



Australian Government

ICT50120 Diploma of Information Technology

Release: 2

ICT50120 Diploma of Information Technology

Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 6.0.
Release 2	Adding the following elective units of competency: <ul style="list-style-type: none">• ICTNWK515 Develop configuration management protocols• ICTPRG509 Build using rapid application development• ICTSAS521 Perform integration tests• ICTSAS523 Perform stress and load tests on integrated platforms.

Qualification Description

This qualification reflects the role of individuals in a variety of information and communications technology (ICT) roles who have established specialised skills in a technical ICT function.

Individuals in these roles carry out moderately complex tasks in specialist fields, working independently, as part of a team or leading deliverables with others. They may apply their skills across a wide range of industries, business functions and departments, or as a business owner (sole trader/contractor).

The skills required for these roles may include, but are not restricted to:

- advanced networking: configuring and managing virtual computing environments, and security within ICT networks
- advanced programming: applying intermediate and advanced programming skills, managing data and building advanced user interfaces to manage organisational requirements
- back end web development: developing and maintaining website information architecture and data
- business analysis: designing and implementing technical requirements, quality assurance processes and contingency plans for businesses
- cloud architecture: developing, improving and designing cloud infrastructure, including disaster recovery plans
- cloud engineering: building, implementing and managing cloud infrastructure and virtual networks
- cyber security: protecting sensitive data and information through security architecture and developing disaster recovery and contingency plans

- database and data management: creating, designing and monitoring systems that store data and optimise organisational knowledge management
- front end web development: designing dynamic and complex websites, user experience solutions and documents using extensible mark-up languages
- game art and design: creating complex 2D and 3D modelling and animation software through scripts and storyboards
- game programming: creating complex 2D and 3D interactive games and media, building graphical user interfaces and applying artificial intelligence in game development
- systems administration: reviewing maintenance procedures and support to help troubleshoot system applications
- systems analysis: modelling and testing data objects, data processes and preferred ICT system solutions.

Licensing, legislative, regulatory or certification considerations

No licensing, legislative or certification requirements apply to this qualification at the time of publication.

Entry Requirements

Nil

Packaging Rules

Total number of units = 20

6 core units plus

14 elective units, of which:

- at least 10 units must be selected from the elective units listed below
- up to 4 units may be selected from the remaining listed elective units or from this or any currently endorsed Training Package or accredited course where the units are packaged in an Australian Qualification Framework (AQF) Level 4, 5 or 6 qualification.

Elective units must be relevant to the work environment and the qualification, maintain the integrity of the AQF alignment and contribute to a valid, industry-supported vocational outcome.

Units selected from other Training Packages or accredited courses must not duplicate units selected from or available within the ICT Information and Communications Technology Training Package.

Where relevant, the choice of elective units set out in the packaging rules above can serve to provide the qualification with one or more of the following specialisations. The rules to achieve a specialisation are detailed at the qualification end.

- Advanced networking
- Advanced programming
- Back end web development
- Business analysis

- Cloud architecture
- Cloud engineering
- Cyber security
- Database and data management
- Front end web development
- Game art and design
- Game programming
- Systems administration
- Systems analysis

Core units

BSBCRT501 Originate and develop concepts
BSBXCS402 Promote workplace cyber security awareness and best practices
BSBXTW401 Lead and facilitate a team
ICTICT517 Match ICT needs with the strategic direction of the organisation
ICTICT532 Apply IP, ethics and privacy policies in ICT environments
ICTSAS527 Manage client problems

Elective units

Group A Advanced Networking Specialisation

ICTNWK529 Install and manage complex ICT networks
ICTNWK536 Plan, implement and test enterprise communication solutions
ICTNWK540 Design, build and test network servers
ICTNWK546 Manage network security
ICTNWK557 Configure and manage advanced virtual computing environments
ICTNWK559 Install an enterprise virtual computing environment

Group B Advanced Programming Specialisation

ICTPRG535 Build advanced user interfaces

ICTPRG547 Apply advanced programming skills in another language
ICTPRG549 Apply intermediate object-oriented language skills
ICTPRG554 Manage data persistence using noSQL data stores
ICTPRG556 Implement and use a model view controller framework

Group C Back End Web Development Specialisation

ICTDBS507 Integrate databases with websites
ICTPRG553 Create and develop REST APIs
ICTPRG554 Manage data persistence using noSQL data stores
ICTWEB522 Develop website information architecture
ICTWEB525 Implement quality assurance process for websites

Group D Business Analysis Specialisation

ICTSAD507 Design and implement quality assurance processes for business solutions

ICTSAD508 Develop technical requirements for business solutions

ICTSAD509 Produce ICT feasibility reports

ICTSAS502 Establish and maintain client user liaison

ICTSAS526 Review and update disaster recovery and contingency plans

Group E Cloud Architect Specialisation

ICTCLD501 Develop cloud disaster recovery plans

ICTCLD502 Design and implement highly-available cloud infrastructure

ICTCLD503 Implement web-scale cloud infrastructure

ICTCLD504 Improve cloud-based infrastructure

Group F Cloud Engineer Specialisation

ICTCLD505 Implement cloud infrastructure with code

ICTCLD506 Implement virtual network in cloud environments

ICTCLD507 Build and deploy resources on cloud platforms

ICTCLD508 Manage infrastructure in cloud environments

Group G Cyber Security Specialisation

ICTCYS407 Gather, analyse and interpret threat data

ICTCYS610 Protect critical infrastructure for organisations

ICTCYS613 Utilise design methodologies for security architecture

ICTSAS524 Develop, implement and evaluate an incident response plan

ICTSAS526 Review and update disaster recovery and contingency plans

Group H Database and Data Management Specialisation

ICTDBS503 Create a data warehouse

ICTDBS505 Monitor and improve knowledge management systems

ICTDBS506 Design databases

ICTDBS507 Integrate databases with websites

ICTSAD502 Model data processes

Group I Front End Web Development Specialisation

ICTICT530 Design user experience solutions

ICTWEB513 Build dynamic websites

ICTWEB514 Create dynamic web pages

ICTWEB518 Build a document using extensible markup language

ICTWEB519 Develop complex web page layouts

ICTWEB520 Develop complex cascading style sheets

Group J Game Art and Design Specialisation

ICTGAM539 Create and implement designs for 3-D games environments

ICTGAM542 Animate 3-D characters for digital games

ICTGAM543 Produce digital animation sequences

ICTGAM545 Manage technical art and rigging in 3-D animations

ICTGAM552 Create complex 3-D characters for games

Group K Game Programming Specialisation

ICTGAM423 Apply artificial intelligence in game development

ICTGAM533 Create complex 3-D interactive games

ICTGAM535 Develop complex 3-D software for games and interactive media

ICTGAM537 Prepare games for different platforms and delivery modes

ICTICT433 Build graphical user interfaces

Group L Systems Administration Specialisation

ICTNWK615 Design and configure desktop virtualisation

ICTSAS512 Review and manage delivery of maintenance services

ICTSAS518 Install and upgrade operating systems

ICTSAS524 Develop, implement and evaluate an incident response plan

Group M Systems Analysis Specialisation

ICTNWK548 Model preferred system solutions

ICTSAD501 Model data objects

ICTSAD502 Model data processes

ICTSAS506 Update ICT system operational procedures

ICTSAS520 Develop detailed test plans

Group N General electives***Advanced IT Support***

ICTICT503 Validate quality and completeness of system design specifications

ICTICT506 Implement process re-engineering strategies

ICTICT518 Research and review hardware technology options for organisations

ICTICT519 Develop detailed component specifications from project specifications

ICTICT520 Confirm transition strategy for a new system

ICTICT521 Select new technology supported business model

ICTICT524 Determine ICT strategies and solutions for organisations

ICTICT525 Identify and manage the implementation of industry specific technologies

ICTICT526 Verify client business requirements

ICTICT528 Deploy smart contracts

ICTSAS517 Use network tools

ICTSAS519 Perform systems tests
ICTSAS521 Perform integration tests
ICTSAS522 Manage the testing process
ICTSAS523 Perform stress and load tests on integrated platforms
ICTSAS525 Develop and conduct client acceptance test
ICTSAS528 Review and develop ICT maintenance strategy
ICTSAS529 Prioritise ICT change requests

Blockchain Solutions

ICTICT527 Develop and maintain blockchain solutions

Business Management

BSBPMG518 Manage project procurement
ICTICT435 Create technical documentation
ICTICT443 Work collaboratively in the ICT industry
ICTICT523 Gather data to identify business requirements
ICTSAD503 Minimise risk of new technologies to business solutions
PSPPCM023 Manage strategic contracts

Data Engineering

ICTDAT501 Gather, analyse and verify data from different source inputs
ICTDAT502 Conduct significance tests
ICTDAT503 Use unsupervised learning for clustering

Design

CUADIG502 Design digital applications
CUADIG503 Design e-learning resources
CUADIG507 Design digital simulations
CUAPHI504 Employ specialised imaging technologies

Digital Media

CUAPOS201 Perform basic vision and sound editing
CUAPOS401 Edit screen content for fast turnaround
CUASOU407 Edit sound
CUASOU504 Produce sound recordings
ICTDMT501 Incorporate and edit digital video

Gaming Development

ICTGAM419 Build a database to support a computer game

ICTGAM532 Create design concepts for digital games and 3-D media
ICTGAM534 Manage interactive media productions
ICTGAM536 Design interactive 3-D applications for scientific and mathematical modelling
ICTGAM538 Manage testing of games and interactive media
ICTGAM540 Design and create models for 3-D and digital effects environments
ICTGAM541 Design and create advanced particles, fluids and bodies for 3-D digital effects
ICTGAM544 Animate physical attributes of models and elements
ICTGAM546 Create and combine 3-D digital games and components
ICTGAM547 Create interactive 3-D environments for digital games
ICTGAM548 Complete digital editing for 3-D and digital effects environments
ICTGAM549 Collaborate in design of 3-D game levels and environments
ICTGAM550 Integrate multiple data sources into interactive 3-D environments
ICTGAM551 Apply digital texturing for the 3-D environment in digital games
ICTGAM553 Integrate databases with online games
ICTGAM554 Create games for mobile devices
ICTGAM555 Analyse business opportunities in the digital games environments
ICTGAM556 Develop and implement physics in 3-D digital games
ICTGAM557 Complete compositing to create elements for 3-D and digital effects environments

Internet of Things

ICTIOT501 Install IT devices and networks
ICTIOT502 Program IoT devices
ICTIOT503 Design and test IoT devices and networks

Networking

ICTNWK515 Develop configuration management protocols
ICTNWK517 Determine best-fit topology for a wide area network
ICTNWK518 Design an enterprise wireless local area network
ICTNWK531 Configure an internet gateway
ICTNWK537 Implement secure encryption technologies
ICTNWK538 Install and maintain valid authentication processes
ICTNWK539 Design and implement integrated server solutions
ICTNWK541 Configure, verify and troubleshoot WAN links and IP services
ICTNWK542 Install, operate and troubleshoot medium enterprise routers
ICTNWK543 Install, operate and troubleshoot medium enterprise switches
ICTNWK544 Design and implement a security perimeter for ICT networks
ICTNWK545 Develop, implement and evaluate systems and applications security
ICTNWK547 Manage system security on operational systems
ICTNWK549 Design ICT security frameworks

ICTNWK550 Design ICT system security controls
ICTNWK551 Build decks using wireless markup language
ICTNWK552 Install and configure network access storage devices
ICTNWK553 Configure enterprise virtual computing environments
ICTNWK554 Manage enterprise virtual computing environments
ICTNWK556 Identify and resolve network problems
ICTNWK558 Monitor and troubleshoot virtual computing environments
ICTNWK623 Manage ICT security

Programming

ICTPRG509 Build using rapid application development
ICTPRG530 Manage projects using software management tools
ICTPRG531 Prepare for application development using current methods
ICTPRG533 Debug and monitor applications
ICTPRG534 Deploy applications to production environments
ICTPRG536 Design application architecture
ICTPRG537 Implement security for applications
ICTPRG538 Create mashups
ICTPRG540 Maintain custom software
ICTPRG541 Monitor and support data conversion to new ICT system
ICTPRG542 Review developed software
ICTPRG543 Develop integration blueprint for ICT systems
ICTPRG544 Install, test and evaluate pilot version of ICT systems
ICTPRG545 Monitor system pilots
ICTPRG548 Develop high-level object-oriented class specifications
ICTPRG550 Perform ICT data conversions
ICTPRG555 Implement object relational mapping framework for data persistence
ICTPRG603 Develop advanced mobile multi-touch applications

Project Management

BSBPMG513 Manage project quality
BSBPMG517 Manage project risk
BSBPMG520 Manage project governance
ICTICT529 Organise and lead agile projects
ICTPMG505 Manage ICT projects

Systems and Software Design

ICTPRG546 Validate application designs against specifications

ICTPRG551 Apply testing techniques for software development

Web Design and Development

ICTWEB441 Produce basic client-side script

ICTWEB452 Create a markup language document

ICTWEB517 Create web-based programs

ICTWEB521 Customise complex ICT content management systems

ICTWEB523 Manage transactions using site server tools

ICTWEB524 Analyse information and assign meta tags

ICTWEB526 Implement and use web services

ICTWEB527 Research and apply emerging web technology trends

Specialisations

As stated above, where relevant, the choice of elective units set out in the packaging rules at qualification outset can serve to provide the qualification with one or more of the following specialisations. The rules to achieve a specialisation are detailed below.

The achievement of more than one specialisation may be indicated on the same testamur as follows:

- ICT50120 Diploma of Information Technology (Advanced Networking)
- ICT50120 Diploma of Information Technology (Advanced Programming)
- ICT50120 Diploma of Information Technology (Back End Web Development)
- ICT50120 Diploma of Information Technology (Business Analysis)
- ICT50120 Diploma of Information Technology (Cloud Architecture)
- ICT50120 Diploma of Information Technology (Cloud Engineering)
- ICT50120 Diploma of Information Technology (Cyber Security)
- ICT50120 Diploma of Information Technology (Database and Data Management)
- ICT50120 Diploma of Information Technology (Front End Web Development)
- ICT50120 Diploma of Information Technology (Game Art and Design)
- ICT50120 Diploma of Information Technology (Game Programming)
- ICT50120 Diploma of Information Technology (Systems Administration)
- ICT50120 Diploma of Information Technology (Systems Analysis).

Packaging rules to achieve a specialisation

Advanced Networking

- Select all 6 elective units from Group A Advanced Networking Specialisation

Advanced Programming

- Select all 5 elective units from Group B Advanced Programming Specialisation

Back End Web Development

- Select all 5 elective units from Group C Back End Web Development Specialisation

Business Analysis

- Select all 5 elective units from Group D Business Analysis Specialisation

Cloud Architecture

- Select all 4 elective units from Group E Cloud Architect Specialisation

Cloud Engineering

- Select all 4 elective units from Group F Cloud Engineers Specialisation

Cyber Security

- Select all 5 elective units from Group G Cyber Security Specialisation

Database and Data Management

- Select all 5 elective units from Group H Database and Data Management Specialisation

Front End Web Development

- Select all 6 elective units from Group I Front End Web Development Specialisation

Game Art and Design

- Select all 5 elective units from Group J Game Art and Design Specialisation

Game Programming

- Select all 5 elective units from Group K Game Programming Specialisation

Systems Administration

- Select all 4 elective units from Group L Systems Administration Specialisation

Systems Analysis

- Select all 5 elective units from Group M Systems Analysis Specialisation

Qualification Mapping Information

No equivalent qualification. Supersedes and is not equivalent to:

- ICT50118 Diploma of Information Technology
- ICT50215 Diploma of Digital and Interactive Games
- ICT50318 Diploma of Information Technology Systems Administration
- ICT50418 Diploma of Information Technology Networking
- ICT50515 Diploma of Database Design and Development
- ICT50615 Diploma of Website Development
- ICT50718 Diploma of Software Development
- ICT50818 Diploma of Systems Analysis and Design
- ICT50915 Diploma of Digital Media Technologies.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2>