



Australian Government

ICTTEN611 Produce an ICT network architecture design

Release: 1

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Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 2.0.

Application

This unit describes the skills and knowledge required to compile and evaluate business specifications from a client, and produce a set of architecture design solutions to cater for present and future forecast demands.

It applies to individuals working in the field who carry out design and implementation of technical solutions of information communications technology (ICT) networks, employed by telecommunications and information technology networking provisioning companies specialising in integrating converging and emerging technologies of ICT networks.

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

Unit Sector

Telecommunications – Telecommunications Networks Engineering

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Prepare to produce ICT architecture design	1.1 Obtain the client's business specifications and business requirements 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 preliminary	2.1 Ascertain technical requirements, including hardware, software

ELEMENT	PERFORMANCE CRITERIA
ICT network architecture design	and network elements according to specifications 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 impact on network design, from current and future demand requirements 3.2 Benchmark design using expected performance parameters 3.3 Review design's likely performance profile 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 business specifications and recommendations
4. Finalise network design and obtain approval	4.1 Review benchmarks, requirements and final design proposed 4.2 Determine support and training requirements needed 4.3 Obtain latest technical specifications and pricing by contacting possible vendors 4.4 Document network design and present documentation to appropriate person for approval 4.5 Obtain sign off on final business solution

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Reading	1.2, 2.1, 4.1	Organises, evaluates and interprets technical documentation and relevant enterprise policy and documentation
Writing	2.3, 2.4, 3.5, 4.4	Prepares clear and concise workplace documentation, including diagrammatic material, incorporating technical language to communicate complex information clearly and effectively

Oral Communication	1.1, 1.3, 1.4	Participates in verbal exchanges using clear language and active listening, observational and questioning techniques to confirm, clarify or revise understanding
Numeracy	3.4, 3.5	Interprets numerical information according to business requirements and specifications to evaluate possible technical design scenarios within budgetary constraints
Interact with others	1.3, 4.3-4.5	Selects and uses appropriate conventions and protocols when communicating with stakeholders in a range of work contexts
Get the work done	1.4, 2.2, 3.1-3.3, 4.2	- Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high-impact activities with strategic implications - Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses this to propose solutions - Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria - Uses formal, analytical and lateral thinking techniques for diagnosing problems and generating and evaluating possible solutions

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICTTEN611 Produce an ICT network architecture design	ICTTEN6206A Produce an ICT network architecture design	Updated to meet Standards for Training Packages.	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -

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

Assessment Requirements for ICTTEN611 Produce an ICT network architecture design

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Performance Evidence

Evidence of 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 proposal adjustments
- apply design concepts to business solutions
- produce technical reports
- make recommendations and offer optimum design solutions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise principles of the following technologies:
 - access networks
 - core networks
 - information communications technologies (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
- explain what is meant in the ICT sector by business processes
- explain compatibility issues and resolution procedures

- summarise configuration of internet protocol (IP) networks
- outline desktop applications and operating systems
- summarise security protocols, standards and data encryption.

Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a site for design work
- client functional requirements
- business specifications
- database software
- simulation software
- organisational guidelines
- a network or computer layout
- site design software and hardware
- information on a range of ICT business solutions.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

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