
  • examine optical fibre connector for contamination and assess whether cleaning is required
  • install software
  • measure optical power using hand-held optical power meter
  • measure DC and AC voltages
  • select and use appropriate test equipment
  • setup internet protocol (IP) addresses and subnet masks

Required knowledge

• amplified spontaneous emission (ASE)
• attenuation characteristics of optical fibres
• dense wavelength division multiplexing (DWDM) principles of operation
• features and operating requirements of test equipment including:
  • hand-held optical power meter
  • optical spectrum analyser
  • transmission test set
• dispersion characteristics of various fibres
• dispersion compensation devices
• electrostatic discharge precaution
• functions of optical add drop multiplexer (OADM) and reconfigurable optical add-drop multiplexer (ROADM)
• gain equalisation
• International Telecommunications Union (ITU) wavelength grid for DWDM
• measurement of dispersion

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• optical amplifier operation • optical fibre connector types and characteristics • optical fibre types and characteristics • optical return loss (ORL) • path protection and protection switching • polarisation dependent loss (PDL) • protocols used on optical DWDM systems • reflectance • ring topologies and linear network topologies • specific OHS requirements that impact on the safe inspection of optical connectors and the safe measurement of optical power from laser transmission systems • tunable laser sources and their characteristics

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • plan and coordinate test activities and equipment • test specialised optical devices and determine suitability for integration into a network • analyse test results • report and make recommendations on suitability for integration • comply with all related OHS requirements and work practices.
Context of and specific resources for assessment	Assessment must ensure: • sites on which optical device testing may be conducted • use of test equipment currently used in industry • manufacturer's technical documentation, legislation, codes and standards.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate performing tests • review of test documentation and reports completed by the candidate • oral or written questioning to assess knowledge of testing procedures and required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTOPN5118A Plan and configure dense wavelength division multiplexing systems • ICTOPN5119A Perform acceptance and commissioning test on optical network • ICTOPN5120A Plan for an optical system upgrade and cut over • ICTOPN5123A Analyse and integrate specialised optical devices in the network. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Relevant legislation, ***codes***, ***regulations and standards*** may include:	• Australian Communications Industry Forum (ACIF) standards and codes • AS Communications Cabling Manual (CCM) • Australian building codes and regulations • compliance with appropriate Australian Communications and Media Authority (ACMA) technical standard requirements for underground, aerial, Category 5 or Category 6, 6A, 7 or 7A, and unshielded twisted pairs (UTP) • Environmental Protection Acts • fire regulations • Institute of Electrical and Electronics Engineers (IEEE) standards • OHS • relevant international standards • technical standards AS/ACIF S008:2006 and AS/ACIF S009:2006.
OHS and environmental requirements may relate to:	• decommissioning and isolating worksite and lines prior to commencement • flashing lights • gas and other hazard detection equipment • identifying other services, including power and gas • safety barriers • safety equipment • safe working practices such as the safe use and

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	handling of: • asbestos • chemicals • materials • tools and equipment • work platforms • special access requirements • suitable light and ventilation • trench guards • warning signs and tapes • witches hats • environmental considerations: • clean-up protection • stormwater protection • waste management • noise, dust and clean-up management.
Hazards may include:	• activating equipment without notifying other staff who may be working remotely on the network • cleaning alcohol, epoxy resins and other solvents and chemicals may be carcinogenic, cause allergies or be dangerous to health in other ways • environmental hazards: • air pollution • damage to natural or heritage precincts • dangerous gases • ground water contamination • heavy or noxious metals pollution • noise • petrochemical spillage • release of hydrochlorofluorocarbons (HCFC) • flammable cleaning chemicals fluids and solvents • fibre offcut damage to eyes and skin • health hazards: • dangerous or harmful substances • handling of optic fibres and lasers

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• risk of infection • risk of sustained injury from repetitive tasks • inhalation of fibre offcuts and particles from vacuum cleaning of worksite • laser damage to eyes.
Personal protective equipment may include:	• inspection microscope with integral laser safety filter • safety glasses • video microscope.
Optical device may include:	• Bragg grating • coupler • dispersion compensation device (DCD) • DWDM multiplexer • erbium doped fibre amplifier (EDFA) • gain equaliser • Raman amplifier • ROADM.
Appropriate person may include:	• network engineer • project engineer • project manager.
Specifications may include:	• bandwidth • insertion loss • operating wavelength • ORL • ripple.
Test equipment may include:	• broadband amplified spontaneous emissions (ASE) source • optical spectrum analyser • PDL controller • PDL meter • power meter • tunable laser source • variable attenuator.
Test regime may include:	• bandwidth • central wavelength and channel spacing • channel uniformity • insertion loss • ORL • PDL

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• ripple.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

Competency field

Competency field	Optical networks

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTOPN5123A Analyse and integrate specialised optical devices in the network

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to analyse and integrate specialised optical devices into existing optical networks to support the higher bandwidths associated with Next Generation Networks (NGN). Carriers and service providers regularly upgrade existing infrastructures and extend the length of their networks' optical links due to expansion of NGN services such as voice, data and video. Performance testing of specialised optical devices is covered in a separate unit ICTOPN5122A Test the performance of specialised optical devices. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Technical staff from telecommunications carriers, service providers or other private and public organisations who have experience in optical transmission apply the skills and knowledge in this unit. They combine technical expertise with a range of analytical, research and planning skills to develop

© Commonwealth of Australia, 2025 Future Skills Organisation

	integration solutions for particular business needs. Relevant job roles include design and planning of networks using emerging technology.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

© Commonwealth of Australia, 2025 Future Skills Organisation

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Analyse specialised optical device and prepare for integration in the network	1.1. Obtain ***relevant legislation***, ***codes***, ***regulations and standards*** and follow occupational health and safety (***OHS***) ***and environmental requirements*** for the project work 1.2. Work safely according to relevant safety legislation and company work practices identifying ***hazards*** and using ***personal protective equipment*** 1.3. Obtain plans and drawings of existing ***optical network*** from ***appropriate person*** and review potential locations for suitability of integrating additional hardware 1.4. Analyse and evaluate a range of integration options using device ***specifications*** which satisfy the customer's network requirements 1.5. Prepare and submit the business case for adopting the recommended integration solution 1.6. Prepare design plan with interconnection details to existing system and ***installation options*** and seek approval to proceed from customer 1.7. Undertake an impact risk assessment of the hardware integration with the network operations centre (NOC) and prepare for contingencies using contingency plan
2. Integrate the specialised optical device in the network	2.1. Install and integrate ***specialised optical devices*** into existing network according to design plan 2.2. Test the network and evaluate the results to ***verify optical network performance*** with the integrated specialised optical devices in operation
3. Document the integration of the specialised optical device in dense wavelength division multiplexing (DWDM) network	3.1. Produce an updated design plan and submit to customer with copies filed for later reference according to organisation's policies 3.2. Prepare an evaluation report on the performance of the network with specialised optical devices with recommendations for future enhancements 3.3. Notify NOC of job completion and obtain sign off from appropriate person

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to evaluate technical information and develop integration options
- communication skills to:
  - liaise with internal and external personnel on technical and operational matters
  - relate to work associates, supervisors, team members and clients
- literacy skills to:
  - interpret technical documentation, such as equipment manuals, specifications and service orders
  - write reports using standard formats
- numeracy skills to interpret results and evaluate different types of technical data
- planning and organisational skills to plan, prioritise and monitor own work and that of others
- problem solving and contingency management skills to:
  - adapt testing procedures to requirements of particular situations
  - modify activities depending on operational contingencies, risk situations and environments
- safety awareness skills to:
  - apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities especially when dealing with infra-red laser light
  - select and use required personal protective equipment conforming to industry and OHS standards
  - work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- technical skills to:
  - backup and restore
  - clean optical fibre connector
  - examine optical fibre connector for contamination and assess whether cleaning is required
  - install software
  - measure optical power using handheld optical power meter
  - measure DC and AC voltages
  - select and use appropriate test equipment
  - setup internet protocol (IP) addresses and subnet masks

Required knowledge

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

• attenuation characteristics of optical fibres
• DWDM principles of operation
• features and operating requirements of test equipment, including:
  • hand-held optical power meter
  • optical spectrum analyser
  • transmission test set
• dispersion characteristics of optical fibres
• dispersion compensation devices
• electrostatic discharge precaution
• functions of optical add drop multiplexer (OADM) and reconfigurable optical add-drop multiplexer (ROADM)
• gain equalisation
• International Telecommunications Union (ITU) wavelength grid for DWDM
• measurement of dispersion
• optical amplifier operation
• optical fibre connector types and characteristics
• optical fibre types and characteristics
• optical return loss (ORL)
• path protection and protection switching
• protocols used on optical DWDM systems
• reflectance
• ring topologies and linear network topologies
• specific OHS requirements that impact on the safe inspection of optical connectors and the safe measurement of optical power from laser transmission systems
• tunable laser sources and their characteristics

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate	Evidence of the ability to: • analyse a specialised optical device and prepare a

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
competency in this unit	design to integrate it with a network • integrate and test the device • document the integration to the network and recommend enhancements • comply with all related OHS requirements and work practices.
Context of and specific resources for assessment	Assessment must ensure: • sites on which specialised optical device can be integrated • use of test equipment currently used in industry • manufacturer's technical documentation, legislation, codes and standards.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate performing integration • review of test documentation and reports completed by the candidate • oral or written questioning to assess required knowledge and skill.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTOPN5118A Plan and configure dense wavelength division multiplexing systems • ICTOPN5119A Perform acceptance and commissioning test on optical network • ICTOPN5120A Plan for an optical system upgrade and cut over • ICTOPN5122A Test the performance of specialised optical devices. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Relevant legislation, ***codes***, ***regulations and standards*** may include:	• Australian Communications Industry Forum (ACIF) standards and codes • AS Communications Cabling Manual (CCM) Volume 1 • Australian building codes and regulations • compliance with appropriate Australian Communications and Media Authority (ACMA) technical standard requirements for underground, aerial, Category 5 or Category 6, 6A, 7 or 7A, and unshielded twisted pairs (UTP) • Environmental Protection Acts • fire regulations • Institute of Electrical and Electronics Engineers

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	(IEEE) standards • OHS • relevant international standards • technical standards AS/ACIF S008:2006 and AS/ACIF S009:2006.

OHS and environmental requirements may relate to:	• decommissioning and isolating work site and lines prior to commencement
	• flashing lights
	• gas and other hazard detection equipment
	• identifying other services, including power and gas
	• safety barriers
	• safety equipment
	• safe working practices, such as the safe use and handling of:
	  • asbestos
	  • chemicals
	  • materials
	  • tools and equipment
	  • work platforms
	• special access requirements
	• suitable light and ventilation
	• trench guards
	• warning signs and tapes
	• witches hats
	• environmental considerations:
	  • clean-up protection
	  • noise, dust and clean-up management
	  • stormwater protection
	  • waste management.

Hazards may include:	• activating equipment without notifying other staff who may be working remotely on the network
	• cleaning alcohol, epoxy resins and other solvents and chemicals may be carcinogenic, cause allergies or be dangerous to health in other ways
	• environmental hazards:
	  • air pollution
	  • damage to natural or heritage precincts

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• dangerous gases • ground water contamination • heavy or noxious metals pollution • noise • petrochemical spillage • release of hydrochlorofluorocarbons (HCFC) • flammable cleaning chemicals fluids and solvents • fibre offcut damage to eyes and skin • health hazards: • dangerous or harmful substances • handling of optic fibres and lasers • risk of infection • risk of sustained injury from repetitive tasks • inhalation of fibre offcuts and particles from vacuum cleaning of worksite • laser damage to eyes.
Personal protective equipment may include:	• inspection microscope with integral laser safety filter • safety glasses • video microscope.
Optical network may include:	• coarse wavelength division multiplexing (CWDM) • DWDM • Hybrid fibre coaxial (HFC).
Appropriate person may include:	• customer • network manager • project engineer • project manager.
Specifications may include:	• bandwidth • insertion loss • operating wavelength • optical return loss (ORL) • ripple.
Installation options may include:	• location at intermediate location • location at OADM site • location at terminal site • location underground.

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
Specialised optical devices may include:	• Bragg grating • coupler • dispersion compensation device (DCD) • DWDM multiplexer • erbium doped fibre amplifier (EDFA) • gain equaliser • Raman amplifier • ROADM.
Verify optical network performance may include:	• stability test • bit error ratio test (BERT).

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

Competency field

Competency field	Optical networks

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTPMG8143A Manage a telecommunications project

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to produce a plan and manage a telecommunications project using project management processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Telecommunication systems managers apply the skills and knowledge in this unit to implement specified projects that may be for an installation or upgrade of the telecommunications network. Their job roles include producing plans for projects, developing risk management strategies, preparing budgets, planning for contingencies, developing procedures for commissioning the project and archiving project documentation.

Licensing/Regulatory Information

Refer to Unit Descriptor

© Commonwealth of Australia, 2025 Future Skills Organisation

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Prepare to manage a project	1.1. Develop a project proposal, including specific ***project management processes*** 1.2. Determine the role of major stakeholders and implications for the project 1.3. Develop a risk management strategy and present to stakeholders for agreement 1.4. Check for technical compliance of project with relevant standards 1.5. Select project management computer software 1.6. Conduct a skills audit of personnel and identify additional training requirements
2. Apply project	2.1. Determine participants' responsibilities using critical

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
management processes	path method (CPM) to draw a network diagram 2.2. Sequence and coordinate ***activities*** required for a specific project 2.3. Determine the critical path to optimise timing of the project deliverables 2.4. Assess the viability of project estimates by preparing a budget 2.5. Perform risk analysis to determine factors that may hinder the project deliverables 2.6. Assess the progress of the project with ***contingencies*** to manage risks 2.7. Determine any updates and recommendations in agreement with the customer 2.8. Prepare contract variations if required
3. Complete work and document activities	3.1. Select procedures for commissioning if required and finish the project 3.2. Produce final documentation with recommendations and present to customer 3.3. Document and archive project documentation 3.4. Obtain sign off

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to evaluate risks
- communication skills to work effectively in a group, present information and negotiate contract variations
- information technology skills for word processing, desktop research and using project management software
- literacy skills to prepare reports and contract variations
- numeracy skills to:
  - calculate budget requirements
  - determine workforce requirements
- problem solving skills to anticipate and respond to issues in project progress

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• research skills to gather data, observe and analyse project issues
Required knowledge

• organisational project management policy and procedures
• safety management:
  • personal protective equipment conforming to industry and occupational health and safety (OHS) standards
  • precautions required to minimise, control or eliminate hazards that may exist during work activities
  • relevant legislation, codes, regulations and standards
• workplace and industry environment:
  • commissioning procedures
  • industrial issues
  • roles and responsibilities
  • skills audit
• telecommunication communication systems
• site engineering
• project management processes and software

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • prepare and apply project management process to a telecommunications project using project management software • develop a plan to manage a telecommunication project with a risk management strategy, budget and contingencies • complete work and project documentation.
Context of and specific resources for	Assessment must ensure:

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
assessment	• a telecommunications site on which projects can be managed • computers and relevant computer software • relevant legislation, codes, regulations and standards.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • oral or written questioning to assess knowledge and skills in the project management process • direct observation of the candidate performing project management tasks • review of the candidate generated project documentation.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTPMG8142A Manage telecommunications workplace • ICTPMG7145A Undertake a telecommunications project • ICTPMG8149A Evaluate and use telecommunications management networks. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Project management processes may include:	• calendaring • constraints • contingencies • CPM • critical paths • Gantt chart • PERT • project variables • reviews • salvage value • variations.
Activities may include:	• contracts and procurement • cost management • human resource (HR) management • project communications methods • project tracking • quality • risk • scope • time management.
Contingencies may include:	• increase staff numbers • reinstallation

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• replacement components • work amendments.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

Competency field

Competency field	Project management

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTPMG8149A Evaluate and use telecommunications management networks

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to analyse, evaluate and monitor business performance using telecommunications management network (TMN) systems in the management of open systems in communications networks. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Field engineering staff who analyse and monitor performance of telecommunications network apply the skills and knowledge in this unit. Relevant job roles include the management and monitoring of operational communications networks, such as asynchronous transfer mode (ATM), cellular networks, telephone exchanges and computer clusters.

Licensing/Regulatory Information

Refer to Unit Descriptor

© Commonwealth of Australia, 2025 Future Skills Organisation

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Prepare to evaluate and use telecommunications management network	1.1. Research and evaluate network management architectures in common carrier and extended models 1.2. Evaluate features and functionality of the Standards Committee International Telecommunications Union (ITU-T) TMN architecture and network models 1.3. Research and evaluate techniques for collecting management information from network nodes using interrupts and polling 1.4. Analyse configuration management problems and produce an assessment report on solutions by

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	integrated network management systems
2. Analyse fault management and accountability procedures	2.1. Evaluate effectiveness of fault management processes from beginning to resolution, including automation of fault management 2.2. Analyse the reasons for alarm correlation with process analysis and apply ***fault identification*** to network problems
3. Plan for reliability and survivability	3.1. Research and produce a report on quality of service (QoS) in a telecommunications context, including relevant international standards and range and type of possible monitoring parameters for a QoS 3.2. Analyse the reasons for service levels in a telecommunications context 3.3. Perform linear and exponential trend analysis on real or simulated data for a single ***monitoring parameter*** 3.4. Research and assess reliability and survivability in a telecommunications context with reference to disaster and security management policies and procedures 3.5. Develop a disaster recovery plan for a telecommunications network
4. Research and report network management techniques	4.1. Research how accounting records are generated and used for both voice and data networks 4.2. Analyse the process of generating bills from accounting records, configuration and customer information 4.3. Research and report on network management ***techniques and standards*** used for the Internet 4.4. Research and report on standards used in the simple network management protocol (SNMP) network management model and the global system for mobiles (GSM) network 4.5. Analyse network management functions over a CNET network simulation or similar data network and produce a report on the findings

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE This section describes the skills and knowledge required for this unit.
Required skills
• analytical skills to evaluate a range of complex technical data • communication skills to work effectively within a group and present information • information technology skills for word processing, using statistical data and desktop research • literacy skills to prepare reports and read and interpret technical standards • planning and organisational skills to manage own work in short timeframes • research skills to gather data and information • technical skills to use telecommunications management networks
Required knowledge
• administrative network management systems • business model • business processes • enterprise solutions • operations network management systems • organisational policy and procedures • workplace and industry environment

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • research and evaluate the architectural features and functions of network management systems • research and report • the major features, configuration and functions of management systems

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	• on fault management and accountability procedures • the major features and functions of QoS agreements • on network management techniques • analyse the major features of planning for reliability and survivability.
Context of and specific resources for assessment	Assessment must ensure: • a telecommunications operations site with a network management system • networked computers with relevant software.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • oral or written questioning to assess knowledge of network management • direct observation of the candidate performing network management functions within a telecommunication system • review of research reports prepared by the candidate.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplaces and job role is recommended, for example: • ICTRFN8180A Analyse a mobile network system • ICTTEN8194A Analyse a telecommunications switching network Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Fault identification may include:	• congestion • major alarm • minor alarm • out of service • outage • trouble ticket.
Monitoring parameter may include:	• grade of service • bit errors • block errors.
Techniques and standards may include:	• ATM1 • integrated services digital network (ISDN) • synchronous digital hierarchy(SDH)/synchronous optical network (SONET).

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

Competency field

Competency field	Project management

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTSUS4183A Install and test renewable energy system for ICT networks

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to install a renewable energy system and integrate it into the network. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	This unit is for technical staff who install ICT networks powered by renewable energy solutions. This results in more efficient systems with cost reduction while meeting sustainability targets.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan to install renewable energy system	1.1. Prepare for given work according to ***relevant legislation***, ***codes***, ***regulations and standards***
	1.2. Arrange access to site according to required procedure
	1.3. Assess extent of system implementation using feasibility report and ***organisational guidelines***
	1.4. Produce a report to meet the ***customer*** and ***organisational requirements***
	1.5. Liaise with ***appropriate person*** to obtain approval for the plans with recommendations
	1.6. Determine and source ***renewable energy components*** according to the agreed plan
2. Install and test renewable energy system	2.1. Install and configure components according to occupational health and safety (***OHS***) ***and environmental requirements***, plan, manufacturer's and organisational requirements
	2.2. Identify and resolve problems
	2.3. Integrate the renewable system into the network
	2.4. Test and enhance system performance to meet

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	organisational requirements
3. Complete documentation and clean up worksite	3.1. Produce an evaluation report on the actual cost-benefits of implementing the renewable energy system to the organisation 3.2. Provide a support manual for the customer 3.3. Record all test results and records for the customer 3.4. Notify customer and obtain sign off

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to evaluate information from reports
- communication skills to liaise with internal and external personnel on technical, operational and business related matters
- literacy skills to:
  - interpret technical renewable energy systems' installation manuals
  - process and present written and verbal information to a diverse range of people
  - write reports, design solutions and recommendations in required formats
- numeracy skills to assess cost benefits and renewable energy options
- problem solving skills to resolve installation problems
- research skills to determine requirements
- safety awareness skills to:
  - apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
  - select and use required personal protective equipment conforming to industry and OHS standards
  - work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- technical skills to evaluate alternate energy systems and their compatibility with existing power sources

Required knowledge

- broad knowledge of systems diagnostic features
- business processes

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

• client business domain, business function and organisation
• compatibility issues and resolution procedures
• configuration of internet protocol (IP) networks
• current industry accepted hardware products and renewable energy system products
• customer and business liaison
• documenting technical specifications
• linkage between processes
• technologies:
  • alternate energy, such as solar, wind, chemical
  • areas of the hardware relevant to configuration and testing
  • installation procedures
  • renewable energy system relevant to configuration and testing
  • renewable energy systems' functionality
  • set-up and configuration procedures
• vendor specifications and requirements for component installation

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • ascertain and meet client requirements for installation of a renewable energy system hardware • plan and connect the hardware components according to vendor and technical specifications.
Context of and specific resources for assessment	Assessment must ensure: • site on which renewable energy solutions can be implemented • renewable energy system currently used in industry • relevant documentation, feasibility studies, equipment manuals and other site related

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	documentation.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate carrying out installation and testing activities • review of plans completed by the candidate for different sites • oral or written questioning to assess knowledge of legislation and safety procedures.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTSUS5187A Implement server virtualisation for a sustainable ICT system • ICTSUS4185A Install and test power management software • ICTSUS4184A Install and test power saving hardware • ICTSUS4186A Install thin client applications for Power over Ethernet. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Relevant legislation, ***codes***, ***regulations and standards*** include:	• Australian Communications Industry Forum (ACIF) standards and codes • AS Communications Cabling Manual (CCM) Volume 1 • AS/NZS 3000:2007 • AS/NZS 3080:2003 • AS/NZS 3084:2003 • AS/NZS 3085.1:2004 • AS/NZS IEC 61935.1:2006 • AS/NZS IEC 61935.2:2006 • AS/NZS ISO/IEC 14763.3:2007 • AS/NZS ISO/IEC 15018:2005 • AS/NZS ISO/IEC 24702:2007 • cabling security codes and regulations • contract law • National Association of Testing Authorities (NATA) requirements • OHS • regulated or industry codes of practice including appropriate Australian Communications and Media Authority (ACMA) technical standards • technical standards AS/ACIF S008:2006 and AS/ACIF S009:2006 • Trade Practices Act.

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
Organisational guidelines may include:	• budget constraints • communication methods • dispute resolution • documenting procedures and templates • financial control mechanisms • infrastructure • operational costs.
Customer may include:	• department within the organisation • government department • person within a department • private organisation • third party.
Organisational requirements may include:	• diagnostic policy • preventative maintenance • problem solution processes • roles and technical responsibilities in the IT department • vendor and product service level support agreements • work environment.
Appropriate person may include:	• authorised business representative • infrastructure administrator • network administrator • power systems manager • property manager • supervisor.
Renewable energy components may include:	• converter • deep cycle gel cells • inverter • regulator • solar cells • solar panels • wind generator.

OHS and environmental requirements relate to:	• decommissioning and isolating worksite and lines prior to commencement
	• identifying other services, including power and gas
	• safety equipment
	  • flashing lights
	  • gas and other hazard detection equipment

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• safety barriers • trench guards • warning signs and tapes • witches hats • safe working practices, such as the safe use and handling of: • asbestos • chemicals • materials • tools and equipment • work platforms • special access requirements • suitable light and ventilation • environmental considerations: • clean-up management • clean-up protection • dust • noise • stormwater protection • waste management.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Competency field

Competency field	Sustainability

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTSUS4184A Install and test power saving hardware

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to install and test power saving hardware components in servers, motherboards and other networking equipment installed in ICT applications. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Technical staff who specify, install or upgrade ICT networks apply the skills and knowledge in this unit.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan to install and test power saving hardware	1.1. Arrange access to site according to required procedure 1.2. Assess extent of system implementation using feasibility report and ***organisational guidelines*** 1.3. Produce a report to meet the ***customer*** and ***organisational requirements*** 1.4. Liaise with ***appropriate person*** to obtain approval for the plans with recommendations 1.5. Determine and source ***power saving hardware components*** according to the agreed plan
2. Install, test and evaluate power saving hardware	2.1. Install and configure components and according to occupational health and safety (OHS) and environmental requirements, plan, manufacturer's and industry standards 2.2. Resolve identified problems 2.3. Test and enhance system performance to meet organisational requirements
3. Complete documentation and clean up worksite	3.1. Produce an evaluation report on the actual cost-benefits of implementing the power saving hardware to the organisation 3.2. Provide a support manual for the customer 3.3. Record all test results and records for the customer

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	3.4. Restore any changes made to the worksite to customer's satisfaction and obtain sign off

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business related matters
- literacy skills to:
  - read technical documentation
  - write reports with design solutions and recommendations in required formats
- numeracy skills to assess cost benefits of power saving hardware
- planning and organisational skills to plan, prioritise and monitor own work
- problem solving skills to resolve installation issues
- research skills to interrogate vendor databases and websites to identify solutions to meet client business specifications
- technical skills to evaluate low power devices and methodologies

Required knowledge

- broad knowledge of systems diagnostic features
- business processes
- client business domain, business function and organisation
- compatibility issues and resolution procedures
- configuration of internet protocol (IP) networks
- current industry accepted hardware products
- customer and business liaison
- documenting technical specifications
- linkage between processes
- set-up and configuration procedures
- technologies such as:
  - areas of the hardware relevant to configuration and testing
  - installation procedures
  - power saving hardware functionality
- vendor specifications and requirements for component installation

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • ascertain and meet client requirements for installation and testing of power saving hardware • plan and connect the hardware components according to vendor and technical specifications.
Context of and specific resources for assessment	Assessment must ensure: • site on which energy saving solutions can be implemented • use of current power saving hardware currently used in industry • relevant documentation, feasibility studies, equipment manuals and other site related documentation.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate carrying out installation and testing activities • review of feasibility report and plans completed by the candidate for different sites • oral or written questioning to assess knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTSUS4183A Install and test renewable energy system for ICT networks • ICTSUS4185A Install and test power management software • ICTSUS4186A Install thin client applications for

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	Power over Ethernet • ICTSUS5187A Implement server virtualisation for a sustainable ICT system. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Organisational guidelines may	• budget constraints • communication methods

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
include:	• dispute resolution • documenting procedures and templates • financial control mechanisms • infrastructure • operational costs.
Customer may include:	• department within the organisation • government department • person within a department • private organisation • third party.
Organisational requirements may include:	• preventative maintenance and diagnostic policy • problem solution processes • roles and technical responsibilities in the IT department • vendor and product service level support agreements • work environment.
Appropriate person may include:	• authorised business representative • infrastructure administrator • network administrator • power systems manager • property manager • supervisor.

Power saving hardware components may include:	• extremely low power motherboards
	• memory devices:
	  • compact flash
	  • electronic drives
	  • flash drives
	  • USB
	• power supply
	• processor.

Unit Sector(s)

Unit sector	Telecommunications

© Commonwealth of Australia, 2025 Future Skills Organisation

Co-requisite units

Co-requisite units		

Competency field

Competency field	Sustainability

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTSUS4185A Install and test power management software

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to install and test power management software in network elements. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	This unit is for technical staff who specify, install or upgrade ICT networks.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan to install power management software	1.1. Arrange access to site according to required procedure 1.2. Assess extent of software implementation using feasibility report and ***organisational guidelines*** 1.3. Liaise with ***appropriate person*** to obtain approval for the plans 1.4. Determine and source new software required
2. Install software	2.1. Bench test software for performance utilising available technology 2.2. Install and configure software according to occupational health and safety (OHS) and environmental requirements, plan, installation procedures and ***organisational requirements*** 2.3. Resolve identified technical problems
3. Complete documentation and sign off procedures	3.1. Document the installation and configuration process according to organisational guidelines 3.2. Provide user documentation 3.3. Notify ***customer*** and obtain sign off

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE This section describes the skills and knowledge required for this unit.
Required skills

• analytical skills to use information to meet organisational needs in a defined range of areas
• communication skills to:
  • interact with others
  • present information
  • question and actively listen to customers and vendors
• literacy skills to:
  • interpret technical installation manuals for renewable energy systems
  • process and present written information to a diverse range of people
• problem solving skills to meet a defined range of unpredictable problems

Required knowledge
• areas of the hardware relevant to configuration and testing • current industry-accepted software products, with general features and capabilities • installation procedures • OHS requirements in relation to work safety, environmental factors and ergonomic considerations • power saving software functionality • set-up and configuration procedures • systems diagnostic features • vendor specifications and requirements for component installation

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate	Evidence of the ability to: • ascertain and meet client requirements for installation

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
competency in this unit	and testing of power management software • plan and connect the software components according to vendor and technical specifications across a variety of situations.
	Assessment must ensure: • site on which energy saving solutions can be implemented • use of current power saving software currently used in industry • relevant documentation, feasibility studies, equipment manuals and other site related documentation.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate carrying out installation and testing activities • review of plans completed by the candidate for different sites • oral or written questioning to assess methodology used.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTSUS5187A Implement server virtualisation for a sustainable ICT system • ICTSUS4183A Install and test renewable energy system for ICT networks • ICTSUS4184A Install and test power saving hardware • ICTSUS4186A Install thin client applications for Power over Ethernet. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Organisational guidelines may include:	• communication methods • documenting procedures and templates • measures to save power.
Appropriate person may include:	• authorised business representative • client • supervisor.
Organisational requirements may include:	• preventative maintenance and diagnostic policy • problem solution processes • roles and technical responsibilities in the IT department • vendor and product service level support

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	agreements • work environment policies and practices.
Customer may include:	• department within the organisation • person within a department • third party.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

Competency field

Competency field	Sustainability

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTSUS4186A Install thin client applications for power over ethernet

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to install and configure thin client applications to enable power over ethernet (PoE) on a low powered workstation. Thin client refers to a remote office with low band width. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Technical staff who specify, install or upgrade ICT networks apply the skills and knowledge in this unit. This unit applies to energy and cost efficient installations to meet sustainability targets by remotely feeding PoE.

Licensing/Regulatory Information

Refer to Unit Descriptor

© Commonwealth of Australia, 2025 Future Skills Organisation

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Plan to install thin client applications	1.1. Assess extent of applications to be implemented using feasibility report and ***organisational guidelines*** 1.2. Highlight issues associated with adoption of Web 2.0 applications 1.3. Produce an implementation plan and present to ***customer*** 1.4. Liaise with ***appropriate person*** to obtain approval for the plans with any recommendations 1.5. Notify customer for site access
2. Evaluate appropriate applications	2.1. Develop criteria for Web 2.0 applications to satisfy enterprise needs

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	2.2. Test and evaluate Web 2.0 applications according to agreed criteria 2.3. Present findings to the customer with recommendations on Web 2.0 applications
3. Install hardware components and applications	3.1. Follow occupational health and safety (OHS) and environmental requirements according to plan and manufacturer's specifications 3.2. Develop implementation plans with prioritised tasks and contingency arrangements for minimum disruption to customer 3.3. Install ***hardware components*** and ***thin client software*** needed for the work according to network and ***organisational requirements*** 3.4. Bench test performance of applications 3.5. Resolve identified problems
4. Complete work and document activities	4.1. Document the installation and integration process according to organisational guidelines 4.2. Provide user documentation 4.3. Notify customer and obtain sign off

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business related matters
- literacy skills to:
  - interpret technical installation manuals
  - process and present written and verbal information to a diverse range of people
  - write reports, design solutions and recommendations in required formats
- planning and organisational skills to plan, prioritise and monitor own work
- problem solving skills to resolve installation issues
- research skills to interrogate vendor databases and websites to identify solutions to meet client business specifications
- technical skills to evaluate thin client software and methodologies

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
Required knowledge

• business processes
• client business domain, business function and organisation
• compatibility issues and resolution procedures
• configuration of internet protocol (IP) networks
• customer and business liaison
• documenting technical specifications
• linkage between processes
• set-up and configuration procedures
• systems diagnostic features
• Web 2.0:
  • applications and functionality
  • areas of the Web 2.0 relevant to configuration and testing
  • current industry accepted Web 2.0 products
  • vendor specifications and requirements for Web 2.0 applications
  • Web 2.0 application procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • determine and meet client requirements for thin client applications • install and configure the components according to vendor and technical specifications.
Context of and specific resources for assessment	Assessment must ensure: • site on which remote power feeding applications can be implemented • relevant documentation, feasibility studies and equipment manuals.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate carrying out installation and configuring • review of plans completed by the candidate for different sites outlining resources required • oral or written questioning to assess required knowledge and methodologies used.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTSUS5187A Implement server virtualisation for a sustainable ICT system • ICTSUS4183A Install and test renewable energy system for ICT networks • ICTSUS4184A Install and test power saving hardware • ICTSUS4185A Install and test power management software. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Organisational guidelines may include:	• budget allocations • operational costs • organisational cost • projected growth • security.
Customer may include:	• banks • government department • hospitals • private organisation • small and medium enterprises.
Appropriate person may include:	• network administrator • network manager • supervisor.
Hardware components may refer to:	• cards • power feeding • management of desktop systems and screens.

Thin client software may include:	• lockdown configuration software
	• management software:
	  • Axel technologies
	  • Citrix
	  • IGEL Technology
	  • Wyse
	  • Symantec
	• OS X Terminal server software
	• virtualisation software

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• windows based thin client software.
Organisational requirements may include:	• work environment • problem solution processes • roles and technical responsibilities in the IT department • vendor and product service level support agreements.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

Competency field

Competency field	Sustainability

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTSUS5187A Implement server virtualisation for a sustainable ICT system

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to install and integrate a virtual server in a network to replace multiple physical servers. This is done to reduce power requirements of individual servers. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	This unit applies to ICT technical staff who install server networks with energy and cost-efficient systems to meet sustainability targets.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan to implement server virtualisation	1.1. Assess extent of virtualisation to be implemented using feasibility report and ***organisational guidelines*** 1.2. Analyse existing server infrastructure utilisation 1.3. Research and analyse alternative virtualisation scenarios including a risk analysis and relative comparisons of each consideration 1.4. Provide a brief report of proposed preferred plan and describe resources required 1.5. Liaise with ***appropriate person*** to obtain approval for the plans with any recommendations
2. Design virtual server specification	2.1. Confirm network operating system, ***server applications*** and server design with ***customer*** 2.2. Determine product and vendor architecture and ***equipment*** specifications 2.3. Determine technology and resources within ***business requirements*** and budget
3. Install virtual server	3.1. Follow occupational health and safety (OHS) and environmental requirements according to plan and

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	manufacturer's specifications 3.2. Notify customer for site access 3.3. Create a detailed ***task*** list specifying stages and sequence of work required 3.4. Review hardware and ***software*** to ensure compatibility 3.5. Install the required operating system, additional tools or third-party software as specified in design 3.6. Patch the operating system and applications to ensure maximum security and reliability
4. Integrate and test virtual server	4.1. Determine tests to ensure virtual server ***integration*** 4.2. Develop the test plan referring to resources and network impact 4.3. Run the system tests according to test plan and record outcomes 4.4. Analyse the error report and make changes as required 4.5. Test required changes or additions 4.6. Validate changes or additions against specifications
5. Complete work and document activities	5.1. Document the installation and integration process according to organisational guidelines 5.2. Provide user documentation 5.3. Notify customer and obtain sign off

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE This section describes the skills and knowledge required for this unit.
Required skills

• communication skills to liaise with internal and external personnel on technical, operational and business related matters
• literacy skills to:
  • interpret technical installation manuals
  • process and present written information to a diverse range of people
  • write reports, design solutions and recommendations in required formats

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• planning and organisational skills to plan, prioritise and monitor own work • problem solving skills to resolve installation issues • research skills to interrogate vendor databases and website to identify different solutions to meet client business specifications • technical skills to evaluate virtual servers and methodologies
Required knowledge

• business processes
• client business domain, business function and organisation
• compatibility issues and resolution procedures
• configuration of internet protocol (IP) networks
• current industry-accepted products
• customer and business liaison
• documenting technical specifications
• linkage between processes
• systems diagnostic features
• technologies:
  • power supply requirements and management
  • registered random access memory (RAM)
  • server design and network architecture
  • set-up and configuration procedures
  • single and multiple processors
  • vendor specifications and requirements for software installation
  • virtual server functionality

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • determine and meet client requirements for installation and testing of virtual server

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	• install, integrate and test virtualisation components according to vendor and technical specifications.
Context of and specific resources for assessment	Assessment must ensure: • site and equipment on which servers can be virtualised • server virtualisation currently used in industry • relevant documentation, feasibility studies, equipment manuals and other site-related documentation.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate carrying out installation, integration and testing of virtual server • review of plans completed by the candidate for different sites outlining design and resources required • oral or written questioning to assess knowledge of methodologies used.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTSUS4183A Install and test renewable energy system for ICT networks • ICTSUS4184A Install and test power management software • ICTSUS4185A Install and test power saving hardware • ICTSUS4186A Install thin client applications for Power over Ethernet. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Organisational guidelines may include:	• budget allocations • operational costs • organisational cost • projected growth • security.
Appropriate person may include:	• IT consultant • IT specialist • network administrator • network manager.
Server applications may include:	• database and data warehousing • directory services • file sharing • line of business applications • management • messaging • network and remote access

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• printer sharing • server virtualisation • terminal services • web services.
Customer may include:	• company representative • government department • private organisation.
Equipment may include:	• digital subscriber line (DSL) modems • hard drives • hubs • modems and other connectivity devices • monitors • peripheral devices • personal computer • personal digital assistant (PDA) • printers • switches • workstations.
Business requirements may relate to:	• application • network • people • system.
Task may include:	• activities • function • job • work.
Software may include:	• customised • in-house • open source software applications • organisation-specific software • packaged software.
Integration may involve:	• power supply requirements and management • registered RAM • requirements for software installation • server design and network architecture • set-up and configuration procedures • single and multiple processors • vendor specifications.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

Competency field

Competency field	Sustainability

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTSUS6233A Integrate sustainability in ICT planning and design projects

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to integrate sustainability concepts and policies into ICT planning and design projects. It involves accessing industry information and applying legislative and occupational health and safety (OHS) guidelines. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Technical managers, supervising technicians, project managers, consultants or contractors in organisations conducting ICT planning or design projects apply the skills and knowledge in this unit. Typical ICT projects involve upgrades of equipment hardware and software or new installations of Next Generation Networks (NGN) using emerging technologies.

Licensing/Regulatory Information

Refer to Unit Descriptor

© Commonwealth of Australia, 2025 Future Skills Organisation

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Prepare to integrate sustainability into the planning and design stages of an ICT project	1.1. Evaluate suitable ICT ***projects*** into which sustainability can be integrated 1.2. Negotiate with the ***stakeholders*** to establish the extent to which sustainability is to be integrated 1.3. Research and identify suitable technology solutions applicable to the project 1.4. Gather power consumption data on ***ICT equipment*** required for an ***energy audit*** based on an ***agreed standard***
2. Devise strategies for incorporating sustainability into an	2.1. Determine and oversee implementation of ***short term technology solutions*** to achieve reduction of power consumption

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
ICT project	2.2. Initiate and progress ***sustainable management principles*** which result in reduced environmental impact 2.3. Establish, regularly review and improve ***key performance indicators*** (KPI) on sustainability performance 2.4. Incorporate innovative planning and design rules for ICT projects which foster sustainability and environmental best practice
3. Analyse energy audit data	3.1. Identify ***energy usage*** within the scope of the ICT project and provide a ***detailed report*** 3.2. Estimate potential energy savings and payback periods for recommended actions 3.3. Estimate the carbon dioxide ($CO_{2)}$ emissions for the nominated project 3.4. Evaluate the estimated CO_2 emissions with comparable ***benchmarks*** 3.5. Make recommendations in order of priority and give estimates of implementation costs on integration of sustainability for other ICT projects

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - compare and evaluate effective technical solutions involving integration of sustainability
  - interpret technical specifications and related sustainability documentation
- communication skills to:
  - adjust communication to suit different audiences
  - liaise with customers to outline sustainability strategy benefits and how they can be incorporated into the project within specified timeframes
  - negotiate approvals and contract arrangements with suppliers and contractors
  - respond effectively to diversity

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

- to consult on and validate policy
- work as a member of a team

- literacy skills to:
  - document technical requirements and procedures
  - evaluate complex and formal documents such as policy and legislation
  - prepare written reports requiring precise expression, language and structures suited to the intended audience
- numeracy skills to:
  - analyse and confirm capacity requirements
  - calculate budget requirements and limitations
  - determine workforce requirements
  - estimate CO_2 emissions
- organisational skills to arrange relevant documentation and approvals
- planning and organisational skills to:
  - set out project requirements and priorities
  - make site access and equipment delivery arrangements
- problem solving skills to account for unexpected variations to requirements, and to effectively manage different points of view and dissenting stakeholders
- research skills to:
  - research and present information
  - gain and maintain relevant and current technical product knowledge
- technical skills to integrate sustainability into a technical project

Required knowledge

- best practice approaches relevant to own work area
- environmental or sustainability legislation, regulations and codes of practice applicable to industry and organisation
- equal employment opportunity, equity and diversity principles and OHS safety implications of policy being developed
- estimated CO_2 emissions
- ICT power consumption calculations
- policy development processes and practices
- power consumption audit methodology
- principles, practices and available tools and techniques of sustainability management relevant to the telecommunications industry
- quality assurance systems relevant to own organisation
- relevant industry competence
- relevant organisational polices, procedures and protocols
- systems and procedures to aid in the achievement of workplace sustainability

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • plan and integrate sustainability into ICT projects by devising strategies to conserve resources • analyse energy audit data on enterprise resource consumption • develop and monitor policies for review and improvements, benchmarking against industry best practice and attempting new approaches continuously over time.

Context of and specific resources for assessment	Assessment must ensure:
	• sites on which planning, design and integration of sustainability may be carried out
	• relevant legislation, standards, guidelines, reports and equipment specifications and drawings
	• range of workplace documentation, personnel, information and resources:
	  • compliance obligations
	  • organisational plans
	  • work responsibilities.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate analysing energy audit data • review of policy developed and procedural documentation completed by the candidate outlining the approach taken • review of implementation strategy, plans and work plans completed by the candidate • evaluation of methods used to involve stakeholders in policy development, implementation and review.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTPMG6033A Develop project management plan • ICTPMG6034A Prepare a detailed design brief • ICTTEN6206A Produce an ICT network architecture design. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
regional contexts) may also be included.	
Projects may include:	• advanced meter infrastructure (AMI) • alternative energy cellular base station sites • equipment upgrades • introduction of new technology • passive optical network (PON) technology for fibre to the premises (FTTP) • smart grid partnerships • software upgrade.
Stakeholders may include:	• competitors • customers • employees • investors • media • regulators • society.
ICT equipment may include:	• data storage • firewall • multiplexer • printer • router • server • switch • telephone system • workstation.

Energy audit may refer to:	• AS/NZ 3598:2000:
	  • Level 1 consumption benchmark
	  • Level 2 preliminary assessment
	  • Level 3 economic analysis.

Agreed standard may include:	• AS/NZ 3598:2000 (or latest revision) • BS EN 16001:2009 Energy Management Systems • ISO 14001:2004 Environment.

Short term technology solutions may include:	• energy efficient hardware
	• hibernation of:
	  • hard drive
	  • LCD monitor
	  • workstation
	• multifunction devices

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• remote energy management • replacing desktop PCs with thin clients • server virtualisation • use of videoconference technology.

Sustainable management principles may include:	• audit waste management procedures
	• improving the energy efficiency of ICT network equipment:
	  • reducing the need for air conditioning
	  • shutting down equipment during low demand
	• supply chain:
	  • driving ethical values through the supply chain
	  • engaging supplier's involvement in emissions reporting and continual improvement
	  • engaging suppliers who provide information on energy consumption and product lifecycles
	  • influencing suppliers to provide energy efficient products and services
	• procurement strategies:
	  • assessment of suppliers' environmental policies and procedures
	  • lowering of energy consumption or environmental impact of replacement products or services
	  • managing the environmental impacts of electrical and electronic equipment
	  • use of energy consumption and environmental impact as criteria in the process of awarding contracts.

Key performance indicators (***KPIs***) may include:	• kg CO_2 emitted per floor area occupied in permanent buildings • kg CO_2 emissions from company car fleet • percentage of timber used in construction from well managed, sustainable sources • percentage volume of material from sustainable sources • reduction of quantity (in 1000's kg) of ozone depleting gases used in air-conditioning

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	equipment.
Energy usage may include:	• a percentage of overall energy use in this project • individual equipment • location.
Detailed report may include:	• details of energy efficiency improvements • energy consumption records • energy saving practices and financial returns • energy use in graphical form • executive summary with recommendations • implementation costs • payback periods • review process • timelines.
Benchmarks may include:	• AccountAbility AA1000 Assurance Standard (2008) • BSI BenchMark • Carbon Disclosure Project (CDP) • Dow Jones Sustainability Index (DJSI) • Global Reporting Initiative (GRI) G3 guidelines (telecommunications sector supplement).

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Competency field

Competency field	Sustainability

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTSUS6234A Establish a business case for sustainability and competitive advantage in ICT projects

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to establish a business case to justify innovative implementation of sustainability in ICT projects. Organisations may gain competitive and operational advantage by developing sustainability plans which meet customer and stakeholder expectations and public and regulatory demands. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Technical managers, supervising technicians, project managers, consultants or contractors who have responsibility for conducting or managing ICT projects apply the skills and knowledge in this unit. This unit will prepare the participant in planning and conducting cost benefit analysis and return on investment for the implementation of sustainable schemes at the enterprise level

© Commonwealth of Australia, 2025 Future Skills Organisation

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Prepare information for establishing a business case	1.1. Evaluate the proposed ICT project to determine the scope and potential of sustainability integration 1.2. Research ***appropriate sources of information*** relevant to the project to prepare the business case 1.3. Analyse and evaluate the ***expected goals*** of the project and relate the business case to broader organisational goals 1.4. Identify and consult with ***stakeholders*** to plan and

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	validate options 1.5. Identify and report on any assumptions and known ***constraints*** that can impact on the project
2. Produce the Business Case for the ICT sustainability project	2.1. Evaluate the ***critical success factors*** to determine the vital strategy for the project to successfully implement sustainability and gain competitive advantage 2.2. Prepare a cost-benefit analysis and estimate ***overall benefit*** obtained by introducing or improving sustainability in the project 2.3. Prepare an ***estimate of costs*** over an appropriate time period and determine the potential the ***return on investment*** (***RoI***) 2.4. Evaluate and analyse ***alternative options*** to determine the benefits, disadvantages, costs and risks
3. Produce business case documentations	3.1. Validate the options with stakeholders and determine the recommended option 3.2. Prepare an implementation plan for the recommended option for the ICT project 3.3. Produce an ***executive summary*** of the proposal including the consequences of not implementing the sustainability activity

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to compare and evaluate effective technical solutions involving introduction or improvement of sustainability
- research and writing skills to research and present information, and to prepare written business cases requiring precise expression, language and structures suited to the intended audience
- communication skills to:
  - prepare a press release regarding the level of achievement of sustainability benchmarks, environmental targets and performance highlights
  - liaise with customers to outline the resulting sustainability benefits

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

- adjust communication to suit different audiences
- respond effectively to diversity
- work as a member of a team
- consult on and validate policy

- literacy skills to:
  - prepare a business case
  - evaluate complex and formal documents, such as government policy and legislation
  - interpret technical specifications and related sustainability documentation
  - document technical requirements and procedures
- numeracy skills to:
  - determine workforce requirements
  - analyse and confirm capacity requirements
  - calculate budget requirements and limitations
  - perform calculations related to life cycle assessment (LCA)
- organisational skills to arrange relevant documentation and approvals
- planning and organisational skills to:
  - set out project requirements and priorities
- problem solving skills to account for unexpected variations to requirements, and to effectively manage different points of view and dissenting stakeholders
- research skills to gain and maintain relevant and current technical product knowledge
- technical skills to utilise sustainability software tools
- project management skills to undertake or manage a complex project

Required knowledge

- best practice approaches relevant to sustainability
- environmental and sustainability legislation, regulations and codes of practice applicable to industry and organisation
- equal employment opportunity, equity and diversity principles and occupational health and safety (OHS) implications of policy being developed
- policy development processes and practices
- principles, practices and available tools and techniques of sustainability management relevant to the ICT industry
- quality assurance systems relevant to own organisation
- relevant industry competency
- relevant organisational polices, procedures and protocols
- relevant systems and procedures to aid in the achievement of workplace sustainability
- ICT power consumption calculations

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• energy consumption and energy audit methodology • environmental impacts of products, processes, systems and services

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • candidate's involvement as a key person in establishing a business case to introduce or improve sustainability in an ICT project • implementation strategy, as part of the policy, that has been devised, implemented and reviewed showing a measurable improvement utilising the chosen benchmark indicators • communicating with stakeholders to discuss approaches to sustainability improvements development and implementation, and contributing to the resolution of disputes among stakeholders • using software systems for recording and filing documentation for measurement of current usage and using word processing and other basic software for interpreting charts, flowcharts, graphs and other visual data and information • reviewing and improving policies by identifying improvements and benchmarking against industry best practice and attempting new approaches continuously over time.
Context of and specific resources for assessment	Assessment must ensure: • sites on which preparation of a business case for introducing or improving sustainability in an ICT project may be carried out • access to relevant legislation, standards, guidelines, reports and equipment specifications and drawings

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	• access to a range of workplace documentation and personnel, information and resources, such as compliance obligations, organisational plans, work responsibilities.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on the job performance by the candidate • review of policy developed and procedural documentation outlining the approach taken • review of implementation strategy, plans and work plans • analysis of methods used to involve stakeholders in policy development, implementation and review • evaluation of participation in sustainability work practices and programs • observation over time in relation to review of work area relating to policy and procedures being developed to assess measurement of resources used, hazards and compliance.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTPMG6033A Develop project management plan • ICTPMG6034A Prepare a detailed design brief • ICTTEN6206A Produce an ICT network architecture design Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	

Appropriate sources of information may include:	• International standards for environmental management - Life cycle assessment
	  • AS/NZS ISO 14040:1998
	  • AS/NZS ISO 14041:1999
	  • AS/NZS ISO 14042:2001
	  • AS/NZS ISO 14043:2001
	  • AS/NZS ISO 14048:2003
	• AS/NZS 3598:2000
	• BS EN 16001:2009
	• United States Environmental Protection Agency (EPA) - Life Cycle Assessment: Principles and Practice EPA/600/R-06/060 May 2006
	• Dow Jones Sustainability Index (DJSI).

Expected goals may include:	• achieving best practice in products, processes or services while protecting the environment without sacrificing profitability • enhancing company reputation

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• guiding new product development to reduction of resources and emissions • improving public perception • providing information on trade-offs of alternative processes, products and materials.
Stakeholders may include:	• business partners • community • customers • government organisations • shareholders • staff • technical experts.
Constraints may include:	• existing business partnerships and arrangements • existing contracts or service level agreements • reluctance to accept change.
Critical success factors may include:	• customer satisfaction • increase in customers • new sources of business • positive cash flow • profit margin • quality of products and services • revenue growth.
Overall benefit may include:	• better use of workspace • employee satisfaction • enhanced brand value • enhanced company reputation • improved public perception • more reliable service to customers • tangible benefits and intangible benefits.
Estimate of costs may include:	• annual operating costs • capital costs • detailed breakdown of costs • recurring costs • summary of costs by category.
Return on investment (***RoI***) may include	• carbon trading • project life • rate of depreciation • simple RoI calculation.

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
Alternative options may include:	• a range of approaches • an option that achieves same result as preferred option • collaborative delivery • in-house delivery of the project • innovative approaches.
Executive summary may include:	• background to the proposal • introduction to the proposal • past and current environment • rationale for establishing the business case at this time.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

Competency field

Competency field	Sustainability

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTSUS7235A Use ICT to improve sustainability outcomes

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to improve sustainability outcomes through the reduction of environmental, economic and social impacts for a range of industries using ICT based solutions. It involves meeting the requirements for monitoring and reporting of greenhouse gas emissions and using ICT for creating opportunities to improve sustainability by addressing products, services and processes specific to specific enterprises and industries. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	This unit is applies to individuals employed as an ICT consultant or with an ICT related role in an organisation. Work normally involves a high degree of autonomy or is within a management team with a high level of responsibility.

Licensing/Regulatory Information

Refer to Unit Descriptor

© Commonwealth of Australia, 2025 Future Skills Organisation

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Design and manage a sustainability audit	1.1. Use an audit tool reflects criteria of benchmark, nature of risks, relevant information and data types, evaluation of performance and legislative requirement 1.2. Define the scope, objectives and benchmarks for the audit in consultation with relevant stakeholders 1.3. Use an ***audit tool*** to reflect criteria of benchmark, nature of risks, relevant information and data types, evaluation of performance and legislative requirement 1.4. Document requirements for audit resources, timing, schedule and responsibilities consistent with industry

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	best practice and relevant standards 1.5. Ensure ***collection strategies*** are objective, systematic and that information and data is valid and reliable 1.6. Report outcomes clearly and concisely, including benefits to be achieved by adoption of audit report recommendations
2. Monitor energy consumption and emissions	2.1. Analyse requirements of the National Greenhouse and Energy Reporting System (NGERS) and other relevant ***legislation*** and industry standards in relation to a range of ***industries*** and the needs of specific organisations 2.2. Identify links with functional areas and environmental management systems to ensure comprehensive information and data collection 2.3. Determine ***hardware*** and ***software*** required for collecting, collating, analysing and reporting emissions related information and data 2.4. Factor requirement for an external audit into the monitoring proposal 2.5. Critically evaluate energy consumption and emissions data 2.6. Develop improvement strategies based on the review of data 2.7. Use industry ***best practice*** as a quality benchmark
3. Develop ICT solutions to improve sustainability outcomes	3.1. Research and analyse ***mitigation and adaptation strategies*** appropriate for a range of industries 3.2. Benchmark and document performance expectations in consultation with relevant stakeholders 3.3. Develop and document technical specifications including hardware, software, networking, interface and security requirements 3.4. Determine timelines, resources and costs for implementation and ongoing monitoring and maintenance 3.5. Analyse the impact of ICT solution in relation to performance benchmarks 3.6. Analyse opportunities and develop recommendations to improve sustainability of enterprise products, services and processes 3.7. Present report for client sign off

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills

• analytical skills to read and evaluate complex and formal documents such as legislation and technical reports
• communication skills to consult with stakeholders and liaise with clients
• literacy skills to prepare written reports and other documentation requiring precision of expression and language and structures suited to the intended audience
• research skills to analyse and present information
• technical skills to:
  • conduct an ICT sustainability audit
  • quantify sustainability objectives, targets, achievements and measures
  • use relevant systems and procedures to aid in the achievement of emissions reduction

Required knowledge
• auditing sustainability processes and practices • corporate social responsibility • development processes and practices • hazard identification and control • industry standards • legislation framework underpinning sustainability • principles, practices and available tools and techniques of sustainability management relevant to a range of industries • relevant ISO standards • sustainability from a local, national and international perspective • sustainability including ecological, economic and social issues • technical performance measurement

Evidence Guide

EVIDENCE GUIDE
The evidence guide provides advice on assessment and must be read in conjunction with the

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • audit and analyse patterns of energy use • develop monitoring and reporting systems that comply with regulatory requirements • develop a workable implementation strategy • formulate solutions using ICT to reduce emissions • develop benchmarks for reviewing and improving performance.

Context of and specific resources for assessment	Assessment must ensure:
	• relevant reports:
	  • government
	  • Intergovernmental Panel on Climate Change (IPCC)
	  • scientific
	• conference papers
	• vendor white papers
	• resources, tools and networking equipment
	• suitable hardware and software
	• suitable bandwidth for internet connections
	• relevant legislation and regulations
	• manufacturers' technical specifications
	• relevant ISO standards.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate managing organisation sustainability • review of analyses, plans and reports completed by the candidate • oral or written questioning to assess required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTSUS7236A Manage improvements in ICT

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	sustainability. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Stakeholders may include:	• clients and customers • Federal Government • local government • management • non-government organisations (NGOs)

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• shareholders • staff • state government • suppliers.
Audit tool may include:	• National Carbon Accounting System Data Viewer • National Carbon Accounting Toolbox.
Collection strategies may include:	• electricity billing information • hardware sensor devices.
Legislation may include:	• Australian Government White paper • Australian Government Green paper • Carbon Pollution Reduction Scheme (CPRS) • Emissions Trading Scheme (ETS).
Industries may include:	• building • electricity • logistics • motor.
Hardware may include:	• sensors • wireless sensor networks.
Software may include:	• avoiding mass extinctions engine (AMEE) • carbon footprint calculators • logica carbon reporting software • online system for comprehensive activity reporting (OSCAR) • statistical analytic software (SAS) carbon reporting software • sustainability SCO2 (Software CO2).
Best practice information may be found in:	• 2020 Report • company case studies • vendor white papers.
Mitigation and adaptation strategies may include:	• broadband or telepresence • carbon capture and storage (CCS) • geosequestration • household monitoring • monitoring sources of energy that produce CO2 • remote workstation solutions • The Intelligent Office.

© Commonwealth of Australia, 2025 Future Skills Organisation

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

Competency field

Competency field	Sustainability

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTSUS7236A Manage improvements in ICT sustainability

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to reduce the sustainability related impacts of ICT operations through energy conservation, energy efficiency and changing user behaviour. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	This unit applies to individuals employed as an ICT consultant or in an ICT related role in planning and design of networks in an organisation. Work normally involves a high degree of autonomy or is within a management team with a high level of responsibility.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Critically analyse an organisation's ICT assets energy footprint	1.1. Audit and assess level and type of use across the range of ***ICT devices***, ***infrastructure*** and ***software*** 1.2. Audit and establish baselines of ICT energy consumption and other elements contributing to the organisation's carbon footprint 1.3. Assess ICT usage in relation to its contribution to the organisation's business goals and priorities 1.4. Determine critical issues for the organisation relevant to ICT usage and carbon footprint 1.5. Assess current ICT usage in relation to sustainable ***asset management*** 1.6. Apply industry ***best practice*** where appropriate
2. Develop ICT sustainability strategies and policy	2.1. Include goals for reduction of ***sustainability impacts*** and equipment ***life cycle management*** approaches in organisational policy 2.2. Check policy scope is consistent with ***industry standards and benchmarks*** and amend where necessary 2.3. Ensure policy reflects the organisation's commitment

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	to sustainability as an integral part of business planning and as a business opportunity 2.4. Consult with ***stakeholders*** as an integral part of policy development, implementation and review processes 2.5. Recommend policy options based on effectiveness, timeframes and cost 2.6. Develop and produce strategies for implementation, monitoring, review and audit as part of the policy documentation.
3. Formulate technical and behavioural solutions to improve ICT sustainability	3.1. Determine and document hardware, software, network and interface requirements of solutions 3.2. Develop ***strategies*** to improve sustainability outcomes including for example energy efficiency and ***alternative energy sources*** 3.3. Develop guidelines for improving ***sustainability*** through asset management 3.4. Document requirements, resource allocations, training needs and implementation timelines for selected strategies and obtain sign off from relevant stakeholders
4. Monitor and evaluate sustainability data	4.1. Develop criteria for measuring performance improvement 4.2. Identify trends that may indicate the need for remedial action and use to promote continuous improvement of performance 4.3. Modify policy and technical solutions in response to data analysis to ensure improvements are made 4.4. Determine scope, frequency and method of monitoring and reporting in consultation with stakeholders 4.5. Review data to ensure compliance with the management of sustainability and legislative requirements 4.6. Document findings and present to stakeholders

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to research, analyse and present information
- communication skills to consult with stakeholders
- literacy skills to:
  - read and evaluate complex and formal documents, such as legislation and technical reports
  - prepare written reports and other documentation requiring precision of expression and language and structures suited to the intended audience
- safety awareness skills to implement enterprise occupational health and safety (OHS) policy and procedures
- technical skills to:
  - quantify sustainability objectives, targets, achievements and measures
  - use relevant systems and procedures to aid in the achievement of ICT sustainability

Required knowledge

- energy efficiency and alternative energy sources
- hazard identification and control
- industry standards
- IT:
  - hardware
  - interfacing
  - networking
  - software
- legislation framework underpinning sustainability
- policy development processes and practices
- principles, practices and available tools and techniques of sustainability management in the ICT industry
- relevant ISO standards
- sustainability from a local, national and international perspective
- sustainability including ecological, economic and social issues

Evidence Guide

EVIDENCE GUIDE

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • analyse patterns of ICT use • develop policy that complies with regulatory requirements • develop a workable implementation strategy • formulate solutions to reduce ICT-based emissions • develop measurable criteria for reviewing improvement.

Context of and specific resources for assessment	Assessment must ensure access to reference materials, resources and equipment updated regularly to meet rapid changes to technology:
	• relevant reports:
	  • government
	  • Intergovernmental Panel on Climate Change (IPCC)
	  • scientific
	• conference papers
	• vendor white papers
	• resources, tools and networking equipment
	• suitable hardware and software
	• suitable bandwidth for internet connections
	• relevant legislation and regulations
	• manufacturers' technical specifications
	• relevant ISO standards.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate formulating and carrying out sustainability measures in operations • review of analyses and solutions developed by the candidate • review of monitoring and evaluations completed by the candidate • oral or written questioning to assess required

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTSUS7235A Use ICT to improve sustainability outcomes. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
ICT devices may include:	• copies or multi-functional devises (MFDs) • laptops • PC peripherals • PCs • printer.
Infrastructure may include:	• air-conditioned • cabling • data centre and IT facilities • data storage • power supply and distribution • router • server • switches.

Software may include:	• business systems software:
	  • customer relationship management (CRM)
	  • environmental resource management (ERM)
	• in-house software
	• operating system
	• sink wrapped applications
	• web services.

Asset management may include:	• deployment
	• disposal
	• operation
	• procurement:
	  • product evaluation
	  • product specification
	  • purchasing cycles
	  • vendor selection..

Best practice information may be found in:	• publications • reports • research papers • white papers.
Sustainability impacts may include:	• greenhouse gas emissions • resource consumption and disposal • social impacts.
Life cycle management may include:	• asset management: • product evaluation

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• product specification • purchasing cycles • vendor selection • supplier chain: • design • manufacture • transportation.
Industry standards and benchmarks may include:	• AS/NZ 3598:2000 (or latest revision) • BS EN 16001:2009Energy Management Systems • BSI BenchMark • Carbon Disclosure Project (CDP) • Dow Jones Sustainability Index (DJSI) • Global Reporting Initiative (GRI) G3 guidelines (telecommunications sector supplement) • ISO 14001 Environment AccountAbility AA1000 Assurance Standard (2008) • AS/NZ 3598:2000: • Level 1 consumption benchmark • Level 2 preliminary assessment • Level 3 economic analysis.
Stakeholders may include:	• customers • federal government • local government • management • non-government organisations • shareholders • staff • state government • suppliers.
Strategies may include:	• broadband networking • energy efficiency and conservation • location of facilities • power management • virtualisation.
Alternative energy sources may include:	• cogeneration • fuel cells • other renewable sources

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• solar • wind.
Sustainability may include:	• maximising utilisation • maximising value to business • reducing consumption.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

Competency field

Competency field	Sustainability

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTSUS8237A Lead applied research in ICT sustainability

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to plan, conduct and report on applied research to influence strategic practices on ICT sustainability and outcomes within an organisational context. The unit also covers constructing an applied research strategy, using a range of applied research techniques, and analysing and presenting findings. The competitive context and the evolution of technologies in the ICT sector mean that the capacity to innovate is important. Energy and climate change strategies, supply chain and product responsibility and innovation are key factors in achieving sustainability targets. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	This unit applies to leaders or enterprise managers using applied research to enhance individual, team and organisational performance in sustainability. The intended purpose and approach to applied research may vary across a range of contexts and organisations. In this unit, the focus is on applied research to attain improved organisational outcomes. It involves leading a

© Commonwealth of Australia, 2025 Future Skills Organisation

	range of research activities and techniques that, in combination, can provide quality information to enhance the development of capabilities in an enterprise to reach sustainability targets.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Not Applicable

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
1. Provide	1.1 Provide vision for the ***applied research strategy*** to meet the

© Commonwealth of Australia, 2025 Future Skills Organisation

direction for the development of an applied research strategy for ICT sustainability	sustainability requirements of the identified research purpose 1.2 Clarify and confirm ***applied research purpose*** and needs of the ***target group*** 1.3 Facilitate the development of policies and procedures in relation to conducting applied research for the enterprise 1.4 Guide the development of mechanisms for collecting and maintaining data in a systematic manner 1.5 Review ***factors affecting the reliability and validity*** **of data** 1.6 Review relevant research ethics and codes of conduct
2 Control the use of a range of applied research techniques and resources	2.1 Review and evaluate a range of ***applied research methods and theories*** and ***data collection techniques*** 2.2 Guide the selection of appropriate methods to gather and analyse data on sustainability relevant to the research project 2.3 Authorise access to ***appropriate sources of information*** relevant to the research project 2.4 Select ***sustainable management principles*** that will have the most sustainable impact on the project 2.5 Ensure ***relevance of the research*** through integrity of the data collected and analysis tools used
3 Promote findings	3.1 Ensure accuracy of data and research details and adherence to any ***legal requirements*** 3.2 Evaluate the relevance of collated and analysed data against the original applied research strategy 3.3 Evaluate the impact of findings 3.4 Recommend implementation strategies 3.5 Ensure documentation and presentation of ***research findings*** is in a clear and logical manner consistent with audience needs 3.6 Identify the need for and an appropriate approach to, further research 3.7 Promote research findings and the approach to further research

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE This section describes the skills and knowledge required for this unit.
Required skills
• analytical skills to: • analyse and interpret structurally intricate information in the area being

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

researched
    - evaluate effective technical solutions in sustainability implementation
- communication and teamwork skills to:
    - consult with target groups using a range of communication techniques
    - develop written texts which deal with complex ideas and concepts
    - present research findings creatively to meet audience needs
- literacy skills to:
    - document technical requirements and procedures
    - evaluate complex and formal documents such as policy and legislation
    - prepare written reports requiring precise formats and structures to suit target audience
- numeracy skills to:
    - analyse and confirm research findings such as carbon dioxide (CO_2) emissions and carbon footprint
    - perform statistical analysis of trends and changes
- initiative and enterprise skills to discover and source appropriate information, and to identify future implication of information and data collected
- planning and organising skills to:
    - construct an applied research strategy
    - initiate and design research methodology
    - manage an applied research project
- problem solving skills to:
    - analyse research
    - check the integrity of data collected
    - collect, organise, analyse and present data
    - conduct trend analyses
    - develop and examine the validity of the applied research strategy using a range of applied research techniques
    - evaluate a range of sustainable management principles
- self-management and learning skills to:
    - conduct research to develop capabilities and learning related activities
    - manage own time and determine priorities
    - review and adhere to relevant ethics and codes of conduct
    - store data to maintain privacy and confidentiality of information
- technical skills to:
    - select suitable technology and technical services
    - use a range of software tools to analyse technical data
    - use technology and web media to discover, access, collect and store data, information and research in a systematic manner

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

• leadership skills to:
  • set research directions, make decisions and solve problems
  • manage, guide and influence research team members
  • communicate, motivate and facilitate research team interactions

Required knowledge
• environmental and sustainability legislation, regulations and codes of practice applicable to industry and organisation • audit methodology on ICT energy, waste, product life cycles and CO_2 emissions • principles, practices and available tools and techniques of sustainability management relevant to the telecommunications industry • communication processes and methods • data collection methods • legislation, regulations, policies, procedures and guidelines relating to handling or storing data, including privacy and freedom of information • presentation techniques • reporting methods • research ethics and codes of conduct • research tools and methods • selection of appropriate applied research techniques • leadership strategies relevant to a research environment

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• lead the formulation of a research proposal or plan which includes:
	  • specific research questions on sustainability
	  • valid population or sample size
	  • description of the geographical, cultural, social or institutional context within which the research

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	will be carried out • full description of the data collection methods • analysis of the limitations to research design • lead the design of an applied research project using appropriate tools and techniques • design a research report with analysis of data, and valid and reliable findings • evaluate relevance of the research results • apply knowledge of applied research techniques.
Context of, and specific resources for assessment	Assessment must ensure: • research activity that relates to an actual workplace or simulated context and topic • range of tools and techniques appropriate to the given situations and research topic.
Methods of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • review of projects relating to conducting applied research conducted by the candidate • direct observation of the candidate applying research skills • oral or written questioning to assess knowledge of applied research.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTSUS8238A Conduct and manage a life cycle assessment for sustainability. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Applied research purpose may be contained in documents such as:	• agreements • research brief • research contracts • research guidelines • research statement.
Target group may include:	• community • content and media provider • end users • equipment vendor • government authority • investors • regulator • society • statutory authority • sustainability auditors

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• telecommunications service provider • user groups.
Factors affecting reliability and validity may include:	• access appropriate population • authenticity and reliability of data sources • capacity to generalise findings across the whole population • sample size • type or survey used to increase validity.
Applied research strategy may cover:	• analysis of industry specific trends, statistics and issues • collection of data to assist informed decision making, planning or risk management • data and information relating to strategy, policy, practices, or work processes developed and implemented by an organisation • formation of solutions to complex problems • information and analysis needed to develop a campaign, strategic plan, industry or sector plan and strategy, or to bargain effectively with employers • information and analysis to conduct a strategic or community campaign or activity • relationship or relevance of a theory, principle or practice to an immediate practical problem, issue or to test a proposed solution.

Applied research methods and theories may cover:	• methods such as:
	  • action research
	  • case study
	  • experience and intuition
	  • experiments
	  • interviews
	  • mathematical models and simulations
	  • participant observation
	  • surveys
	  • statistical data analysis
	  • statistical surveys
	• content, textual analysis, theories and techniques, which will vary upon consideration of:
	  • application of statistical methods
	  • causal factors and dependant or

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	independent variables • critical analysis • experimental, quasi-experimental, non-experimental • mathematical calculations • problem solving • qualitative or quantitative research • sampling and sample size.
Data collection techniques may include:	• collaboration with other experts or mentors • desk research • document research • field study • observation • physical items analysis • interviews • questionnaires • surveys.

Appropriate sources of information may include:	• Carbon Pollution Reduction Scheme (CPRS)
	• discussions with current industry practitioners and manufacturers
	• energy and climate change reports and policies
	• government departments
	• industry associations and organisations
	• industry standards
	• AS/NZ3598:2000 (or latest revision):
	  • Level 1 consumption benchmark
	  • Level 2 preliminary assessment
	  • Level 3 economic analysis
	• BS EN 16001:2009 Energy Management Systems
	• ISO 14001:2004 Environment
	• industry journals
	• Kyoto protocol documentation
	• organisational policies, procedures and journals
	• personal observations and experience
	• professional organisations
	• research papers, technical publications and manuals
	• web data from research establishments and universities.

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

Sustainable management principles may include:	• audit waste management procedures
	• improving efficiency of ICT network equipment:
	  • reducing air conditioning requirements
	  • shutting down of equipment during low demand and prolonged idle times
	• procurement strategies:
	  • assessment of suppliers' environmental policies and procedures
	  • lowering of energy consumption or environmental impact of replacement products or services
	  • managing the environmental impacts of electrical and electronic equipment
	  • use of energy consumption and environmental impact as criteria in the process of awarding contracts
	• supply chain:
	  • driving ethical values through the supply chain
	  • engaging supplier's involvement in emissions reporting and continual improvement
	  • engaging suppliers who provide information on energy consumption and product life cycles
	  • influencing suppliers to provide energy efficient products and services
	• total life cycle (TLC) analysis of product, processes and services.

Relevance of the research may be based on:	• available time and resources • feasibility of implementing the recommendations • findings of previous and current research • original research parameters and brief • quality and credibility of the methodology • value of its usefulness • value of the information and data.
Legal requirements may include:	• agreements with third parties that supply research or data • competency standards

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• contracts • copyright and privacy laws relating to physical materials and electronic technology • licensing • plagiarism • privacy • relevant commonwealth, state and territory legislation, policy, codes of practice and national standards • security of information.
Research findings may include:	• circulating publications for comment and critique on the internet • contributing to strategic policy • drafting publications or reports • presentations at seminars and conferences • providing data, plans, specifications and reports resulting in changed work practice/s or design/s • providing internal reports verbally, in writing or via presentations • publishing papers and articles for expert review and audiences • publishing reports and articles for lay audiences.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Competency field

Competency field	Sustainability

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTSUS8238A Conduct and manage a life cycle assessment for sustainability

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to conduct a life cycle assessment (LCA) to investigate and evaluate the human health and environmental impacts arising from the provision of a product, process or service. A LCA is a systematic process that provides an estimation of the cumulative impacts and trade-offs resulting from all stages in the entire life cycle of the product, process or service, thereby facilitating informed decision-making to improve performance. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Technical managers, supervising technicians, project managers, consultants or contractors who have responsibility for conducting a LCA or managing those who conduct an LCA apply the skills and knowledge in this unit.

Licensing/Regulatory Information

Refer to Unit Descriptor

© Commonwealth of Australia, 2025 Future Skills Organisation

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Define and scope project goal	1.1. Access ***appropriate sources of information*** relevant to the LCA project 1.2. Define the ***goal*** of the project 1.3. Specify ***information*** needed to inform decision-makers 1.4. Determine required level of ***specificity*** 1.5. Determine ***data organisation*** and display of results 1.6. Define ***scope of the study*** 1.7. Determine ***ground rules*** for performing the work
2. Conduct a life cycle	2.1. Generate a life cycle ***flow diagram***

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
inventory (LCI)	2.2. Develop a ***data collection plan*** for the LCI 2.3. ***Collect the actual data*** 2.4. ***Evaluate and document*** the LCI results
3. Conduct a life cycle impact assessment (LCIA)	3.1. Select and define ***impact categories*** 3.2. ***Classify LCI results*** to the impact categories 3.3. Model LCI impacts within impact categories using science-based conversion factors 3.4. Normalise potential impacts in ways that can be compared 3.5. Assign impact categories by ***grouping*** into one or more sets to facilitate the interpretation of the results 3.6. Assign ***weighting*** factors to emphasise the most important potential impacts
4. Interpret and evaluate results from the LCI and the LCIA and communicate them	4.1. Identify the ***significant issues*** based on the LCI and the LCIA 4.2. Evaluate ***completeness check***, ***consistency check*** and ***sensitivity check*** 4.3. Make recommendations for improving the product, process or service life cycle
5. Report results of the LCA study	5.1. Document the ***results of the LCA study*** 5.2. Finalise the report with a conclusion and make recommendations as a result of the LCA study

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills

• analytical skills to compare and evaluate effective technical solutions involving life cycle aspects of sustainability, and to critically evaluate data quality
• communication skills to:
  • prepare a press release regarding the level of achievement of sustainability benchmarks, environmental targets and performance highlights
  • liaise with customers to outline the resulting sustainability benefits
  • adjust communication to suit different audiences

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

- respond effectively to diversity
- work as a member of a team
- consult on and validate policy

- literacy skills to:
  - evaluate complex and formal documents such as policy and legislation
  - interpret technical specifications and related sustainability documentation
  - document technical requirements and procedures
  - prepare written reports requiring precise expression, language and structures suited to the intended audience
- numeracy skills to:
  - determine workforce requirements
  - analyse and confirm capacity requirements
  - calculate budget requirements and limitations
  - perform calculations related to LCA
  - estimate carbon dioxide (CO_2) emissions
- planning and organisational skills to:
  - set out project requirements and priorities
  - make site access and equipment delivery arrangements
  - arrange relevant documentation and approvals
- problem solving skills to account for unexpected variations to requirements, and to effectively manage different points of view and dissenting stakeholders
- research skills to:
  - research and present information
  - examine statistical databases
  - gain and maintain relevant and current technical product knowledge
- technical skills to utilise life cycle assessment software
- project management skills to undertake or manage a complex LCA project

Required knowledge

- best practice approaches relevant to own work area
- environmental and sustainability legislation, regulations and codes of practice applicable to industry and organisation
- equal employment opportunity, equity and diversity principles and occupational health and safety (OHS) implications of policy being developed
- policy development processes and practices
- principles, practices and available tools and techniques of sustainability management relevant to the telecommunications industry
- quality assurance systems relevant to own organisation
- relevant industry competency
- relevant organisational polices, procedures and protocols

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• relevant systems and procedures to aid in the achievement of workplace sustainability • ICT power consumption calculations • power consumption and energy audit methodology • CO2 emissions estimation • environmental impacts of products, processes, systems and services

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • undertake a LCA for sustainability • undertake scoping and definition of goals of a LCA for sustainability • produce a LCI using relevant software and data collection strategies • use life cycle assessment and other software for researching and interpreting charts, flowcharts, graphs and other visual data and information • evaluate LCI and LCIA results, using completeness, consistency and sensitivity checks • make recommendations based on the results of the LCA study.
Context of and specific resources for assessment	Assessment must ensure: • sites on which planning, design and integration of sustainability may be carried out • relevant legislation, standards, guidelines, reports and equipment specifications and drawings • a range of workplace documentation and personnel, information and resources (such as compliance obligations, organisational plans, work responsibilities).

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • review of projects relating to conducting applied research conducted by the candidate • direct observation of candidate applying research skills • oral or written questioning to assess knowledge of applied research.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTSUS8237A Lead applied research in ICT sustainability. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	

Appropriate sources of information may include:	• AS/NZS 3598:2000
	• BS EN 16001:2009
	• Dow Jones Sustainability Index (DJSI)
	• International standards for environmental management - Life cycle assessment
	  • AS/NZS ISO 14040:1998
	  • AS/NZS ISO 14041:1999
	  • AS/NZS ISO 14042:2001
	  • AS/NZS ISO 14043:2001
	  • AS/NZS ISO 14048:2003
	• United States Environmental Protection Agency (EPA) - Life Cycle Assessment: Principles and Practice EPA/600/R-06/060 May 2006.

Goal may include:	• establishing baseline information for a process • guiding new product development to reduction of resources and emissions • identifying gaps in data • providing information on trade-offs of alternative processes, products and materials • ranking relative contribution of individual processes • selecting best product, process or service with least effect on human health and the environment • supporting product certification.
Information may include:	• changes to be made to reduce specific environmental impacts • impacts relevant to stakeholders and interested parties • products or processes which cause the least environmental impact

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

	• technologies or processes which cause least detrimental impact:
	  • smog
	  • acid rain
	  • particulates
	  • aquatic pollution.

Specificity may relate to:	• enterprise-specific versus generic products • internal enterprise use or public purposes • product-specific data versus generic data • product-specific versus generic study.
Data organisation may include:	• equivalent use as the basis for comparison • a functional unit that appropriately describes the function of the product or process being studied • volume or weight as the basis for comparison.

Scope of the study may include:	• manufacturing
	• materials manufacture
	• packaging and distribution
	• product fabrication
	• raw materials acquisition
	• recycling and waste management
	• use, re-use and maintenance
	• variants:
	  • cradle-to-grave
	  • cradle-to-gate
	  • economic input-output life cycle assessment (EIOLCA)
	  • gate-to-gate
	  • well-to-wheel.

Ground rules may include:	• define the systems analysed
	• documenting assumptions or decisions made throughout the project
	• methodology used
	• quality assurance procedures:
	  • available time and level of resources
	  • internal review
	  • external review
	  • formal review process
	• reporting requirements
	• setting of boundaries

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

	• software used for modelling:
	  • EcoLab
	  • GaBi Software
	  • SimaPro
	• stating the basis for comparison.

Flow diagram may include:	• all alternatives under consideration:
	  • baseline system
	  • alternative systems
	• boundaries
	• mapping inputs and outputs (material and energy) to a process or system
	• subsystems.

Data collection plan may include	• defining the data quality goals
	• developing a data collection worksheet or spreadsheet:
	  • data collection procedures
	  • data quality measures
	  • geographic scope
	  • presentation of results
	  • purpose of the inventory
	  • system boundaries
	  • types of data used
	• identifying data sources and types:
	  • equipment and process specifications
	  • equipment logs
	  • journals
	  • laboratory test results
	  • meter readings from equipment
	• identifying data types:
	  • measured
	  • modelled
	  • non-LCI data (data not intended for use in LCI)
	  • non-site specific
	  • sampled
	  • vendor data
	• identifying data quality indicators:
	  • completeness

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• consistency • precision.

Collect the actual data may include:	• atmospheric emissions
	• conversion of fuel units into energy units
	• co-product allocation
	• data categories:
	  • CO_2 emissions
	  • reporting emissions required by regulatory agencies
	  • reporting of all emissions
	• direct contact with experts
	• efficiency of transportation mode:
	  • conversion of tonne-kilometres into fuel units
	  • litres (gallons) of diesel fuel
	• emissions generated from combustion of the fuels
	• energy input data
	• energy sources
	• illegal waste disposal included if data is available
	• industrial scrap
	• ISO 14041:6.5.3 (2004) allocation procedure
	• obtain non-specific inventory data
	• products
	• purchase LCI data
	• research
	• specific data versus composite data
	• site visits
	• solid wastes
	• transportation data:
	  • conversion to ton-miles or tonne-kilometres
	  • distance shipped
	  • weight of shipment
	• waterborne wastes.

Evaluate and document may include:	• air emissions • data parameter groups within a category • data parameters within a group: • carbon dioxide (CO_2)

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• chlorine (Cl) • sulphur dioxide (SO_2) • define boundaries set • define systems analysed • describing the methodology used in analysis • presentation of information: • graphical format • tabular format • water borne waste solid wastes.
Impact categories may include:	• acidification • aquatic toxicity • global warming • resource depletion • stratospheric ozone depletion • terrestrial toxicity.
Classify LCI results may include:	• assigning LCI results to impact categories: • CO_2 emissions attributed to global warming • NO_2 emissions attributed to ozone formation • SO_2 emissions attributed to acidification.
Grouping may include:	• sorting of indicators by characteristics, such as: • emissions: • air • water • location: • global • local • regional • sorting of indicators by a ranking system, such as: • high priority • medium priority • low priority.
Weighting may include:	• determining weights to place on impacts • identifying the underlying values of the stakeholders • weighting methods: • analytic hierarchy process • modified Delphi technique

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• decision analysis using multi-attribute theory.
Evaluate and report LCIA results may include:	• definition of systems analysed • description of methodology used in the analysis • description of the boundaries that were set • documentation of limitations • verify accuracy of LCIA results.

Significant issues may include:	• essential contributions for life cycle stages to LCI or LCIA results:
	  • individual unit processes
	  • groups of processes
	• impact category indicators:
	  • emissions
	  • resource use
	  • waste
	• inventory parameters:
	  • emissions
	  • energy use
	  • waste.

Completeness check may include:	• all relevant information and data needed for the interpretation are available and complete
	• develop checklist to indicate each significant area represented in results
	• organise data by:
	  • life cycle stage
	  • processes
	  • type of data represented:
	  • environmental release to air
	  • raw materials energy
	  • transportation.

Consistency check may include:	• comparisons made on inconsistent data sources
	• comparisons made on data from different eras
	• data from plants using different technologies
	• data from technology based on different standards:
	  • European
	  • US.

Sensitivity check may include:	• evaluation of the reliability of results using:

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• contribution analysis • sensitivity analysis • uncertainty analysis.

Results of the LCA study may include:	• administrative Information
	• details of the practitioner who conducted the LCA study
	• date of report
	• definition of goal and scope
	• life cycle inventory analysis:
	  • data collection
	  • calculation procedures
	• life cycle impact assessment:
	  • methodology
	  • results of the impact assessment performed
	• life cycle interpretation:
	  • results
	  • assumptions and limitations
	  • data quality assessment
	• critical review (internal and external):
	  • details of reviewers and their affiliation
	  • critical review reports
	  • responses to recommendations.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Competency field

Competency field	Sustainability

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTTEN2140A Use hand and power tools

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to safely use hand and power tools in the workshop and on the worksite. It involves preparing for work, selecting, using and maintaining hand and power tools and cleaning up. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Technical staff who use hand and power tools apply the skills and knowledge in this unit. They may make use of safety equipment and workshop facilities.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Prepare for work activity	1.1. Identify the type of work to be performed from ***work instructions***
	1.2. Select appropriate ***hand and power tools*** for the work to be performed
	1.3. ***Set up and check tools*** for use according to available ***information***
	1.4. Examine ***work environment*** and plan work with tools to maximise safety and productivity
	1.5. Clear and clean work area to make it free of obstructions and allow clear access to tools
2. Prepare work piece for tool use	2.1. Mount, support or align ***work piece*** correctly to the tool or machine to be used
	2.2. Anchor work piece securely where necessary to prevent movement
3. Operate hand and	3.1. Use hand and power tools according to industry and

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
power tools	enterprise ***safe working practices*** 3.2. Use ***safety equipment*** during tool operation according to industry and enterprise safe working practices 3.3. Monitor tool operation continuously and discontinue use if abnormal operation occurs 3.4. Clean the work area on completion of work
4. Maintain hand and power tools after use	4.1. Clean and store tools according to industry and enterprise safe working practices 4.2. Report abnormal tool operation or other problems according to established procedures 4.3. Perform programmed maintenance of tools according to work role 4.4. Arrange inspection of power tools according to ***regulatory requirements***

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills

• communication skills to:
  • liaise with colleagues on technical and operational matters
  • record and report procedures
• literacy skills to interpret and understand the information required for the preparation and application of hand and power tools including:
  • equipment
  • manufacturer's instructions
  • materials safety data sheets
  • quality assurance procedures
  • work instructions
• planning and organisational skills to manage time, organise priorities and plan work
• safety awareness skills to:
  • apply precautions and required action to minimise, control or eliminate hazards associated with use of particular hand and power tools

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• select and use required personal protective equipment conforming to industry and occupational health and safety (OHS) standards • use relevant chemicals and cleaning agents and dispose of waste products • work systematically with required attention to detail without injury to self or others, or damage to goods or equipment • task management skills to work systematically with required attention to detail and adherence to all safety requirements • technical skills to: • select and use appropriate hand and power tools • use technical information for tools, processes, materials and equipment
Required knowledge
• electrical and compressed air safety • equipment types, characteristics, technical capabilities and limitations • features and operating requirements of hand and power tools • general housekeeping policies and procedures • industry and work site terminology • information required to operate equipment according to a test specification • job safety analysis (JSA) or safe work method statement • legislation, codes of practice and other formal agreements that impact on the work activity • manufacturer's requirements for safe operation of equipment • materials commonly used in the industry • material safety data sheets (MSDS) and materials handling methods • operational, maintenance and basic diagnostic procedures • power sources • specific OHS requirements relating to the activity and site conditions • typical issues and challenges that occur onsite

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • interpret work orders relevant to the selection and use of tools • interpret specifications and instructions relating to the materials and equipment on which the tools are to be used • prepare work environment and set up tools for safe and effective use • perform work processes following all relevant safety requirements applying to the use of hand and power tools • monitor tool operation for correct operation during use • inspect completed work to verify correct tool operation and use • document and communicate work related information including reporting of faults and other problems • comply with all related OHS requirements and work practices.
Context of, and specific resources for assessment	Assessment must ensure: • sites where hand and power tools may be used • use of hand and power tools currently used in industry • relevant regulatory and equipment documentation that impact on the use of hand and power tools.
Methods of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate setting and checking tools for use • direct observation of the candidate operating hand and power tools according to industry and enterprise safe working practices • oral or written questioning to assess required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTOHS2170A Follow OHS and environmental policy and procedures.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Work instructions may include:	• charts and hand drawings • diagrams or sketches • MSDS • memos • plans

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

	• quality requirements:
	  • dimensions and tolerances
	  • material standards
	  • standards of work
	• recording and reporting of work outcomes
	• safe work procedures or equivalent related to using hand and power tools
	• signage
	• specifications
	• verbal or written and graphical instructions
	• work bulletins
	• work schedules.

Hand and power tools may include:	• hand tools:
	  • chisels
	  • crowbars
	  • files
	  • hacksaws
	  • hammers
	  • measuring equipment
	  • pliers
	  • pop riveting machines
	  • screwdrivers
	  • shovels
	  • spanners
	  • wire strippers
	• power tools:
	  • angle grinders
	  • circular saws
	  • drills
	  • grinders
	  • hammer drills
	  • jig saws
	  • lifting and hoisting equipment.

Set up and check tools may include:	• inspect tools for:
	  • damage
	  • missing components
	  • other defects prior to use
	• install operating components (bits or blades) in

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	tools • set or adjust tools .
Information may relate to:	• Australian and enterprise quality standards and procedures • enterprise or external personnel • enterprise work orders and instructions • industry codes and symbols • job procedures • product change policies and procedures • tool manufacturers' specifications, operating procedures and setting instructions.
Work environment may include:	• client site • hazardous or exposed conditions • operational indoor workplaces • operational outdoor workplaces • restricted or confined spaces.
Work piece may include blocks of:	• aluminium • bronze • plastic • stainless steel • steel • wood.

Safe working practices may refer to:	• barriers or screens to control access and minimise dust and noise
	• clearing route for safe placement of leads
	• control of hazardous materials
	• emergency procedures related to equipment operation:
	  • emergency shutdown and stopping
	  • evacuation
	  • extinguishing equipment fires
	  • organisational first aid requirements
	• handling of materials
	• identification of potential hidden hazards:
	  • 'blind' drilling in walls
	  • harmful gasses
	  • non-visible laser emission
	• place tools in safe positions when not in use
	• running electrical power leads to power supply so they are clear of traffic or covered where

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	possible • use of fire fighting equipment • use of first aid equipment • use of tools and equipment • visually checking power leads for serviceability and safety • workplace environment and safety.

Safety equipment may include:	• earth leakage circuit breaker (ELCB)
	• personal protective clothing:
	  • earmuffs
	  • gloves:
	  • leather
	  • plastic
	  • rubber
	  • head protection
	  • kneepads
	  • masks
	  • protective suits
	  • safety boots
	  • safety glasses
	• rubber mats.

Regulatory requirements may include:	• environment protection legislation • Federal, state and territory legislation • OHS legislation relevant to workplace activities • workers' compensation legislation • workplace agreements and awards.

Unit Sector(s)

Unit sector	Telecommunications

© Commonwealth of Australia, 2025 Future Skills Organisation

Co-requisite units

Co-requisite units		

Competency field

Competency field	Telecommunications networks engineering

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTTEN4081A Locate, diagnose and rectify faults

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to locate, diagnose and rectify faults in telecommunications networks. Telecommunications networks include cabling, customer premises equipment (CPE), access, telephony, broadband deployment, local area networks (LAN), wide area networks (WAN) and internet protocol (IP) networks for enterprise and customer systems and installations. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Telecommunications officers, communications cablers, installers of customer premises equipment, optical and radio frequency (RF) equipment, multimedia and IP networks apply the skills and knowledge in this unit.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units	

© Commonwealth of Australia, 2025 Future Skills Organisation

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Plan to locate and rectify a fault	1.1. Prepare for given work according to ***relevant legislation***, ***occupational health and safety*** (***OHS***), ***codes***, ***regulations and standards*** and identified ***hazards*** 1.2. Arrange access to the site according to required procedure 1.3. Obtain information on the ***nature of fault*** from the ***customer*** 1.4. Obtain suitable ***testing tools and equipment*** and specify ***personal protective equipment*** 1.5. Conduct fault finding using methodical and safe practices suitable for system and problem type
2. Locate and diagnose	2.1. Conduct ***appropriate test*** to identify ***type of fault***

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
the fault	2.2. Isolate the fault progressively to remove likely variables from assessment 2.3. Locate the fault without undue interruptions to the customer activity in the shortest possible time 2.4. Notify the customer of the findings
3. Rectify the fault	3.1. Determine the options to rectify the fault and present them to the customer 3.2. Advise the customer of costs of any repair not covered by service agreement 3.3. Rectify the fault if in agreement with the client 3.4. Conduct the work in a manner which is safe to the repairer and the customer 3.5. Refer any unresolved faults to other parties for resolution or escalation if required
4. Complete documentation and clean up worksite	4.1. Advise the customer of successful fault clearance and secure sign off 4.2. Complete all records 4.3. Complete reports to justify the fault diagnosis and rectification methodology if required 4.4. Remove all waste and debris from worksite and dispose them according to environmental requirements 4.5. Restore any changes made to the worksite during fault repair to the client's satisfaction

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• communication skills to liaise with clients on technical and operational matters and raise OHS issues • literacy skills to interpret technical documentation and standards and incorporate technical language into written tasks including report on recommendation to rectify fault • numeracy skills to interpret technical data, such as specifications of equipment operations

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

• problem solving skills to apply methodology in fault diagnosis
• research skills to access technical information and sources to assist fault identification
• safety awareness skills to:
  • apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
  • select and use required personal protective equipment conforming to industry and OHS standards
  • work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
• technical skills to select and use appropriate methods for fault identification and rectification

Required knowledge
• fault-finding techniques and test equipment • safety requirements and standards • various client's workplace environment and practices • various types of networks and equipment • various types of networks and equipment faults and rectification

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • identify different faults • establish context and background information and determine and rank likely causes of fault • obtain suitable tools and equipment and apply simple checks, tests and fault-finding methodology • apply recommended means to rectify fault • comply with all related OHS requirements and work practices.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
Context of and specific resources for assessment	Assessment must ensure: • site where fault identification and resolution may be conducted • use of test and related equipment currently used in industry • relevant technical specifications and requirements for telecommunications networks • regulatory and site-related documentation.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate locating and rectifying faults following OHS requirements • oral or written questioning to assess knowledge of types of faults and implications • evaluation of written reports prepared by the candidate, outlining test result interpretation, fault rectification and recommendations.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplaces and job role is recommended, for example: • ICTOPN4115A Install and test a dense wavelength division multiplexer system • ICTTEN4051A Install configuration programs on PC based customer equipment • ICTTEN4198A Install, configure and test an internet protocol network • ICTTEN4199A Install, configure and test a router. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Relevant legislation, ***OHS***, ***codes***, ***regulations and standards*** may include:	• Australian Communications Industry Forum (ACIF) standards and codes • AS Communications Cabling Manual (CCM) Volume 1 • AS/NZS 3000:2007 • AS/NZS 3080:2003 • AS/NZS 3084:2003 • AS/NZS 3085.1:2004 • AS/NZS IEC 61935.1:2006 • AS/NZS IEC 61935.2:2006 • AS/NZS ISO/IEC 14763.3:2007 • AS/NZS ISO/IEC 15018:2005 • AS/NZS ISO/IEC 24702:2007 • cabling security codes and regulations • contract law • National Association of Testing Authorities (NATA) requirements • regulated or industry codes of practice including appropriate Australian

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

	Communications and Media Authority (ACMA) technical standards
	• technical standards AS/ACIF S008:2006 and AS/ACIF S009:2006
	• Trade Practices Act
	• OHS including specific OHS and environmental requirements:
	  • decommissioning and isolating work site and lines prior to commencement
	  • environmental considerations include:
	  • clean-up protection
	  • stormwater protection
	  • waste management
	  • noise, dust and clean-up management
	  • identifying other services including power and gas
	  • safety equipment:
	  • flashing lights
	  • gas and other hazard detection equipment
	  • safety barriers
	  • trench guards
	  • warning signs and tapes
	  • witches hats
	  • safe working practices such as the safe use and handling of:
	  • asbestos
	  • chemicals
	  • materials
	  • tools and equipment
	  • work platforms
	  • special access requirements
	  • suitable light and ventilation.

Hazards may include:	• building debris • earth potential rise (EPR): • event at a site, such as an electrical distribution substation may expose telecommunications personnel, users or plant to hazardous voltages • glass fibre

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• live power lines • manual handling • mud and water • natural gas and other gas build up • needle stick injury • optical fibre cable may contain hazardous light • radio frequency (RF) equipment emitting radiation • remote power feeding services which operate at above telecommunications network voltage (TNV) • vermin.
Nature of fault may include:	• cable fault • distortion • excessive latency • interference • intermittent • low signal level • network fault • no transmission • poor grade of service • poor signal quality.
Customer may include:	• fault centre • individual reporting the fault • network manager • network administrator • network operations centre staff • site manager.
Testing tools and equipment may include:	• cable locater • cable test set • LAN Cat tester • network management system • optical fault locater • optical time domain reflectometer (OTDR) • protocol analyser • pulse echo test set • sniffer • spectrum analyser.
Personal protective equipment may include:	• electrical isolators • gas detectors

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

	• personal protective clothing:
	  • earmuffs
	  • gloves:
	  • leather
	  • plastic
	  • rubber
	  • head protection
	  • kneepads
	  • masks
	  • protective suits
	  • safety boots
	  • safety glasses.

Appropriate test may include:	• bit error rate test (BERT)
	• cable tests
	• distortion
	• frequency measurement
	• insertion loss
	• packet sniffing
	• ping
	• protocol analysis
	• return loss
	• route test
	• signal loss:
	  • optical
	  • RF.

Type of fault may include:	• cable fault:
	  • attenuation
	  • cracked fibre
	  • crossed wires
	  • crosstalk
	  • damaged coax
	  • faulty splice
	  • incorrect terminations
	  • moisture ingress
	  • open circuit
	  • short circuit
	• network fault:
	  • customer equipment

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• drop out • latency • loss of addressing • packet loss • poor wireless connection • routing problems.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

Competency field

Competency field	Telecommunications networks engineering

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTTEN4198A Install, configure and test an internet protocol network

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to carry out the installation of network hardware and software, initial configuration according to organisational requirements and testing of an internet protocol (IP) network. This may be part of the upgrade of an existing network or the implementation of a new network. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Officers who carry out installation, maintenance and upgrade of ICT networks apply the skills and knowledge in this unit. They would be employed by telecommunications companies and IT networking provisioning companies. They will gain knowledge of hardware and software installations, routing and switching protocols and diagnostics required for integrating new and converging functionalities to the network.

© Commonwealth of Australia, 2025 Future Skills Organisation

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Prepare to install an IP network	1.1. Prepare for given work according to relevant legislation, occupational health and safety (OHS), codes, regulations and standards 1.2. Arrange access to the site according to required procedure 1.3. Review existing ***network*** design ***documentation*** to ensure it is current and complete 1.4. Select the ***components*** and ***network elements***

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	required to be installed to meet the technical ***requirements*** 1.5. Contact vendors and service suppliers to obtain specifications and availability of identified components 1.6. Develop plans, with prioritised tasks and contingency arrangements, for installation of components with minimum disruption to ***client*** 1.7. Liaise with ***appropriate person*** to obtain approval for the plans, including security clearance and timing
2. Install and configure an IP network	2.1. Install and configure server ***hardware*** and ***software*** according to organisational and industry ***standards***, following plans 2.2. Install and configure ***computer***, other hardware and software according to organisational and industry standards and plans 2.3. Install and configure other software required for the network to operate with security and integrity according to the plan
3. Test and reconfigure the IP network	3.1. Test the installed software and hardware, utilising available ***technical tools***, to ensure that all components are functioning as expected 3.2. Test the network to ensure it is functioning according to specifications 3.3. Resolve problems identified in the modified network
4. Complete documentation and clean up worksite	4.1. Complete hardware and asset recording document in line with ***organisational requirements*** 4.2. Document installation, boot-up and configuration procedures according to organisational requirements 4.3. Tabulate test results and complete all user reports 4.4. Complete client report and notify of status of the network 4.5. Clean up and restore worksite to client's satisfaction 4.6. Secure sign-off from appropriate person

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE This section describes the skills and knowledge required for this unit.
Required skills
• communication skills to liaise with internal and external personnel on technical, operational and business related matters • literacy skills to interpret technical documentation and write reports in required formats • numeracy skills to take test measurements, interpret results and evaluate performance and interoperability of network • planning and organisational skills to plan, prioritise and monitor own work and coordinate the process in liaison with others • problem solving and contingency management skills to adapt configuration procedures to requirements of network and reconfigure depending on differing operational contingencies, risk situations and environments • research skills to interrogate vendor databases and websites to implement different configuration requirements to meet security levels • technical skills to select and use router test software and hardware to suit different network applications
Required knowledge
• client business domain, business function and organisation • current industry-accepted hardware and software products • data and voice transmission technologies and protocols • networking technologies incorporating substantial depth in some areas • router-based network architectures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • plan and prepare for the IP network installation task • select network elements to meet the client business

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	specifications • install, configure and test the network elements to ensure interoperability within the network • apply network topologies, protocols and security issues • apply solutions to defined network problems.
Context of and specific resources for assessment	Assessment must ensure: • site where network installation may be conducted • use of field measurement equipment currently used in industry • network design documentation • equipment specifications • network components • hardware and software • live network • organisational guidelines • networked (LAN) computers • WAN service point of presence.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate installing, configuring and testing a new or updated network • evaluation of report prepared by the candidate outlining testing procedures, test results, recommendation to network changes and completion records • oral or written questioning of required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTTEN4199A Install, configure and test a router • ICTTEN5201A Install, configure and test a server. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Network may include:	• data • internet • internet protocol private branch exchange (IP PBX) • IPTV • large and small local area networks (LAN) • national wide area networks (WAN) • radio frequency identification (RFID) • storage area network (SAN) • voice • voice over internet protocol (VoIP) • virtual private network (VPN).

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
Documentation may include:	• audit trails • client training • equipment inventory • ISO, IEC, AS standards • naming standards • project management templates and report writing • satisfaction reports • version control.
Components may include:	• CD, DVD and Blu-ray drives • central processing unit (CPU) • complementary metal oxide semiconductor (CMOS) battery • central processing unit (CPU) upgrades • fax and modem cards • hard drives (internal and external) • hardware • interface cards • motherboards • RAM upgrades • software • wireless adaptors.
Network elements may include:	• adaptors • communications cables and connectors • hubs • routers • servers • switches.
Requirements may refer to:	• application • business • network • people in the organisation • system.
Client may include:	• external organisations • individuals • internal departments • Internal employees.
Appropriate person may include:	• authorised business representative • client

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• supervisor.

Hardware may include but is not limited to:	• cables:
	  • Category 5e, 6, or 7
	  • crossover
	  • fibre
	  • shielded twisted pairs (STP)
	  • straight through
	  • unshielded twisted pairs (UTP)
	• digital subscriber line (DSL) modems
	• modems and other connectivity devices
	• network elements
	• personal computers
	• remote sites
	• workstations.

Software may include:	• commercial software applications • in-house or customised software • open software • organisation-specific software • packaged software.
Standards may include:	• ISO, IEC, IEEE, IETF, ITU, AS standards • organisational standards • project standards.
Computer may include:	• laptops • mobile equipment • netbooks • other devices • servers • smart phones • workstations.
Technical tools may include:	• diagnostic software • hyperterminal • LAN Cat tester.
Organisational requirements may include:	• preventative maintenance and diagnostic policy • problem solution processes • roles and technical responsibilities in the network management • vendor and product service level support agreements

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• work environment.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

Competency field

Competency field	Telecommunications networks engineering

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTTEN4199A Install, configure and test a router

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to undertake router installation and configuration as part of the upgrade in an existing network or the implementation of a new network. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Officers who carry out installation, maintenance and upgrade of ICT networks apply the skills and knowledge in this unit. They would be employed by telecommunications companies and IT networking provisioning companies. They will gain knowledge of routing protocols and routing diagnostics required for integrating new and converging functionalities to the network.

Licensing/Regulatory Information

Refer to Unit Descriptor

© Commonwealth of Australia, 2025 Future Skills Organisation

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Prepare to install a router	1.1. Prepare for given work according to relevant legislation, occupational health and safety (OHS), codes, regulations and standards 1.2. Arrange access to the site according to required procedure 1.3. Ascertain ***network*** topology from technical requirements 1.4. Determine the internet protocol (IP) addressing scheme for the network topology 1.5. Evaluate network management and security ***requirements***, with reference to current and future requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	1.6. Select a ***router*** with appropriate features according to technical requirements 1.7. Choose ***cables***, wireless application protocol (WAP), wide area network (WAN) connectors and other ***peripherals*** according to network and router specification, and ***WAN protocols***
2. Install and configure a router	2.1. Assemble router and peripherals according to manufacturer's requirements, enterprise guidelines and ***protocols*** 2.2. Connect communications cables and WAN connectors to the router and to the network 2.3. Configure router according to manufacturer's instructions and technical requirements, taking into account interoperability requirements with network components
3. Test the router and reconfigure the network	3.1. Test the router for connectivity across the network and for ***routing protocol*** functions 3.2. Adapt or modify the predetermined router configuration, depending on outcome of tests 3.3. Review router in line with organisational requirements 3.4. Test router and peripherals according to manufacturer's instructions and technical requirements 3.5. Test ***hardware*** and router to ensure full functionality and interoperability 3.6. Reconfigure additional hardware as required 3.7. Make adjustments to network depending on test results
4. Complete documentation and clean up worksite	4.1. Tabulate test results and complete all user reports 4.2. Complete report and notify client of status of the network 4.3. Clean up and restore worksite to client's satisfaction 4.4. Secure sign off from ***appropriate person***

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business related matters
- literacy skills to interpret technical documentation and write reports in required formats
- numeracy skills to take test measurements, interpret results and evaluate performance and interoperability of network
- planning and organisational skills to plan, prioritise and monitor own work and coordinate the process in liaison with others
- problem solving and contingency management skills to adapt configuration procedures to requirements of network and reconfigure depending on differing operational contingencies, risk situations and environments
- research skills to interrogate vendor databases and websites to implement different configuration requirements to meet security levels
- technical skills to select and use router test software and hardware to suit different network applications

Required knowledge

- Australian Computer Society Code of Ethics
- effect of a router on delimiting broadcast traffic and on conserving bandwidth
- how dynamic routing algorithms or protocols create and maintain routing tables
- providing the network with redundant paths for reliability and the way routers manage these paths
- router:
  - basic router commands
  - configuration:
    - clock rate
    - password protection of router
    - routing protocol
  - dynamic routing
  - firewalls
  - functions
  - routing protocols and how they operate
  - tables
- router-based network architectures
- use of routing tables in intelligent packet routing and switching

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • plan and prepare for the router installation task • select a router to meet the client business specifications • install and test the router that ensures interoperability within the network and applying router principles and technologies • report on the status of the completed installation and seek sign off and customer satisfaction • use routers • apply solutions to defined routing problems.
Context of and specific resources for assessment	Assessment must ensure: • site where router installation may be conducted • use of field measurement equipment currently used in industry • relevant router specifications • technical requirements for a network • router • cabling • networked (LAN) computers • WAN service point of presence • relevant equipment and organisational documentation.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate installing, configuring and testing a router • oral or written questioning of underpinning skills and knowledge • evaluation of report prepared by the candidate outlining testing procedures, results,

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	recommendations to network changes and completion records.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTTEN4198A Install, configure and test an internet protocol network. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
Network may include:	• data • internet • internet protocol private branch exchange (IP PBX) • internet protocol TV (IPTV) • large and small LANs • national WANs • radio frequency identification (RFID) • storage area network (SAN) • voice • voice over internet protocol (VoIP) • virtual private network (VPN).
Requirements may be in reference to:	• application • business • network • employees in the organisation • system.
Router may include:	• 3Com OfficeConnect Remote 810 ADSL • 3Com SuperStack 400 • Cisco 800 and ISR Series routers • Cisco uBR7200 universal broadband routers • Cisco wireless access points • D-Link routers • Intel Express series • Juniper routers • Linksys routers • Motorola Vanguard series • Netopia routers.
Cables may include:	• Category 5e, 6 or 7 • crossover • fibre • shielded twisted pair (STP) • straight through • unshielded twisted pair (UTP).

Peripherals may include:	• Bluetooth devices
	• fax
	• Firewire (IEEE 1394)
	• input equipment:
	  • keyboard
	  • mouse

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• pens • touch pad • laptops and desktop computers • mobile phones • modems • multimedia kits • palmtops and personal digital assistants (PDAs) • personal computer • printers • scanners • speakers • tape cartridges • universal serial bus (USB).
WAN protocols may include:	• advanced data communications protocol (ADCP) • binary synchronous control (BSC) • high-level data link control (HDLC) • point to point protocol (PPP) • synchronous data link control (SDLC) • transmission of IP datagrams over X.25, Frame Relay or ATM.

Protocols may include:	• AppleTalk protocol - Phase 2 (1989)
	• dynamic host configuration protocol (DHCP)
	• novell protocol suite:
	  • internetwork packet exchange (IPX)
	  • NetBIOS emulator
	  • netware core protocol
	  • sequenced packet exchange (SPX)
	• TCP/IP:
	  • internet control message protocol (ICMP) see router protocols above
	  • Net BT
	• WAN protocols (encapsulations):
	  • advanced data communications protocol (ADCP)
	  • binary synchronous control (BSC)
	  • high-level data link control (HDLC)
	  • point-to-point protocol (PPP)
	  • synchronous data link control (SDLC).

Routing protocol may include:	• Cisco discovery protocol (CDP) • dynamic routing

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• enhanced interior gateway routing protocol (EIGRP) • exterior gateway protocol and border gateway protocol (superseded by BGP) • netWare link state protocol (NLSP) • open shortest-path first interior gateway protocol (OSPF) • routing information protocol (RIP) • static routing.
Hardware may include:	• DSL modems • modems and other connectivity devices • networks • personal computers • remote sites • servers • workstations.
Appropriate person may include:	• authorised business representative • client • supervisor.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Competency field

Competency field	Telecommunications networks engineering

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTTEN4202A Install and test a radio frequency identification system

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to undertake a radio frequency identification (RFID) installation, configuration and testing. This could be part of the upgrade in an existing or the implementation of a new logistical or security network using RFID technology. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Officers in field work who carry out installation, maintenance and upgrade of ICT networks apply the skills and knowledge in this unit. They would be employed by telecommunications and IT networking provisioning companies specialising in RFID technology. They will be able to use acquired knowledge of integrating new and converging functionalities to a network.

Licensing/Regulatory Information

Refer to Unit Descriptor

© Commonwealth of Australia, 2025 Future Skills Organisation

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Prepare to install specified RFID system	1.1. Prepare for given work according to relevant legislation, occupational health and safety (OHS), codes, regulations and standards 1.2. Arrange access to the site according to required procedure 1.3. Choose the most suitable ***RFID system*** based on ***specifications*** and in consultation with ***appropriate person*** 1.4. Evaluate options for equipment installation siting and antenna positioning to include the effects of electromagnetic interference and shielding 1.5. Investigate causes of interference with RFID

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	systems 1.6. Specify the ***network element requirements*** for the installation and any ***training requirements*** for ***clients*** 1.7. Create a deployment plan including down times and advise the ***user group*** 1.8. Obtain all components and devices required for the RFID system
2. Install specified RFID system and resolve any faults	2.1. Install interrogators or readers according to given plan 2.2. Install tags and document the correct procedures for locating and orienting tags 2.3. Install and undertake network ***configuration*** activities using relevant operating system and application upgrades to integrate RFID system into the overall network 2.4. Troubleshoot problems between interrogators or readers, tags and networks including tuning for ***optimum performance*** and rectify any faults
3. Test the RFID installation according to specification and standards	3.1. Test system installation according to design specifications and standards including optimum placement of tags and data transmission completeness and record outcomes 3.2. Carry out any changes 3.3. Validate changes or additions against specifications 3.4. Document the test results
4. Complete documentation in compliance with customer requirements and clean up worksite	4.1. Complete all ***documentation*** for users according to the design and customer requirements 4.2. Complete report and notify client of status of the network and standards applying to the installation 4.3. Clean up and restore worksite to client's satisfaction 4.4. Secure sign off from appropriate person

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
Required skills
• communication skills to liaise with internal and external personnel on technical, operational and business related matters • literacy skills to interpret technical documentation and write reports, user and training documentation in required formats • numeracy skills to take test measurements, interpret results and evaluate performance and interoperability of RFID system • planning and organisational skills to plan, prioritise and monitor own work • problem solving and contingency management skills to adapt configuration procedures to requirements of RFID network and reconfigure depending on differing operational contingencies, risk situations and environments • research skills to interrogate vendor databases and website to implement different configuration requirements to meet client design specifications • technical skills to select and use RFID diagnostic test, application software and hardware to suit different RFID network applications
Required knowledge
• client business domain, business function and organisation • common network cable types and connectors • compatibility issues and resolution procedures • configuration of internet protocol (IP) networks • current industry-accepted hardware and software products • desktop applications and operating systems as required • enterprise communication and training systems in relation to training and advising staff involved in the deployment • network topologies • RFID technologies incorporating substantial depth in network operating systems, protocols, interrogators and sensors, wireless technologies and cabling standards

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • plan installation • use basic research skills for adapting RFID technologies to specified plan and design • implement and verify RFID operations • implement RFID architecture across a secure environment • encode RFID tags and attach to items • integrate RFID information into business applications • configure the network with IP addressing • cable and test the RFID network • create technical and user documentation.
Context of and specific resources for assessment	Assessment must ensure: • site where RFID installation may be conducted • use of field measurement equipment currently used in industry • relevant network element specifications • technical requirements for an RFID network • cabling • networked (LAN) computers • workstations • RFID diagnostic software • WAN service point of presence.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate installing and testing an RFID system • oral or written questioning of underpinning skills and knowledge • evaluation of report prepared by the candidate outlining testing procedures, test results and recommendation of network changes.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTTEN4198A Install, configure and test an internet protocol network.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
RFID system may include:	• antenna • cabling • databases • interrogators or readers • power supplies • tags • wireless units.

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

Specifications may include:	• cable drops
	• device mounting locations
	• electrical specifications for:
	  • adapters
	  • interrogators
	  • power units
	  • readers
	  • sensors
	  • tags
	  • wireless units
	• interrogation zone locations
	• RFID network topology
	• site diagrams.

Appropriate person may include:	• authorised business representative • client • IT support manager • network administrator • RFID network manager • small or medium enterprise (SME) customer • small office home office (SOHO) customer • supervisor.
Network element requirements may include:	• drives • routers • servers • switches.
Training requirements relate to:	• education requirements for support staff • client requirements • relevant enterprise policies.
Clients may include:	• external organisations • individual people • internal departments • internal employees • logistic company • warehouse.
User group may include:	• administration • dispatch • inventory • stores • transport

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• warehouse.
Configuration may include:	• access control needs • hostnames • IP addresses • network connectivity issues • port numbers • server domains.

Optimum performance may include:	• antenna type
	• cable length or loss
	• equipment mounting and protection
	• interference considerations
	• latency
	• tag type
	  • active
	  • operating frequency
	  • passive.

Documentation may include:	• audit trails • ISO, IEC, AS standards • naming standards • operational instructions • project management templates • report writing • training documentations • version control.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Co-requisite units		

Competency field

Competency field	Telecommunications networks engineering

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTTEN4210A Implement and troubleshoot enterprise routers and switches

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to implement and troubleshoot routers and switches. It involves configuring and programming routers and switches to establish voice and data services and applications over local area networks (LAN) and wide area networks (WAN) connections for enterprise networks. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	This unit applies to medium to large enterprises requiring the use of internetwork services and applications. It also applies to networks employing virtual LAN (VLAN) connectivity and hierarchical addressing schemes and where access control will be used to achieve network security. Relevant job roles include installer of IP networks, enterprise network technician, network administrator and network support.

Licensing/Regulatory Information

Refer to Unit Descriptor

© Commonwealth of Australia, 2025 Future Skills Organisation

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Prepare for implementation of network routers and switches	1.1. Prepare for given work according to occupational helath and safety (***OHS***) and ***environmental requirements*** with ***appropriate personnel*** 1.2. Identify safety hazards and implement risk control measures in consultation with appropriate personnel 1.3. Determine nature and scope of the network routers and network switches and ***network resources*** from job briefs or appropriate personnel 1.4. Select and obtain network services and network application requirements according to ***enterprise procedures***

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	1.5. Obtain identified operating instructions, manuals, hardware and software testing methodologies 1.6. Consult appropriate personnel to ensure the task is coordinated effectively with others involved at the worksite
2. Implement network switches and routers	2.1. Configure routers and switches according to manufacturer's specifications and enterprise procedures 2.2. Determine ***network addressing scheme*** for network connectivity and verify using ***calculations*** 2.3. Activate and verify network WAN links to provide network connectivity 2.4. Enable ***network services*** and ***network applications*** to the network to complete network connectivity process 2.5. Set up traffic access and filtering according to enterprise procedures
3. Troubleshoot network switches and routers	3.1. Monitor network performance and isolate faults using diagnostic and analysis tools 3.2. Troubleshoot network and internet connectivity according to manufacturer's specifications and enterprise procedures
4. Document configuration and troubleshooting records	4.1. Restore work site to safe condition according to established safety procedures 4.2. Record and store ***essential implementation information*** according to enterprise procedures 4.3. Notify appropriate personnel about the completion of the task according to enterprise procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE This section describes the skills and knowledge required for this unit.
Required skills
• communication skills to liaise with technical staff • literacy skills to read and interpret enterprise procedures, manuals and specifications

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

- numeracy skills to interpret technical data and perform calculations
- planning and organisational skills to plan and prioritise own work
- problem solving skills to:
  - deal with unexpected situations on the basis of safety and specified work outcomes
  - troubleshoot common network problems
- safety awareness skills to:
  - apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
  - follow enterprise OHS procedures
  - work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- technical skills to :
  - configure and activate network access and security measures
  - configure switches and routers to enable LAN and WAN links
  - connect enterprise networks using WAN services and applications
  - connect the enterprise network to external services
  - maintain enterprise network documentation
  - troubleshoot network faults and implement recovery action
  - use a hierarchical internet protocol (IP) network address scheme
  - use tools and equipment to analyse enterprise network

Required knowledge

- access control lists
- correct use of tools and equipment
- enterprise:
  - features and applications
  - OHS procedures
  - record keeping procedures
  - switching and routing protocols and strategies:
    - hierarchical addressing
    - multilayer switching
    - routing protocols
    - VLAN routing
- implement enterprise WAN links
- network diagnostic and troubleshooting techniques
- network modelling

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • determine customer networking requirements • configure routers and switches using hierarchical addressing over VLANs to meet network link requirements • enable and control access to network services and applications across the network • diagnose and rectify network hardware and device configuration faults • document configuration information, fault-finding history and remediation action.
Context of, and specific resources for assessment	Assessment must ensure: • a network facility and workstations • operating instructions, installation documents and manuals • hardware and software testing tools currently used in industry.
Methods of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate installing and troubleshooting routers and switches • review documentation of implementation and troubleshooting prepared by the candidate • oral or written questioning to assess required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example with: • ICTTEN2207A Install and configure a home or small office network • ICTTEN2208A Install and configure a small to

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	medium business network • ICTTEN2209A Build and maintain a secure network. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
OHS may include:	• awards provisions • hazardous substances and dangerous goods codes • legislation

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• local safe operation procedures • material safety management systems • protective equipment.
Environmental requirements may include:	• dust • excessive energy and water use • excessive noise • fumes • gas • liquid waste • smoke emissions • solid waste • vapour.
Appropriate personnel may include:	• customer • manager • network manager • site engineer • supervisor.
Network resources may include:	• domain name system (DNS) server • dynamic host configuration protocol (DHCP) server • files • software • web browser.

Enterprise procedures may include:	• instructions:
	  • designs
	  • drawings
	  • job sheets
	  • plans
	• manufacturer's specifications
	• operational procedures
	• reporting and communication
	• use of tools and equipment.

Network addressing scheme may include:	• dynamic • static • subnet.
Calculations may include:	• binary addition • binary conversion • binary division • binary multiplication

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• binary number system • binary subtraction.
Network services may include:	• authentication servers • collaborative services • DHCP • directory services • DNS • email • network file system • printing • web services.
Network applications may include:	• media player • spreadsheet • word-processor.
Essential implementation information may include:	• fault history • installation software • IP addressing schemes • logical and physical diagrams • network administrator codes • network recovery actions • passwords • router configuration details • security access codes • switch configuration details.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Co-requisite units		

Competency field

Competency field	Telecommunications networks engineering

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTTEN4211A Design, install and configure an internetwork

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to design, install and configure an enterprise local area network (LAN) and wide area network (WAN) internetwork. It involves testing and troubleshooting an internetwork. The design involves determining network requirements and topology selection for wired and wireless infrastructure. Advanced routing and addressing schemes are also used in the design. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	This unit applies to the design, installation and configuration of cable and wireless networks suitable for large, medium and small office home office (SOHO) enterprises. Relevant job roles include designer and installer of IP networks, enterprise internetwork technician, network administrator and network support.

© Commonwealth of Australia, 2025 Future Skills Organisation

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Prepare for the design and installation of an internetwork	1.1. Prepare for given work according to occupational health and safety (***OHS***) and ***environmental requirements*** with ***appropriate personnel*** 1.2. Identify safety hazards and implement risk control measures in consultation with appropriate personnel 1.3. Determine nature and scope of the ***internetwork*** from job briefs and appropriate personnel 1.4. Obtain operating instructions, manuals, hardware

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	and software testing methodologies 1.5. Consult appropriate personnel to ensure the task is coordinated effectively with others involved at the worksite
2. Design an enterprise internetwork	2.1. Produce enterprise ***internetwork topology*** after considering technical requirements, physical and financial constraints and expansion projections 2.2. Determine ***network devices*** and ***network resources*** according to enterprise procedures 2.3. Produce the internetwork design including network security and router and switch configurations to meet design specifications and ***enterprise procedures***
3. Install and configure a designed internetwork	3.1. Install network hardware to network topology design plan according to enterprise procedures 3.2. Determine ***network addressing scheme*** for network connectivity and verify using ***calculations*** 3.3. Configure routers and switches to perform the logical connection of the internetwork 3.4. Conduct connectivity and performance tests to verify the network installation meets the design specification 3.5. Troubleshoot internetwork and internet connectivity according to manufacturer's specifications and enterprise procedures
4. Complete and document network design and installation	4.1. Restore worksite to safe condition according to established safety procedures 4.2. Record and store ***essential design and installation information*** according to enterprise procedures 4.3. Notify appropriate personnel about the completion of the task according to enterprise procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• communication skills to liaise and negotiate with customers and peers to achieve

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

design specifications

- literacy skills to:
  - develop network documentation and maintain network records
  - read and interpret enterprise procedures, manuals and specifications
- numeracy skills to interpret technical data
- planning and organisational skills to plan and prioritise own work
- problem solving skills to:
  - deal with unexpected situations on the basis of safety and specified work outcomes
  - troubleshoot common network problems according to help desk procedures
- safety awareness skills to:
  - apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
  - follow enterprise OHS procedures
  - work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- technical skills to:
  - analyse the impact of applications on traffic flow in the network
  - apply network design methodologies to design networks that provide a range of services and applications found in larger networks
  - conduct a wireless site survey
  - determine customer requirements and a design specification
  - determine the impact of upgrading hardware and software on network functionality
  - identify the technical requirements, constraints and manageability issues for a given customer network requirement
  - install a network design
  - use tools and equipment

Required knowledge

- enterprise OHS procedures
- open systems interconnect (OSI) layered communication model
- network requirements:
  - applications
  - lifecycle
  - manageability
  - quality of service
- network design concepts:
  - business requirements

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• network topologies • physical and financial constraints • security • wired or wireless options • tool and equipment use • troubleshooting: • impact of network failure • maintenance • troubleshooting methodology

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • determine customer requirements • design an internetwork that uses advanced routing and addressing techniques • install an internetwork according to design specification • configure network devices to meet design functionality • document internetwork design, installation and configuration.
Context of, and specific resources for assessment	Assessment must ensure: • a site where design and installation of an internetwork network may be conducted • use of tools, equipment and materials currently used in industry • relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
Methods of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate designing, installing and configuring an internetwork • review of documents prepared by the candidate detailing design and installation • oral or written questioning to assess required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example with: • ICTTEN2207A Install and configure a home or small office network • ICTTEN2208A Install and configure a small to medium business network • ICTTEN4210A Implement and troubleshoot enterprise routers and switches. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

© Commonwealth of Australia, 2025 Future Skills Organisation

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
OHS may include:	• awards provisions • hazardous substances and dangerous goods codes • legislation • local safe operation procedures • material safety management systems • protective equipment.
Environmental requirements may include:	• dust • excessive energy and water use • excessive noise • fume • gas • liquid waste • smoke emissions • solid waste • vapour.
Appropriate personnel may include:	• customer • manager • network manager • site engineer • supervisor.
Internetwork may refer to:	• connection of two or more distinct computer networks or network segments via a common routing technology • LAN • WAN.
Internetwork topology may refer to:	• physical and logical interconnection between network devices: • bus

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• mesh • ring • star • tree.

Network devices may include:	• cable and wireless:
	  • router
	  • server
	  • switch.

Network resources may include:	• files • printers • software.

Enterprise procedures may include:	• instructions:
	  • designs
	  • drawings
	  • job sheets
	  • plans
	• manufacturer's specifications
	• operational procedures
	• reporting and communication
	• use of tools and equipment.

Network addressing scheme may include:	• dynamic • static • subnet.
Calculations may include:	• binary addition • binary conversion • binary division • binary multiplication • binary number system • binary subtraction.
Essential design and installation information may include:	• configuration • design • installation • installation software • IP addressing schemes • logical and physical diagrams • network administrator codes • passwords • security access codes

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• troubleshooting reports.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

Competency field

Competency field	Telecommunications networks engineering

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTTEN4213A Configure and troubleshoot advanced network switching

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to perform network switch configuration and troubleshooting, including network management by remote access for wired and wireless networks. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	This unit applies to large networks involving wireless local area networks (WLANs), virtual local area networks (VLANs), interVLAN routing, remote access management and operating system management of network devices. Relevant job roles include installer of internet protocol (IP) enterprise networks, enterprise network technician, network administrator and network support.

Licensing/Regulatory Information

Refer to Unit Descriptor

© Commonwealth of Australia, 2025 Future Skills Organisation

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Prepare to work on a switched network	1.1. Prepare for given work according to occupational health and safety (***OHS***) and ***environmental requirements*** with ***appropriate personnel*** 1.2. Identify safety hazards and implement risk control measures in consultation with appropriate personnel 1.3. Determine nature and scope of the network and network topology from job briefs or appropriate personnel 1.4. Select and obtain wireless and wired network components requirements according to ***enterprise procedures*** 1.5. Obtain operating instructions, manuals, hardware

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	and software testing methodologies 1.6. Consult appropriate personnel to ensure the task is coordinated effectively with others involved at the worksite
2. Configure network switches	2.1. Set up and configure network switches according to manufacturer's specifications and enterprise procedures 2.2. Build and configure a routed network using remote access management 2.3. Establish multiple VLANs across the network to manage the access and traffic across the network
3. Troubleshoot network	3.1. Monitor network traffic and assess performance against manufacturer's specifications and established procedures 3.2. Troubleshoot network according to manufacturer's specifications and enterprise procedures 3.3. Identify and rectify faults according to enterprise procedures
4. Complete and document network installation and configuration	4.1. Restore worksite to safe condition according to established safety procedures 4.2. Record and store ***essential configuration information*** according to enterprise procedures 4.3. Notify appropriate personnel about the completion of the task according to enterprise procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE This section describes the skills and knowledge required for this unit.
Required skills
• communication skills to liaise with customers and peers to achieve outcomes • literacy skills to read and interpret enterprise procedures, manuals and specifications • numeracy skills to interpret technical data • planning and organisational skills to plan and prioritise own work • problem solving skills to:

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• deal with unexpected situations on the basis of safety and specified work outcomes • troubleshoot network malfunctions • safety awareness skills to: • apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities • follow enterprise OHS procedures • work systematically with required attention to detail without injury to self or others, or damage to goods or equipment • technical skills to: • configure a network to support multiple VLANS • configure a switch using VLAN trunking and spanning tree protocols • design and build a interVLAN switched network • establish LAN switching over a wireless network • install switch and remote access security • use tools and equipment
Required knowledge
• enterprise OHS procedures • interVLAN routing • spanning tree protocol • switch and remote network security management • tool and equipment correct usage • troubleshooting procedures • VLAN trunking protocol • wireless LAN setup and access configuration

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and	Evidence of the ability to:

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
evidence required to demonstrate competency in this unit	• build and configure a routed network • configure a VLAN on a given network topology • configure VLAN trunking and spanning tree protocols • establish VLANs over a wireless network • design and deploy remote access and network security.
Context of, and specific resources for assessment	Assessment must ensure: • a site where configuring advanced network switching may be conducted • use of tools, equipment and materials currently used in industry • relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.
Methods of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate performing network switch configuration • direct observation of the candidate troubleshooting network problems • oral or written questioning to assess required knowledge.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example with: • ICTTEN2209A Build and maintain a secure network • ICTTEN4212A Apply advanced routing protocols to network design • ICTTEN4214A Install and maintain a wide area network. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
OHS may include:	• awards provisions • hazardous substances and dangerous goods codes • legislation • local safe operation procedures • material safety management systems • protective equipment.
Environmental requirements may include:	• dust • excessive energy and water use • excessive noise • fume • gas • liquid waste • smoke and fugitive emissions

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• solid waste • vapour.
Appropriate personnel may include:	• customer • manager • network manager • site engineer • supervisor.

Enterprise procedures may include:	• instructions:
	  • designs
	  • drawings
	  • job sheets
	  • plans
	• manufacturer's specifications
	• operational procedures
	• reporting and communication
	• use of tools and equipment.

Essential configuration information may include:	• installation software • installation and configuration documentation • IP addressing schemes • logical and physical diagrams • network administrator codes • passwords • security access codes • troubleshooting reports.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Co-requisite units		

Competency field

Competency field	Telecommunications networks engineering

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTTEN5024A Provide consultancy and technical support in the customer premises equipment sector

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes skills and knowledge required to provide consultancy to a client wishing to install or upgrade telecommunications equipment on their premises. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Technicians involved in planning and consultancy with organisations deploying converging technologies integrating data, wireless, optical and internet protocol (IP) networks apply the skills and knowledge in this unit. This unit applies to installation of cabling and equipment within customer premises in domestic, commercial or industrial installations. Communications applications include digital and analog, telephony, data, video, digital broadcasting, computer networks, local area networks (LAN), wide area networks (WAN), and multimedia.

© Commonwealth of Australia, 2025 Future Skills Organisation

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Plan to provide consultancy and technical support in the CPE sector	1.1. Obtain consultancy requirements from the client 1.2. Establish relationship with ***industry*** experts to maintain currency of latest industry innovations in the customer premises equipment (CPE) sector 1.3. Access sources of ***product and technical information*** relating to change and innovation 1.4. Access and evaluate latest data relating to change and innovation in the CPE sector for company use

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	within an appropriate timeframe
2. Assess customer needs	2.1. Develop knowledge and understanding of the client's business to provide an accurate solution according to the requirements 2.2. Investigate communication requirements including ***networks***, based on business needs and demands 2.3. Ascertain client's ***physical and financial parameters*** 2.4. Present reports and recommendations within client's timeframes
3. Provide consultancy and expert advice	3.1. Provide timely and accurate expert ***consultancy*** and advice to ***company staff and clients*** 3.2. Provide communication solutions that meet client's requirements and that meet ***relevant legislation***, ***codes***, ***regulations and standards*** 3.3. Provide alternative solutions for clients where their needs cannot be better met in an innovative way 3.4. Provide a report on advice and solutions that match both the physical and financial demands of the client 3.5. Consult with the client for an ***agreed solution***
4. Control and manage product and technical information	4.1. Provide all relevant personnel with the latest product and technical information 4.2. Monitor the information flow process to ensure that appropriate personnel have access to the latest data 4.3. Provide the client with final consultancy reports and recommendations

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• communication skills to liaise with customers to ensure requirements are known and can be met within timeframes • literacy skills to interpret technical specifications and related documentation • numeracy skills to make calculations for dimensioning, cost and financial

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

considerations
• planning and organisation skills to make site access arrangements and plan and prioritise own work
• problem solving skills to develop communications solutions
• research skills to gain and maintain relevant and current technical product knowledge
• technical skills to:
  • interpret drawings related to customer's telecommunications equipment
  • provide expert advice on installation and upgrade
  • use databases and diagnostic equipment

Required knowledge
• common customer telecommunications applications and related equipment • connections to carrier infrastructure or equipment • current legislation relating to installation of telecommunications equipment and connection to carrier services • enterprise operations and policies • IP networks • new and emerging technologies • overview knowledge of customer premise equipment

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• provide consultancy advice related to full range of CPE products including:
	  • product models and equipment types
	  • peripherals
	  • facilities including network facilities
	  • system features

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	• provide alternative solutions where customer's needs cannot be met precisely • prepare clear and concise reports to customers complete with recommendations and supporting data, including full financial considerations • provide regular updates to both company personnel and clients as to the latest product and technical information.

Context of and specific resources for assessment	Assessment must ensure:
	• site with:
	  • network or computer layout documentation and premises plans
	  • network components
	  • equipment specifications
	  • organisational guidelines
	  • business plan or model
	• relevant legislation.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate undertaking a practical exercise • review of reports completed by the candidate for different test examples and situations • oral or written questioning to assess knowledge of planning, types of systems and applications.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example with: • ICTTEN5204A Produce technical solutions from business specifications. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Industry may include:	• communications • information technology • multimedia industries.

Product and technical information relates to:	• CPE product
	• facilities including:
	  • network facilities
	  • system features
	• peripherals
	• product models and equipment types.

Networks may be:	• external • internal • in Australia • overseas.

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

Physical and financial parameters may include:	• physical parameters:
	  • building size
	  • equipment inventory
	  • new equipment requirement
	  • power requirements
	  • site access
	  • size of organisation
	  • staffing
	• financial parameters:
	  • capital expenditure
	  • current budget allocation
	  • current return on investment
	  • forecast fund allocation
	  • future return on investment
	  • operational costs.

Consultancy may be:	• direct to a customer • through a third party considering provision of consultant's company product • supported by explanatory documentation.
Company staff and clients may include:	• own or partner company staff • sales and technical staff.
Relevant legislation, ***codes***, ***regulations and standards*** include:	• Australian Communications Industry Forum (ACIF) standards and codes • Australian Communications and Media Authority (ACMA) technical standards • AS/NZS 3000:2007 • AS/NZS 3080:2003 • AS/NZS 3084:2003 • AS/NZS 3085.1:2004 • AS/NZS IEC 61935.1:2006 • AS/NZS IEC 61935.2:2006 • AS/NZS ISO/IEC 14763.3:2007 • AS/NZS ISO/IEC 15018:2005 • AS/NZS ISO/IEC 24702:2007 • Australian building codes and regulations • Australian Standards AS 3901, 3902 • fire regulations • heritage legislation • International Standards ISO 9000, 9001

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• OHS • Trade Practices Legislation.
Agreed solution includes:	• cost details • equipment requirements • procurements information • recommended vendors • return on investment (RoI) information.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

Competency field

Competency field	Telecommunications networks engineering

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTTEN5168A Design and implement an enterprise voice over internet protocol and a unified communications network

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to design and implement the infrastructure for enterprise voice over internet protocol (VoIP) and unified communications (UC) systems to meet business requirements using converging network technologies. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Telecommunications or IT technicians with significant technical expertise apply the skills and knowledge in this unit. They combine technical expertise with a range of analytical, research and planning skills to develop and tailor IP convergence solutions for particular business needs. This unit applies to individuals working to design and implement the infrastructure to enable enterprises to use VoIP and other packet-based services. It also applies to enterprises outlaying capital looking for return on investment by reducing operating costs and improved unified internet protocol (IP) based communication systems.

Licensing/Regulatory Information

Refer to Unit Descriptor

© Commonwealth of Australia, 2025 Future Skills Organisation

Pre-Requisites

Prerequisite units	

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Plan and design VoIP infrastructure to meet business requirements	1.1. Ascertain ***end-user requirements*** in consultation with client 1.2. Select VoIP infrastructure in line with business and end-user requirements, within budget limitations 1.3. Select ***protocols for converged networks*** 1.4. Select ***hardware***, ***software***, ***network*** and security ***requirements*** according to agreed business and end-user specifications 1.5. Investigate ***factors*** affecting bandwidth and calculate bandwidth usage for various codecs, including considerations of overhead, connection quality and connection speeds

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
2. Install and configure VoIP infrastructure to meet business requirements	2.1. Implement telephone number mapping (ENUM), number portability, end point addressing, path selection, calling classes and overlapping number ranges 2.2. Install, configure and test ***gatekeepers*** 2.3. Install and test ***convergent terminal equipment*** and software 2.4. Install software and configure and test VoIP services 2.5. Configure security access levels to safeguard data, making use of appropriate tools
3. Configure a UC network	3.1. Obtain the topology and components of a UC network 3.2. Analyse the potential of IP multimedia subsystem (IMS) network architecture to enable the convergence of voice, video and data applications and various mobile network technologies over IP based layer 3.3. Incorporate the use of a communications server to provide ***real-time multimedia communications*** 3.4. Select common videoconferencing codecs according to standards and practices 3.5. Select ***voice and video conferencing hardware*** 3.6. Implement IP-private branch exchange (PBX) functionalities in the UC network
4. Test and evaluate the performance of convergent networks	4.1. Develop possible ***network congestion solutions*** for common network congestions to meet quality of service (QoS) specified 4.2. Provide solutions for problems in contacting emergency services 4.3. Analyse network traffic and resolve problems using packet sniffer, monitoring software and hardware solutions 4.4. Troubleshoot convergent communications over wireless networks 4.5. Analyse types and effects of ***attacks***, including ***man-in-the-middle attacks*** 4.6. Plan ways to counteract denial of service (DoS) and distributed DoS (DDoS) attacks 4.7. Predict the impact of virtual local area network (VLAN) hopping, media access control (MAC) address movements, additions and changes on

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	network
5. Test and verify the security access levels	5.1. Analyse types of intrusion detection 5.2. Monitor and evaluate capability and reliability of security systems 5.3. Make system alterations to ensure protection against known and potential threats 5.4. Verify and test that user settings conform to security policies 5.5. Backup, upgrade and scan systems to minimise attacks
6. Complete documentation and sign off procedures	6.1. Complete required records and notify customer 6.2. Remove installation waste and debris from worksite and dispose of according to environmental requirements to maintain safe worksite conditions 6.3. Reinstate site according to customer and company requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to evaluate network traffic protocols and bandwidth considerations
- communications skills to liaise with clients and determine business requirements
- planning and organisational skills to plan, design and implement VoIP infrastructure
- project planning skills in relation to setting benchmarks and identifying scope
- problem solving skills in a predictable range of network problems
- research skills for identifying, analysing and evaluating broad features of a particular business domain and best practice in networking technologies
- technical skills to :
  - compare session initiation protocol (SIP), H323 and media gateway control protocol (MGCP) or media gateway control (Megaco)
  - configure a VoIP and a UC network and assess the performance of convergent networks and test and verify security access levels
  - define latency, jitter and wander and implement methods for reducing or

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
eliminating them using jitter buffer, QoS, traffic shaping and VLANs • describe the format of a SIP uniform resource identifier (URI) • evaluate and implement SIP trunking to connect enterprise internet protocol (IP)-based communications systems over long distances • identify common G.7xx codes and describe the impact of compression on voice quality • identify the components of SIP • identify the functions of signalling protocols for converged networks
Required knowledge
• broad knowledge of: • client business domain, business function and organisation • current and emerging industry accepted hardware and software products • current and emerging transmission technologies and protocols • networking technologies

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design and implement the infrastructure for enterprise VoIP and UC systems to meet business requirements using converged networks • apply knowledge of current networking, transmission technologies and protocols • evaluate network traffic protocols and bandwidth considerations • configure a UC network • assess the performance of convergent networks • test and verify security access levels.
Context of and specific resources for	Assessment must ensure:

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
assessment	• live network • networked computers • network design documentation • equipment specifications • network components.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of report prepared by the candidate outlining design process undertaken, including challenges faced and how these were addressed • direct observation of the candidate installing and configuring VoIP infrastructure and configuring a UC network • evaluation of system designed and implemented by the candidate in terms of performance and suitability of for business needs.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTTEN5201A Install, configure and test a server. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	

End-user requirements may include:	• how and what the organisation wants in regard to:
	  • preventative maintenance and diagnostic policy
	  • problem solution processes
	  • return on investment (RoI)
	  • roles and technical responsibilities in the IT department
	  • vendor and product service level support agreements
	  • work environment.

Protocols for converged networks may include:	• H225 • H320 • H323 • H450 • Megaco • MGCP • SIP.
Hardware may include:	• cable or DSL modems • IP phones • modems • multi-layer switches • networks • other connectivity devices • personal computers

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• remote sites • routers • servers • switches • wireless devices • workstations.
Software may include:	• commercial software applications • communications software • in-house or customised software • networking device operating systems • organisation-specific software • packaged software.
Network may include:	• data and voice • internet • large and small LANs • national wide area networks (WANs) • private lines • use of public switched telephone network (PSTN) for dial-up modems only • virtual private networks (VPNs).
Requirements may include:	• reference to the business, system, application, network or people in the organisation • simple addition or upgrade to a major new installation.
Factors may include:	• codec choice • compression • latency • packet reordering • protocol incompatibility • QoS issues.
Gatekeepers may include:	• call manager • media gateway • media gateway controller (call agent) • signalling gateway (SG).
Convergent terminal equipment may include:	• analogue telephone adapter (ATA) • IP phones • single line adapter • soft phones: • personal digital assistant (PDA)

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• wireless fidelity (WiFi).
Real-time multimedia communications may include:	• directory look-up • email • file exchange • instant messaging (IM) • presence • video conferencing.
Voice and video conferencing hardware may include:	• multi-point control unit (MCU) • session border controller (SBC) • set-top box.
Network congestion solutions may include:	• changing configurations • monitoring network traffic and protocols • upgrades.
Attacks may include:	• brute force and dictionary attacks • illicit servers • man-in-the-middle attacks • unsolicited calls • viruses • voicemail compromises.
Man-in-the-middle attacks include:	• packet sniffing • registration hijacking • TP connection hijacking.

Unit Sector(s)

Unit sector	Telecommunications

Competency field

Competency field	Telecommunications networks engineering

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTTEN5200A Install, configure and test a local area network switch

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to undertake local area network (LAN) switch installation and configuration as part of the upgrade in an existing network or the implementation of a new network. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Officers employed by telecommunications companies and IT networking provisioning companies who carry out installation, maintenance and upgrade of ICT networks apply the skills and knowledge in this unit. It involves LAN switch installation, configuration and testing in field work. It also applies to switching protocols and diagnostics required for integrating new and converging functionalities to the network.

Licensing/Regulatory Information

Refer to Unit Descriptor

© Commonwealth of Australia, 2025 Future Skills Organisation

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Prepare to install the network switch	1.1. Prepare for installation in line with site specific safety requirements and enterprise occupational health and safety (OHS) processes and procedures 1.2. Notify customer to arrange access to site 1.3. Document the ***topology*** of the LAN 1.4. Obtain current and future ***network capacity*** predictions according to current and future business requirements from the ***appropriate person*** 1.5. Specify the number and type of ***switch*** required, with reference to future network requirements 1.6. Specify the requirements for network management and security, as prescribed by organisational policy

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	1.7. Select the switch and switch operating system software version with the appropriate features according to required specifications
2. Install and configure the network switch	2.1. Assemble, rack mount and connect switch and ***peripherals*** according to manufacturer's requirements 2.2. Connect ***user*** to access points using ***cable*** that meets the appropriate ***standard*** 2.3. Establish a valid network connection with other network devices 2.4. Configure a network internet protocol (IP) address for the switch 2.5. Install or configure simple network management protocol (SNMP) agent software, on each switch, to collect network traffic data for the management information base (MIB) from that segment of the network and relay it to the management console 2.6. Install and configure SNMP management console software on a computer designated to be the network manager's main console, to collect network traffic data from the switch acting as agents 2.7. Manually configure the user access ports of the switch for speed and for full or half-duplex operation
3. Test the network switch and reconfigure the network	3.1. Test the switch and other network devices according to manufacturer's requirements and organisational guidelines 3.2. Test to ensure that there is connectivity across the network 3.3. Modify the network to verify SNMP management software 3.4. Make adjustments to the network, depending on test and troubleshooting results
4. Complete documentation and clean up worksite	4.1. Tabulate test results and complete all user reports 4.2. Complete report and notify client of status of the network 4.3. Clean up and restore worksite to client's satisfaction 4.4. Secure sign off from appropriate person

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- research skills to interrogate vendor databases and websites to implement different configuration requirements to meet security levels
- communication skills to liaise with internal and external personnel on technical, operational and business related matters
- literacy skills to read and interpret technical documentation and write reports in required formats
- numeracy skills to take test measurements, interpret results and evaluate performance and interoperability of network
- planning and organisational skills to plan, prioritise and monitor own work
- problem solving and contingency management skills to adapt configuration procedures to requirements of network and reconfigure depending on differing operational contingencies, risk situations and environments
- technical skills to:
  - install and configure network switch
  - select switch and switch operating system
  - specify requirements for network management and security
  - test switch and other network devices

Required knowledge

- advantages and disadvantages of switches over hubs
- Australian Computer Society Code of Ethics
- common network cable types and connectors
- common network topologies
- differences between standard and intelligent (i.e. configurable) switches and between switches and hubs
- documentation skills for networks
- implementation and configuration of networks
- providing the network with redundant paths for reliability and the way routers and switches manage these paths

Evidence Guide

EVIDENCE GUIDE

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • plan and prepare for the LAN switch installation task • select a LAN Switch to meet the client business specifications • install switches without the network losing connectivity or failing • install and test the switch that ensures interoperability within the network • use a range of switch configurations • apply solutions to a variety of switch-related problems • report on the status of the completed installation and seek sign off and customer satisfaction • use switches • apply solutions to defined switching problems.
Context of and specific resources for assessment	Assessment must ensure: • site where switch installation must be may be conducted • use of field measurement equipment currently used in industry • relevant switch specifications, technical requirements for a network, switch, cabling, networked (LAN) computers, workstations, servers and WAN service point of presence.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate installing, configuring and testing a LAN switch • oral or written questioning of required skills and knowledge • evaluation of report prepared by the candidate outlining testing procedures, results and recommendations to network changes.
Guidance information for	Holistic assessment with other units relevant to the

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
assessment	industry sector, workplace and job role is recommended, for example: • ICTTEN4198A Install, configure and test an internet protocol network. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Topology may include:	• bus • hierarchical

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• hybrid • ring • star.

Network capacity may include:	• expandability:
	  • number of available uplink ports
	• hardware reliability
	• LAN topology support:
	  • AppleTalk
	  • Ethernet
	  • FDDI
	  • Token Ring
	• port bandwidth capabilities
	  • 100 megabits per second)
	• redundant power supply (AC/DC).

Appropriate person may include:	• authorised business representative • client • IT support manager • network Administrator • network manager • small or medium enterprise (SME) customer • small office home office (SOHO) customer • supervisor.
Switch by vendors may include:	• 3Com • Accton • Bay • Cisco • DLink • Intel • NetGear • System 3000 Ethernet.

Peripherals may include:	• Bluetooth devices
	• fax
	• Firewire (IEEE 1394)
	• input equipment may include:
	  • mouse
	  • pens
	  • touch pad
	• laptops and desktop computers
	• mobile phones

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• modems • multimedia kits • palmtops and personal digital assistants (PDAs) • personal computer • printers • scanners • speakers • tape cartridges • universal serial bus (USB).
User may include:	• department within the organisation • person within a department • third party.
Cable may include:	• Category 5e, 6 or 7 • crossover • fibre • shielded twisted pairs (STP) • straight through • unshielded twisted pairs (UTP).
Standard may include:	• EIA/TIA 568A • EIA/TIA 568B.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Competency field

Competency field	Telecommunications networks engineering

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTTEN5201A Install, configure and test a server

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to install and configure a server as part of an upgrade to an existing network or the implementation of a new network. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Officers employed by telecommunications companies and IT networking provisioning companies who carry out installation, maintenance and upgrade of ICT networks apply the skills and knowledge in this unit when working on: • server installation, configuration and testing in field work • server operating systems, protocols and diagnostics required for integrating new and converging functionalities to the network.

Licensing/Regulatory Information

Refer to Unit Descriptor

© Commonwealth of Australia, 2025 Future Skills Organisation

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Prepare to install a server	1.1. Prepare for work in line with site specific safety requirements and enterprise occupational health and safety (OHS) processes and procedures 1.2. Notify customer to arrange access to site 1.3. Obtain ***server applications*** and features from ***appropriate person*** 1.4. Choose the most suitable ***server*** with reference to required server application and server features 1.5. Choose the most suitable ***network operating system*** features with reference to required server solution and technical ***requirements*** 1.6. Provide alternative server solutions with reference to

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	required server application and server features 1.7. Review required installation options 1.8. Analyse data migration requirements 1.9. Apply backup and recovery requirements with reference to organisational policy 1.10. Analyse education and training requirements for support staff and in line with ***client***, requirements and relevant enterprise policies 1.11. Create and document a deployment plan 1.12. Advise ***user*** group of deployment and potential down times
2. Install and configure the server	2.1. Backup and restore local data in preparation for installation 2.2. Install and configure the server as required by technical requirements and functional specifications 2.3. Install and undertake configuration activities using relevant operating system and application upgrades 2.4. Reconnect and reconfigure relevant connectivity devices
3. Test the server and reconfigure the network	3.1. Run the ***system*** testing for benchmarking against client specification and requirements according to test plan, and record outcomes 3.2. Analyse the error report and make changes as required 3.3. Test required changes or additions 3.4. Validate changes or additions against specifications
4. Complete documentation and clean up work site	4.1. Make and document server ***configuration*** and operational changes 4.2. Tabulate test results and complete all documentations for users 4.3. Complete client report and notify of status of the network 4.4. Clean up and restore worksite to client's satisfaction 4.5. Secure sign-off from appropriate person

© Commonwealth of Australia, 2025 Future Skills Organisation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business related matters
- literacy skills to interpret technical documentation and write reports in required formats
- numeracy skills to take test measurements, interpret results and evaluate performance and interoperability of network
- planning and organisational skills to plan, prioritise and monitor own work
- problem solving and contingency management skills to adapt configuration procedures to requirements of network and reconfigure depending on differing operational contingencies, risk situations and environments
- research skills to interrogate vendor databases and websites to implement different configuration requirements to meet security levels
- technical skills to select and use server diagnostic test, application software and hardware to suit different network applications

Required knowledge

- Australian Computer Society Code of Ethics
- common network:
  - cable types and connectors
  - topologies
- compatibility issues and resolution procedures
- desktop applications and operating systems as required
- documentation skills for networks
- enterprise communication/training systems in relation to training and advising staff involved in the deployment
- features of:
  - current network operating systems (NOS)
  - current server applications compatibility issues and resolution procedures
- implementation and configuration of servers
- system backup procedures

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • analyse server and network operational issues • apply user applications and relate user needs when configuring a server • create technical and user documentation • install and configure server • test server and reconfigure network • troubleshoot server and network failures.

Context of and specific resources for assessment	Assessment must ensure:
	• site where server installation may be conducted
	• relevant server specifications:
	  • cabling
	  • networked (LAN) computers
	  • server diagnostic software
	  • switch
	  • technical requirements for a network
	  • WAN service point of presence
	  • workstations
	• relevant regulatory documentation that impacts on installation activities.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate installing or updating network • oral or written questioning of required skills and knowledge • evaluation of report prepared by the candidate outlining testing procedures, test results and recommendation to network changes.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended,

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	for example: • ICTTEN4198A Install, configure and test an internet protocol network. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Server applications may include:	• database and data warehousing • directory services • file sharing

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• line of business applications • management • messaging • network and remote access • printer sharing • terminal services • web services.
Appropriate person may include:	• authorised business representative • client • IT support manager • network administrator • network manager • small or medium enterprise (SME) customer • small office home office (SOHO) customer • supervisor.
Server may include:	• application or web servers • BEA Weblogic servers • email servers • file and print servers • firewall servers • FTP servers • IBM VisualAge and WebSphere • Novell NDS servers • proxy or cache servers.
Network operating system may include latest versions of:	• Apple OS • Linux OS • Unix OS • Windows OS.
Requirements may be in reference to:	• application • business • database • network • people in the organisation • platform • system.
Client may include:	• external organisations • individuals • internal departments • internal employees.

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
User may include:	• department within the organisation • person within a department • third party.
System may include:	• application service provider • applications • databases • gateways • internet service provider (ISP) • operating systems • servers.
Configuration may include:	• access control needs • cache sizes • consumers and suppliers • database cache • directory configuration • domain name system (DNS) • entry cache • hostnames • IP addresses • large objects • lightweight directory access protocol (LDAP) clients • log file rotation • NetBIOS naming • network connectivity issues • port numbers • root domain name (DN) • search and write performance • server domains.

Unit Sector(s)

Unit sector	Telecommunications

© Commonwealth of Australia, 2025 Future Skills Organisation

Co-requisite units

Co-requisite units		

Competency field

Competency field	Telecommunications networks engineering

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTTEN5203A Dimension and design a radio frequency identification system

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to undertake a radio frequency identification (RFID) installation, configuration and testing. This could be part of the upgrade to an existing or the implementation of a new logistical or security network using RFID technology according to design specifications. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Officers in field work who carry out installation, maintenance and upgrade of ICT networks apply the skills and knowledge in this unit to integrate new and converging functionalities to a network. They would be employed by telecommunications and IT networking provisioning companies specialising in RFID technology.

Licensing/Regulatory Information

Refer to Unit Descriptor

© Commonwealth of Australia, 2025 Future Skills Organisation

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Prepare to dimension and design an RFID system	1.1. Obtain ***business requirements*** for the ***client*** from an ***appropriate person*** for the design of the ***RFID system*** 1.2. Research ***RFID technologies***, their functionalities and the different implementations of configurations 1.3. Select suitable software and hardware types to ensure that the proposed system is designed to meet business requirements 1.4. Conduct a survey of available interrogators or readers, tags and wireless units
2. Dimension and design an RFID	2.1. Select the most appropriate interrogators or readers for the given specification to ensure their

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
system	compatibility with current network infrastructure if applicable 2.2. Minimise interrogator to interrogator interference 2.3. Verify that antenna geometry and footprint are consistent with the chosen design 2.4. Minimise sources of interference 2.5. Incorporate into the ***RFID design*** the use of anti-collision protocols 2.6. Customise appropriate ***tag to client requirements*** 2.7. Predict the performance for read distance, write distance and tag response time to confirm that these conform with client requirements 2.8. Select the ***optimal locations*** for an RFID tag to be placed on an item 2.9. Prepare a design proposal for the RFID system including ***specifications*** 2.10. Prepare a report containing design ***solutions*** and recommendations of preferred products, including the justification for recommendations 2.11. Submit report to client for approval
3. Document the specified design	3.1. Complete documentation according to client requirements 3.2. Inform client about standards applying to the design 3.3. Secure sign off of RFID design from appropriate person

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• communication skills to liaise with internal and external personnel on technical, operational and business related matters • literacy skills to interpret technical documentation and write reports, design solutions and recommendations in required formats • numeracy skills to interpret technical specifications and evaluate possible design solutions for optimum RFID system

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

• planning and organisational skills to plan, prioritise and monitor own work
• problem solving and contingency management skills to adapt configuration procedures to requirements of RFID network
• research skills to interrogate RFID vendor databases and website to implement different configuration requirements to meet client design specifications
• technical skills to:
  • evaluate and select RFID interrogators, readers and wireless units
  • evaluate antenna designs and protocols for design considerations to suit particular RFID system

Required knowledge
• business process design • client business operations, business function and organisation • compatibility issues with existing system and resolution procedures • configuration of internet protocol (IP) networks • customer and business liaison • desktop applications and operating systems as required • linkage between operational processes • network protocols and operating systems • network topologies • radio spectrum and RFID frequencies • RF interference • RFID architecture • RFID hardware and software • RFID technologies incorporating substantial depth in network operating systems, protocols, interrogators and sensors, wireless technologies and cabling standards • RFID vendor product knowledge • security protocols, standards and data encryption

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • adapt RFID technologies to specified plan and design • evaluate RFID client specifications against accepted industry practices • include RFID architecture across a secure environment • encode RFID tags • attach encoded RFID tags and track the movement of tagged items • integrate RFID information into business applications • produce design information in configuring the network with IP addressing • produce information that can be shared between businesses • make recommendations and offer optimum design solutions.

Context of and specific resources for assessment	Assessment must ensure:
	• sites providing:
	  • client functional requirements
	  • RFID equipment specifications
	  • database software
	  • simulation software
	  • organisational guidelines
	  • network or computer layout documentation and premises plans.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate undertaking an RFID installation, configuration and testing • oral or written questioning to assess required knowledge • evaluation of research methodologies and the final design proposal prepared by the candidate outlining solutions and recommendations.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTTEN5204A Produce technical solutions from

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	business specifications. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Business requirements may include:	• application of RFID • business inventory • network or people in the organisation • systems currently in use
Client may include:	• external organisations

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• individuals • internal departments • internal employees • logistic company • security organisation • warehouse.
Appropriate person may include:	• authorised business representative • client • IT support manager • network administrator • RFID network manager • small or medium enterprise (SME) customer • small office home office (SOHO) customer • supervisor.
RFID system may include:	• antenna • cabling • databases • interrogators or readers • power supplies • tags • wireless units.
RFID technologies may include:	• RFID and networking tools and equipment • RFID interrogators/readers and tags • servers and workstations.
RFID design may include:	• hardware upgrades • implementing a new system • new hardware • new software • simulation software • software upgrades • user training.
Tag to client requirements may include:	• encryption requirements • memory size • security.

Optimal locations may include:	• media and adhesive selection for tags
	• package contents
	• packaging:
	  • inserts
	  • items

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• labels • tags • product to attach to: • liquids • metal • polarisation • tag orientation and location • tag stacking (shadowing).
Specifications may include:	• cable drops • device mounting locations • electrical specifications for: • adapters • interrogators • power units • readers • sensors • tags • wireless units • interrogation zone locations • RFID network topology • site diagrams.
Solutions may include:	• hardware upgrades • implementing a new system • new hardware • new software • software upgrades • user training.

Unit Sector(s)

Unit sector	Telecommunications

© Commonwealth of Australia, 2025 Future Skills Organisation

Co-requisite units

Co-requisite units		

Competency field

Competency field	Telecommunications networks engineering

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTTEN5204A Produce technical solutions from business specifications

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to compile and evaluate the business specifications from a client and to produce business solutions for consideration. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Officers in field work who carry out network design and implementation of practical technical solutions of ICT networks apply the skills and knowledge in this unit. They would be employed by telecommunications and IT networking provisioning companies specialising in integrating the converging and emerging technologies of ICT networks.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units	

© Commonwealth of Australia, 2025 Future Skills Organisation

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Prepare to produce technical solutions from business specifications	1.1. Obtain ***business requirements*** and ***business specifications*** for the ***client*** from ***appropriate person*** 1.2. Research and identify the business model of the client 1.3. Determine technical specifications for business 1.4. Clarify and confirm the business ***problem*** and key stakeholders' ***requirements*** with stakeholders 1.5. Document business objectives and problem and confirm details with appropriate person
2. Evaluate the impact of the technical requirements	2.1. Review and assess business problems, opportunities and objectives 2.2. Determine ***technical requirements*** in respect of input and output, interface, process flow or quality

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	requirements 2.3. Analyse ***hardware***, ***software*** and ***network*** requirements 2.4. Build business platform based on software solutions 2.5. Investigate processes to be changed by the business solution 2.6. Produce an evaluation document on the ***impact*** of the technical requirements on the business
3. Produce technical business solutions	3.1. Develop ***technical solutions*** in response to problems and business requirements 3.2. Determine costs involved to implement the technical business solution 3.3. Investigate a range of supplier products to determine which one best meets technical requirements 3.4. Produce a report document on the technical solutions addressing the business specifications and recommendations against business requirements
4. Document and validate the agreed solutions	4.1. Forward technical requirements and solution overview to appropriate person for feedback 4.2. Analyse feedback and incorporate change as required 4.3. Document changes and distribute to appropriate person 4.4. Obtain sign off on final business solution

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• communication skills to liaise with internal and external personnel on technical, operational and business related matters • literacy skills to interpret technical documentation and write reports, design solutions and recommendations in required formats • numeracy skills to interpret business requirements and specifications and evaluate possible technical design scenarios for optimum solution

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

• planning and organisational skills to plan, prioritise and monitor own work
• problem solving and contingency management skills to adapt varied business procedures to requirements
• research skills to interrogate vendor databases and website to implement different solutions to meet client business specifications
• technical skills to:
  • determine technical specifications
  • evaluate optimum solutions
  • produce technical solutions

Required knowledge

• business processes
• client business domain, business function and organisation
• compatibility issues and resolution procedures
• configuration of internet protocol (IP) networks
• customer and business liaison
• desktop applications and operating systems as required
• documenting technical specifications
• linkage between processes
• security protocols, standards and data encryption
• technologies, such as:
  • ICT network topologies
  • network protocols and operating systems
  • radio frequency (RF) networks and principles
  • optical networks and principles
  • mobile cellular networks
  • core networks
  • access networks
  • radio frequency identification (RFID) hardware and software.

Evidence Guide

EVIDENCE GUIDE
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • adapt technologies to specified technical solutions • use site design software and hardware • evaluate client specifications against accepted industry practices • produce technical solutions from business specifications • produce information that can be shared between businesses • apply design concepts to business solutions • produce technical reports • make recommendations and offer optimum design solutions.
Context of and specific resources for assessment	Assessment must ensure: • client functional requirements • business specifications • database software • simulation software • organisational guidelines • network/computer layout • site design software and hardware • information on a range of ICT business solutions.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of evaluation document prepared by the candidate outlining the impact of technical requirements on the business • oral or written questioning assessing required knowledge • review of research methodologies and the final proposal prepared by the candidate outlining solutions and recommendations.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTTEN5203A Dimension and design a radio frequency identification system

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	• ICTOPN6128A Design a dense wavelength division multiplexing system. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Business requirements may include:	• business application • business plan • existing system • mission statement • nature of the business

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• network or people in the organisation.
Business specifications may include:	• budget allocation • budget costs estimate • future plan • growth forecast • technical requirements • timeline.
Client may include:	• external organisations • finance company • health industry • ICT company • individual people • internal departments • internal employees • manufacturing company • service industry.
Appropriate person may include:	• authorised business representative • client • ICT network administrator • ICT network manager • ICT support manager • small or medium enterprise (SME) customer • small office home office (SOHO) customer • supervisor.
Problem may refer to:	• application • business • business need or opportunity that needs to be addressed • network or people in the organisation • system.
Stakeholders may include:	• development team • project team • sponsor • user.
Requirements may be in reference to:	• application • business • database • network • people in the organisation

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• platform • system.
Technical requirements may refer to:	• bandwidth • hardware problems • network growth • network security • network traffic congestions • new technologies • power usage • software problems • transmission dropouts • upgrades.

Hardware may include:	• cabling networks
	• internet protocol TV (IPTV)
	• multimedia
	• network elements:
	  • gateways
	  • local area network (LAN) switches
	  • routers
	  • servers
	  • wireless networks
	• optical networks
	• radio networks
	• RFID equipment
	• switching equipment
	• transmission equipment
	• voice and data equipment.

Software may include:	• commercial • customised software • in-house • packaged.
Network may include:	• broadband • data • ICT networks • internet • intranet • media • radio • RFID

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• security • switching • telecommunications • transmission.
Impact may refer to:	• fewer downtimes • improved efficiency • improved response times • increased return on investment (RoI) • lower operational costs • more 'user friendly' network.

Technical solutions may include:	• audit requirements
	• changes to:
	  • network infrastructure
	  • security or privacy provisions
	• e-business or e-commerce solution
	• hardware upgrades
	• implementing a new system
	• inventory management
	• new hardware
	• new software
	• occupational health and safety (OHS) requirements
	• quality requirements
	• software upgrades
	• user training.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Co-requisite units		

Competency field

Competency field	Telecommunications networks engineering

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTTEN5217A Plan a wireless mesh network

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to plan a wireless mesh network comprised of radio nodes organised in a mesh topology. Wireless mesh networks provide users with secure wireless roaming beyond traditional wireless local area network (LAN) boundaries and are readily deployed in areas that lack wired backhaul. The mesh topology and ad-hoc routing give mesh networks stability, offer redundancy and have the ability to self-form and self-heal. Mesh networks enable local communities and those in remote areas to participate in a distributed shared network without the need for centralised management. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Technical staff who work with wireless networking equipment or radio communications equipment apply the skills and knowledge in this unit to design a scalable wireless access network using mesh technology for growing communities. This may include planning officers and field officers from private and public organisations.

© Commonwealth of Australia, 2025 Future Skills Organisation

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Research wireless mesh networks and formulate the system architecture	1.1. Confirm with regulatory spectrum management authority the ***specific regulations*** regarding radio characteristics 1.2. Contact customer to determine ***wireless mesh network*** design specifications 1.3. Evaluate the use of ***frequency bands*** for the

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	operation of the WMN 1.4. Evaluate and select the ***wireless technology***, ***internet protocol*** (***IP***) version and ***mesh routing protocol*** to satisfy design criteria 1.5. Specify and source the ***hardware and software requirements***
2. Prepare a detailed plan for the mesh network	2.1. Evaluate the maximum line of sight distances achievable between backbone nodes and between mesh nodes 2.2. Plan the sites where mesh nodes will be located and plot to scale on a map 2.3. Estimate the quantity and length of the links required between mesh nodes to ensure design is within specifications 2.4. Design backbone links in the mesh topology for scalability of future deployments 2.5. Select the location of the internet ***gateway*** for the network 2.6. Allocate operating frequencies at mesh nodes, backbone nodes and wireless access points for optimum network performance with minimal interference from adjacent network routers
3. Plan the IP addresses and subnet mask	3.1. Produce an addressing scheme and allocate IP addresses and subnet mask to mesh nodes, backbone nodes and access points 3.2. Produce a configuration scheme to secure the network
4. Document the mesh network	4.1. Document the plans and drawings for the mesh network 4.2. Produce an ***installation plan*** for the building of the mesh network 4.3. Following installation, configuration and testing of the mesh network, incorporate 'as built' amendments if appropriate

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- analysis skills to evaluate information and make recommendations
- communication skills to liaise with vendors and installation personnel on technical and operational matters
- literacy skills to interpret technical documentation and write reports in required formats
- numeracy skills to perform calculations, interpret results and evaluate different types of technical data
- planning and organisational skills to plan, prioritise and monitor own work and that of others
- problem solving and contingency management skills to adapt testing procedures to requirements of particular situations and modify activities depending on operational contingencies, risk situations and environments
- technical skills to:
  - configure and set up IP addresses and subnet masks
  - install software
  - select and specify appropriate performance tests and test equipment

Required knowledge

- antenna gain, polarisation
- cable loss
- calculation of effective isotropic radiated power (EIRP)
- calculation of line of site radio range
- decibels and related units
- IP addressing and subnet masks
- network security and firewalls
- network topologies
- radio frequency (RF) frequency bands
- routing protocols
- transmission control protocol (TCP)-IP protocols
- wireless networking hardware, access points, wireless routers and gateway
- wireless protocols

© Commonwealth of Australia, 2025 Future Skills Organisation

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • evaluate and select wireless technology and mesh routing protocol • plan a wireless mesh network from a project brief • produce an IP addressing scheme • prepare an installation plan.
Context of and specific resources for assessment	Assessment must ensure: • sites where planning a wireless mesh network may be conducted • design criteria and other site related documentation • equipment specifications and technical documentation.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate planning a wireless mesh network • review of plan prepared by the candidate outlining recommendations for the customer • review of IP addressing scheme prepared by the candidate • oral or written questioning to assess knowledge of equipment and technologies as used within the mesh network.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTTEN4050A Install and configure a wireless mesh network • ICTRFN3055A Install a radio communications antenna and feedline.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Specific regulations may include:	• maximum allowable antenna gain • maximum allowable EIRP • maximum allowable power output for transmitter • use of the 2.4 GHz band • use of the 5.8 GHz band.
Wireless mesh network may	• client wireless mesh network - client nodes

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
include:	perform routing • hybrid wireless mesh network - perform mesh and access functions • infrastructure wireless mesh network - mesh routers for the clients.
Frequency bands may include:	• multiple frequencies for access and transmission • same frequency for access and transmission • separate frequencies for access and transmission.
Wireless technology may include:	• 802.11a • 802.11b • 802.11g • 802.11n • 802.11s draft IEEE 802.11 amendment • 802.16.
Internet protocol (***IP***) may include:	• IPv4 • IPv6.
Mesh routing protocol may include:	• ad-hoc on-demand distance vector (AODV) • better approach to mobile ad-hoc networking (BATMAN) • dynamic source routing (DSR) • hybrid wireless mesh protocol (HWMP) • infrastructure wireless mesh protocol (IWMP) • optimised link state routing protocol (OLSR).

Hardware and software requirements may include:	• hardware:
	  • access points
	  • antenna polarisation
	  • directional microwave antennas
	  • omnidirectional microwave antennas
	  • wireless routers
	• software:
	  • open source software:
	  • FreeBSD
	  • Freifunk
	  • proprietary.

Gateway may include:	• asymmetric digital subscriber line (ADSL) • very small aperture terminal (VSAT).

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	

Installation plan may include:	• addressing scheme
	• configuration instructions and commands
	• frequency allocation plan
	• network element details:
	  • MAC address
	  • model, type and serial number
	• security implementation
	• siting of mesh routers and gateways
	• software version.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

Competency field

Competency field	Telecommunications networks engineering

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTTEN6172A Design and configure an IP-MPLS network with virtual private network tunnelling

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to design an internet protocol-multiprotocol label switching (IP-MPLS) network, examine MLPS data flow and configure virtual private network (VPN) tunnelling. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	This unit applies to technical staff dimensioning an IP-MPLS Core Network for a carrier or an internet service provider (ISP). MPLS and VPNs are used to provide secure, reliable and fast IP services in technology convergence of data, voice and video. Relevant job roles include designer and installer of Next Generation Networks (NGN). These IP networks provide fast internet, voice over internet protocol (VoIP) and internet protocol TV (IPTV) services.

Licensing/Regulatory Information

Refer to Unit Descriptor

© Commonwealth of Australia, 2025 Future Skills Organisation

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Plan and design a IP-MPLS network to meet business requirements	1.1. Determine the IP-MPLS ***network design requirements*** in consultation with ***enterprise customer***
	1.2. Optimise ***factors*** affecting design
	1.3. Use label stacking to route MPLS packets in the network to build of ***MPLS services***
	1.4. Dimension layer-3 generation of core backbone to allow MPLS IP-VPN to provide ***MPLS convergence*** services
	1.5. Use MPLS control plane to set up wavelengths
	1.6. Produce the design topology of a MPLS ***network*** to include the location and types of edge label switch

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	routers (LSR) and core LSRs in agreement with enterprise customer
2. Configure a MPLS network and verify traffic engineering (TE) considerations	2.1. Configure edge and core LSRs to provide secure methods of transporting IP packets in the MPLS network using ***layer 2 protocols*** 2.2. Configure the LSRs to provide toll bypass for convergence of voice and data over the IP network 2.3. Classify traffic in MPLS terms and configure the Edge LSR to sort traffic into forward equivalent classes (FECs) 2.4. Install and remove the two ***standardised signalling protocols*** for managing traffic engineering (TE) of MPLS paths 2.5. Configure the MPLS-TE to provide routing on diverse paths to avoid congestion and guarantee bandwidth services
3. Configure a VPN and provide a virtual private LAN service (VPLS)	3.1. Configure a MPLS VPN tunnel for a customer network to provide multipoint-to-multipoint VPN connectivity 3.2. Build a content hosting server into a MPLS based VPN to produce a media network 3.3. Use virtual private LAN services (VPLS) as a VPN method for wide area network (WAN) multipoint-to-multipoint Ethernet connectivity spanning across multiple metropolitan areas 3.4. Produce a VPLS topology using an internet protocol IP-MPLS cloud with provider edge (PE) routers connecting VPLS domains associated with enterprise customer
4. Complete documentation	4.1. Produce a final design plan including network elements, configuration details and recommendations for design changes 4.2. Notify customer and obtain sign off

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
Required skills

• analytical skills to use complex technical data to develop network designs
• communication skills to consult with customers
• literacy skills to read and write reports
• numeracy skills to use binary systems
• project planning skills to set benchmarks and identify scope
• problem solving skills to solve a range of predictable network problems
• research skills to identify, analyse and evaluate broad features of a particular business domain and best practice in networking technologies including hardware and software to be installed
• technical skills to:
  • deploy multipoint-to-multipoint VPLS domains via IP-MPLS cloud
  • implement and verify routing information protocol (RIP), enhanced interior gateway routing protocol (EIGRP), open shortest path first (OSPF) and border gateway protocol (BGP) operations
  • implement MPLS architecture across a WAN environment
  • implement secure VPN tunnels across the MPLS network

Required knowledge
• current industry-accepted hardware and software products • network operating systems and cabling standards • networking technologies • the customer business, domain, function and organisation effect on customer requirements and network equipment • transmission technologies and protocols

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate	Evidence of the ability to: • plan and design a MPLS network that meets business

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
competency in this unit	requirements • configure and test the MPLS network according to specified guidelines • produce appropriate documentation • implement secure VPN tunnelling.
Context of and specific resources for assessment	Assessment must ensure: • a live network and networked computers • network design documentation, equipment specifications and organisational guidelines • network components, routers, switches and multi-layer switches.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate planning, designing and configuring a MPLS • review of documentation completed by the candidate • oral or written questioning of the candidate to assess required knowledge and skills.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example with: • ICTTEN6216A Design and manage internet protocol TV in a service provider network. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	

Network design requirements may include:	• bandwidth
	• firewalls
	• gateway to wireless local area networks (WLAN)
	• multi-layer switches
	• number and type of core and edge routers
	• number of channels
	• protocols:
	  • BGP
	  • label distribution protocol (LDP)
	  • OSPF
	  • resource reservation protocol (RSVP)
	• quality of service (QoS)
	• security
	• servers
	• switches
	• throughput.

Enterprise customer may include:	• banks • clubs • external organisations • hospitals

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• internal departments • teaching institutions.

Factors may include:	• protocol incompatibility
	• QoS issues:
	  • loss rate
	  • latency
	  • jitter
	  • throughput
	• router availability.

MPLS services may include:	• any transport over MPLS (AToM):
	  • 802.1Q - Ethernet VLAN
	  • asynchronous transfer mode (ATM)
	  • Ethernet
	  • frame relay (FR)
	  • high-level data link control (HDLC)
	  • point-to-point protocol (PPP)
	• BGP MPLS VPN
	• Ethernet virtual circuit Ethernet over MPLS(EoMPLS) reroute link or node failure
	• link or node protection failure:
	  • link resilience
	  • node resilience
	• MVPN (multicast VPN)
	• QoS
	• traffic engineering:
	  • bandwidth utilisation
	  • capacity planning
	  • congestion
	  • virtual lines - toll bypass
	• VPLS.

MPLS convergence may include:	• ADSL cable • enterprise VoIP • FR-ATM transport • internet access • IPTV • VPN.
Network may include:	• data and voice • edge and core LSR

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• hosting servers for media content • internet • large and small LANs • national WANs • private lines • use of the public switched telephone network (PSTN) for dial-up modems only • VPNs • wireless.
Layer 2 protocols may include:	• ATM • Ethernet • FR • generic routing encapsulation (GRE) • packet over SONET (POS) • PPP.
Standardised signalling protocols may include:	• CR-LDP • RSVP-TE.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Competency field

Competency field	Telecommunications networks engineering

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTTEN6206A Produce an ICT network architecture design

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to compile, and evaluate the business specifications from a client and produce a set of architecture design solutions that will cater for present and future forecast demands. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Officers in field work who to carry out design and implementation of technical solutions of ICT networks apply the skills and knowledge in this unit for a practical solution in network design. They would be employed by telecommunications and IT networking provisioning companies specialising in integrating the converging and emerging technologies of ICT networks.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units	

© Commonwealth of Australia, 2025 Future Skills Organisation

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Prepare to produce ICT architecture design	1.1. Obtain ***business specifications*** and ***business requirements*** for the ***client*** from ***appropriate person*** 1.2. Review specifications and requirements to identify the type of ***ICT network*** and network specifications required 1.3. Consult with key ***stakeholders*** to identify their requirements 1.4. Assess business problems, opportunities and objectives and confirm details with appropriate person
2. Produce the preliminary ICT network architecture design	2.1. Ascertain ***technical requirements***, including ***hardware***, ***software*** and ***network elements*** according to specifications

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	2.2. Select software solutions to suit business platform 2.3. Develop preliminary physical network diagrams as a preface to ***architecture*** blueprint 2.4. Produce a document on the possible ***impact*** of the network design on the business requirements
3. Evaluate preliminary design and likely performance using forecast demands	3.1. Predict forecast traffic demands and the impact on network design from current and future demand requirements 3.2. Benchmark the design using expected ***performance parameters*** 3.3. Review the design based on identification of the likely performance profile (best/worst) 3.4. Determine costs involved with a range of supplier products 3.5. Produce an evaluation report on predicted performance and costs of the network architecture design addressing the business specifications and recommendations
4. Finalise network design and obtain approval	4.1. Review the benchmarks and requirements and final design proposed 4.2. Determine the support and training requirements needed 4.3. Obtain the latest technical specifications and pricing by contacting possible vendors 4.4. Document the network design and present ***documentation*** to appropriate person for approval 4.5. Obtain sign off on final business solution

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• communication skills to liaise with internal and external personnel on technical, operational and business related matters • literacy skills to read and interpret technical documentation and write reports, design solutions and recommendations

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE

• numeracy skills to interpret business requirements and specifications and evaluate possible technical design scenarios for optimum solution
• planning and organisational skills to plan, prioritise and monitor own work
• problem solving and contingency management skills to adapt varied business procedures to requirements
• research skills to interrogate vendor databases and websites to implement different solutions to meet client business specifications
• technical skills to:
  • evaluate and make further recommendations for optimum solution
  • produce technical designs

Required knowledge

• broad technical knowledge of technologies:
  • Access Networks
  • Core Networks
  • ICT network topologies
  • mobile cellular networks
  • network protocols and operating systems
  • optical networks and principles
  • radio frequency (RF) technologies and principles
  • radio frequency identification (RFID) hardware and software
• business processes
• client business domain, business function and organisation
• compatibility issues and resolution procedures
• configuration of internet protocol (IP) networks
• customer and business liaison
• desktop applications and operating systems
• documenting technical specifications
• linkage between processes
• security protocols, standards and data encryption

Evidence Guide

EVIDENCE GUIDE
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • adapt technologies to specified technical solutions • use site design software and hardware • evaluate client specifications against accepted industry practices • produce technical designs from business specifications • analyse feedback from client and make adjustment to the proposal • produce information that can be shared between businesses • apply design concepts to business solutions • produce technical reports • make recommendations and offer optimum design solutions.

Context of and specific resources for assessment	Assessment must ensure:
	• sites providing:
	  • client functional requirements
	  • business specifications
	  • database software
	  • simulation software
	  • organisational guidelines
	  • network or computer layout
	  • site design software and hardware
	  • information on a range of ICT business solutions.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of evaluation report prepared by the candidate on predicted performance and costs of the network architecture design outlining the business specifications and recommendations • oral or written questioning on required knowledge and skills • evaluation of research methodologies and the final proposal prepared by the candidate outlining

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	solutions and recommendations.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTOPN6128A Design a dense wavelength division multiplexing systems • ICTRFN6171A Produce and evaluate architecture designs for WiMAX networks • ICTTEN6169A Produce and evaluate architecture designs for convergent cellular mobile networks. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Business specifications may include:	• budget allocation • budget costs estimate • current system functionality • future plan • growth forecast • technical requirements • timeline • user problem statement.
Business requirements may include:	• business application • business plan • existing system • mission statement • nature of the business • network or people in the organisation.
Client may include:	• external organisations • ICT company • individuals • internal departments • internal employees • service industry.
Appropriate person may include:	• authorised business representative • client • ICT network administrator • ICT network manager • ICT support manager • small or medium enterprise (SME) customer • small office home office (SOHO) customer • supervisor.
ICT network may include:	• Access Network • broadband network • Core network • customer network • internet • intranet • multimedia • radio

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• RFID • security • switching • telecommunications • transmission • voice, video and data.
Stakeholders may include:	• development team • project team • sponsor • user.
Technical requirements may refer to:	• bandwidth • hardware problems • network growth • network security • network traffic congestions • new technologies • power usage • software problems • transmission dropouts • upgrades.

Hardware may include:	• cabling network
	• cellular phone network
	• internet protocol TV (IPTV)
	• IT network elements:
	  • gateway
	  • local area network (LAN) switch
	  • router
	  • server
	  • wireless network
	• multimedia
	• optical network
	• radio network
	• RFID equipment
	• switching equipment
	• transmission equipment
	• voice and data equipment.

Software may include:	• commercial • customised software • in-house

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• network management • operating system • packaged • patches • vendor propriety.

Network elements may include:	• add-drop multiplexer
	• antenna
	• base station
	• dense wavelength division multiplexing (DWDM) unit
	• encoder
	• IT network elements:
	  • gateway
	  • LAN switch
	  • router
	  • server
	  • wireless network
	• laser module
	• optical unit
	• protocol analyser
	• receiver
	• RF unit
	• RFID unit
	• splitter
	• transmitter.

Architecture may include but is not limited to:	• carrier network architecture:
	  • Access
	  • billing
	  • broadband
	  • broadcasting
	  • Core
	  • data
	  • optical
	  • wireless
	• configuration:
	  • large memory model
	  • requests per second
	  • small memory model
	• database software:

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• Informix • Ingres, DB2 • Microsoft SQL server • mSQL • MySQL • Oracle • SQL server • Sybase • operating system: • Linux • Mac OS • Novell NetWare • Windows.
Impact may refer to:	• fewer downtimes • improved efficiency • improved response times • increased return on investment • lower operational costs • more 'user friendly' network.
Performance parameters may include:	• attenuation • bandwidth • bit error rate (BER) • congestion • data security • distortion • dropouts • interference • latency • packet loss • phase jitter • polarisation • quality of service - QoS • transmission data rate.
Documentation may include:	• audit trails • client training and satisfaction reports • costing details • design report • evaluation report and recommendations • implementation plan

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• international standards • International Electrotechnical Commission (IEC) • Institute of Electrical and Electronics Engineers (IEEE) standards • Internet Engineering Task Force (IETF) standards • International Telecommunications Union (ITU) standards • Australian standards • naming standards • version control.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

Competency field

Competency field	Telecommunications networks engineering

© Commonwealth of Australia, 2025 Future Skills Organisation

ICTTEN8195A Evaluate and apply network security

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to analyse the security features of an internet protocol (IP) based telecommunications network. This applies to IT networking and telecommunications networking topologies. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Telecommunication engineers apply the skills and knowledge in this unit to analyse and report on the security of an ICT network, particularly Internet security. They are responsible for the evaluation of security of ICT networks using converging switching and transmission technologies in local area networks (LAN) and wide area networks (WAN), broadband networks, internet protocol TV (IPTV) and virtual networks.

Licensing/Regulatory Information

Refer to Unit Descriptor

© Commonwealth of Australia, 2025 Future Skills Organisation

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**
1. Analyse the operation of the Internet	1.1. Evaluate the interrelationship of IP to open systems interconnect (OSI) seven layer model and the impact on network topologies and ***network elements***
	1.2. Assess media access control (MAC) and IP addressing and their application in security
	1.3. Report on transmission control protocol/internet protocol (TCP/IP) operations and the use of ***transport protocols*** for transmitting data over the network
	1.4. Examine the various types of ***routing protocols*** and implication on security
	1.5. Analyse forms of ***label switching*** as applied to data

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
	packets 1.6. Use software to simulate the ***least cost algorithms***
2. Analyse internetwork protocols	2.1. Compare connection-oriented and connection-less networks in internetworking applications 2.2. Research the ***design parameters*** used in networks 2.3. Produce a report on IP multi-casting protocols and systems including IP ***frame fields*** of the data frames
3. Research and report internetwork operations	3.1. Analyse protocol considerations of voice over internet protocol (VoIP) 3.2. Research the protocols G723.1, G729 and G729A standards and evaluate their application in internetworking 3.3. Determine the format of JPEG and GIF files as applied to still pictures 3.4. Determine the format of MPEG-2 and H.32x series multimedia protocols for motion pictures 3.5. Evaluate the features of different of ***multi-service protocols*** and of different ***email system protocols*** in networking operations 3.6. Produce a report on the features the different ***web-based protocols*** used in internetworking operations
4. Analyse features and types of network security	4.1. Analyse procedures and processes used for security attacks and use of protection mechanisms 4.2. Research conventional ***encryption algorithms*** and determine possible locations of encryption devices 4.3. Produce a report on conventional encryption key distribution problems and how message authentication and verification is achieved 4.4. Research one-way hashing and secure ***hashing functions*** 4.5. Produce a report on digital signature standard (DSS) principles including ***public key cryptography algorithms*** for network security
5. Research features of public key authentication and email network security protocols	5.1. Research public key authentication using Kerberos 5.2. Analyse how electronic mail security is achieved using pretty good privacy (PGP) 5.3. Research and report on ***IPSec*** protocol security 5.4. Produce a report on encapsulating security payload (ESP) including Internet ***key management processes***

© Commonwealth of Australia, 2025 Future Skills Organisation

ELEMENT	PERFORMANCE CRITERIA
6. Research features of web, network management and system security	6.1. Analyse how web threats and attacks occur in an IP network and determine system intruders and threats 6.2. Research the operation of ***transaction protocols*** 6.3. Evaluate the processes used for selection and protection of system passwords 6.4. Evaluate ***system threats*** and methods used to counter act the threats 6.5. Produce a report on anti-virus protection strategies, including firewall design principles, types and configurations
7. Document evaluation report	7.1. Present a final report to include research and evaluation of network security management principles and the application to the network in the workplace with enhancement recommendations

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to evaluate a range of complex technical data
- communication skills to work effectively within a group and present information
- information technology skills to use:
  - software for desktop research
  - statistical data
  - word processing software
- literacy skills to prepare reports given a specific format and read and interpret technical standards
- planning and organisational skills to manage own work in specific time frames
- research skills to gather and record data from measurements
- technical skills to:
  - operate test equipment
  - use telecommunications management networks

Required knowledge

- administrative network management systems

© Commonwealth of Australia, 2025 Future Skills Organisation

REQUIRED SKILLS AND KNOWLEDGE
• algorithms • cryptography • encapsulation • encryption • enterprise solutions • firewalls • network topologies • operations network management systems • organisational policy and procedures • protocols • routing theory • system threats • transaction protocols • workplace and industry environment

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • analyse the operation of the Internet • implement Internet technology • select Internetwork protocols • research and report various internetwork operations • analyse features and types of network security methods and their weaknesses • analyse features of various cryptography systems • research and report the features of public key authentication and email network security protocols • research and report the features of web, network management and system security.
Context of and specific resources for	Assessment must ensure:

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
assessment	• a telecommunications operations site with a mentor or supervisor appropriately experienced in relevant telecommunications technology and infrastructure • networked computers and relevant software.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • oral or written questioning to assess required knowledge • direct observation of the candidate carrying out relevant security checks within a networked communication system • review of reports completed by the candidate for different security breached scenarios.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplaces and job role is recommended, for example: • ICTPMG8143A Manage a telecommunications project • ICTPMG8149A Evaluate and use telecommunications management networks. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency.

© Commonwealth of Australia, 2025 Future Skills Organisation

EVIDENCE GUIDE	
	Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Network elements may include:	• bridges • gateways • routers • servers • switches.
Transport protocols may include:	• Ethernet • point-to-point protocol (PPP) • synchronous data link control (SDLC) • synchronous optical network (SONET).
Routing protocols may include:	• adaptive • enhanced interior gateway routing protocol (EIGRP) • fixed • flooding • interior gateway routing protocol (IGRP) • open shortest path first (OSPF) • random • routing information protocol (RIP).
Label switching may include:	• cell switching routers (CSR) • IP • tag.
Least cost algorithms may include:	• Bellman-Ford's • Dijkstra's.
Design parameters may include:	• datagram lifetime

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
	• error and flow control techniques • fragmentation • reassembly • routing.
Frame fields may include:	• datagram format • internet control message protocol (ICMP) • IPv6 header and addressing • protocol data unit (PDU).
Multi-service protocols may include:	• border gateway protocol (BGP) • OSPF • resource reservation protocol (RSVP) • real time control protocol (RTCP) • real time protocol (RTP).

Email system protocols may include:	• data transparency:
	  • ASCII
	  • binary
	  • EBCDIC
	  • radix64 coding
	  • Unicode
	• multipurpose mail extensions (MIME)
	• simple mail transfer protocol (SMTP).

Web-based protocols may include:	• common gateway interface (CGI) • file transfer protocol (FTP) • hyper-text mark-up language protocol (HTML) • hyper-text transfer protocol (HTTP) • Java applets and application programmers interface (API).
Encryption algorithms may include:	• Blowfish • Data Encryption Standard (DES) • Feistel Cipher • International Data Encryption Algorithm (IDEA).
Hashing functions may include:	• hash message authentication checksum (HMAC) • Secure HAsh (SHA-1).
Public key cryptography algorithms may include:	• Dieffie-Hellman key exchange • Rivest Shamir Adleman (RSA).

© Commonwealth of Australia, 2025 Future Skills Organisation

RANGE STATEMENT	
IPSec may include:	• authentication header • internet protocol (IP) security • transport and tunnel modes of operation.
Key management processes may include:	• internet security association and key management protocol (ISAKMP) • Oakley key determination protocol (OKDP).
Transaction protocols may include:	• secure electronic transaction (SECT) • simple network management protocol (SNMP) • SNMPv1 (community facility and proxies) • SNMPv3 (message processing and the user security model) • secure socket layer (SSL).
System threats may include:	• logic bombs • trap doors • Trojans • viruses • worms.

Unit Sector(s)

Unit sector	Telecommunications

Co-requisite units

Co-requisite units		

© Commonwealth of Australia, 2025 Future Skills Organisation

Competency field

Competency field	Telecommunications networks engineering

© Commonwealth of Australia, 2025 Future Skills Organisation