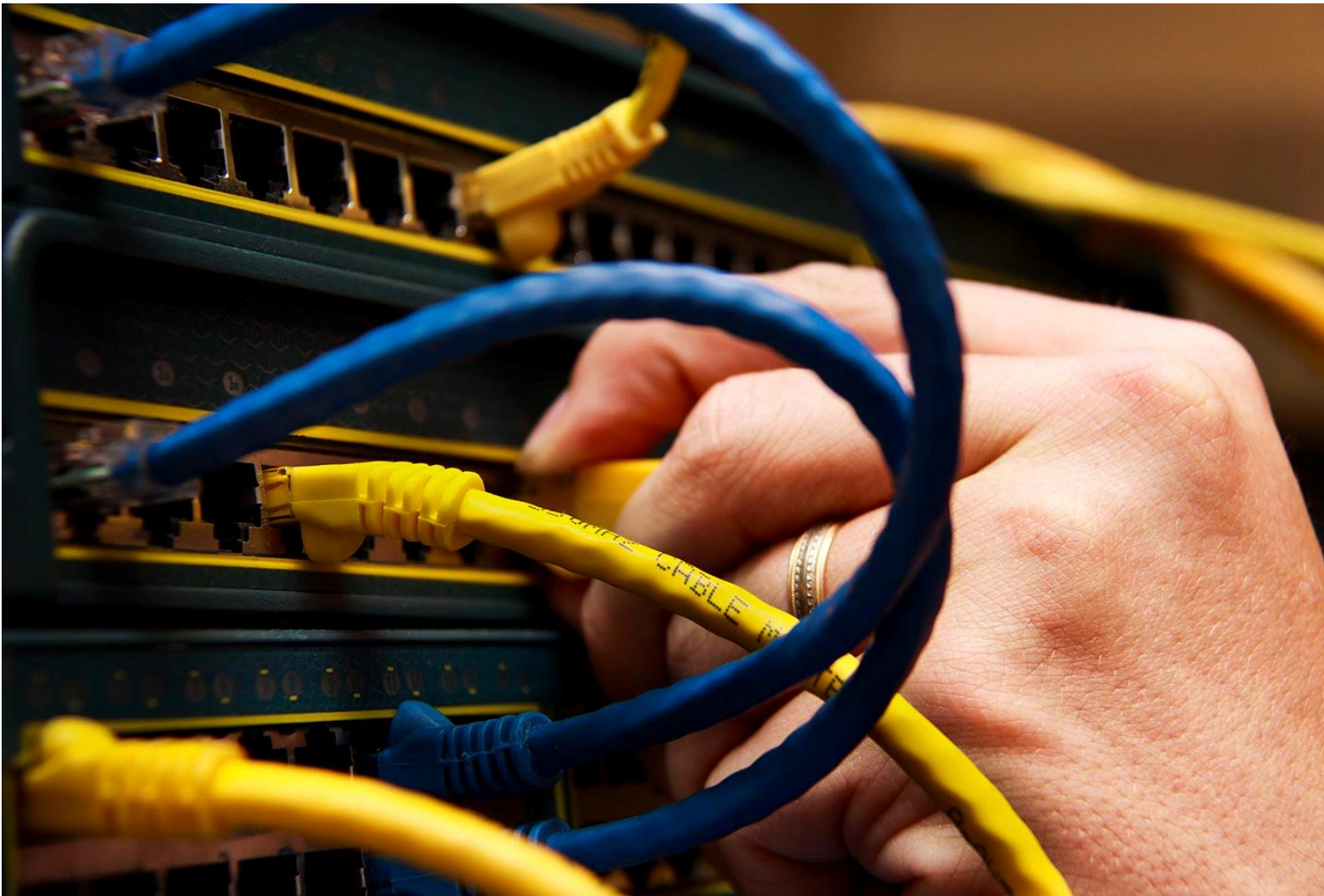




LRES

Training Management



Information Technology Qualification Packaging  
based on Unit Resources Available from LRES  
Training Management

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# Complete Qualifications

Note: Units highlighted are those available from LRES Training Management

# ICT40415 - Certificate IV in Information Technology Networking (Release 2)

## Packaging Rules

Total number of units = 17

8 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 ICT Information and Communications Technology Training Package 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

BSBWHS304 Participate effectively in WHS communication and consultation processes

ICTICT401 Determine and confirm client business requirements

ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

ICTNWK401 Install and manage a server

ICTNWK402 Install and configure virtual machines for sustainable ICT

ICTNWK403 Manage network and data integrity

ICTNWK404 Install, operate and troubleshoot a small enterprise branch network

ICTTEN416 Install, configure and test an internet protocol network

## Elective units

BSBCRT401 Articulate, present and debate ideas

BSBWOR404 Develop work priorities

ICTICT403 Apply software development methodologies

ICTICT408 Create technical documentation

ICTICT417 Identify, evaluate and apply current industry-specific technologies to meet industry standards

ICTICT423 Select cloud storage strategies

ICTNWK405 Build a small wireless local area network

ICTNWK406 Install, configure and test network security

ICTNWK407 Install and configure client-server applications and services

ICTNWK408 Configure a desktop environment

ICTNWK409 Create scripts for networking

ICTNWK410 Install hardware to a network

ICTNWK411 Deploy software to networked computers

ICTNWK412 Create network documentation

ICTNWK419 Identify and use current virtualisation technologies

ICTPMG401 Support small scale ICT projects

ICTPRG425 Use structured query language

ICTSAS426 Locate and troubleshoot ICT equipment, system and software faults

ICTOPN402 Use advanced optical test equipment

ICTSUS401 Install and test renewable energy system for ICT networks

ICTSUS402 Install and test power saving hardware

ICTSUS403 Install and test power management software  
ICTSUS404 Install thin client applications for power over ethernet  
ICTTEN417 Install, configure and test a router  
ICTTEN418 Install and test a radio frequency identification system  
ICTTEN419 Implement and troubleshoot enterprise routers and switches  
ICTTEN420 Design, install and configure an internetwork  
ICTTEN513 Install, configure and test a local area network switch

# ICT50415 - Diploma of Information Technology Networking (Release 2)

## Packaging Rules

Total number of units = 16

5 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 ICT Information and Communications Technology Training Package 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

ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

ICTICT511 Match IT needs with the strategic direction of the enterprise

ICTNWK529 Install and manage complex ICT networks

ICTSUS501 Implement server virtualisation for a sustainable ICT system

ICTTEN611 Produce an ICT network architecture design

## Elective units

BSBSUS501 Develop workplace policy and procedures for sustainability

ICTICT501 Research and review hardware technology options for organisations

ICTICT509 Gather data to identify business requirements

ICTICT514 Identify and manage the implementation of current industry specific technologies

ICTICT603 Manage the use of appropriate development methodologies

ICTNWK501 Plan, implement and test enterprise communication solutions

ICTNWK502 Implement secure encryption technologies

ICTNWK503 Install and maintain valid authentication processes

ICTNWK504 Design and implement an integrated server solution

ICTNWK505 Design, build and test a network server

ICTNWK506 Configure, verify and troubleshoot WAN links and IP services in a medium enterprise network

ICTNWK507 Install, operate and troubleshoot medium enterprise routers

ICTNWK508 Install, operate and troubleshoot medium enterprise switches

ICTNWK509 Design and implement a security perimeter for ICT networks

ICTNWK510 Develop, implement and evaluate system and application security

ICTNWK511 Manage network security

ICTNWK513 Manage system security

ICTNWK524 Install and configure network access storage devices

ICTNWK525 Configure an enterprise virtual computing environment

ICTNWK527 Manage an enterprise virtual computing environment

ICTNWK531 Configure an internet gateway

ICTNWK533 Configure and manage advanced virtual computing environments

ICTNWK534 Monitor and troubleshoot virtual computing environments

ICTNWK535 Install an enterprise virtual computing environment

ICTNWK615 Design and configure desktop virtualisation

ICTOPN502 Perform acceptance and commissioning tests on optical network  
ICTOPN503 Plan for an optical system upgrade and cut over  
ICTOPN505 Test the performance of specialised optical devices  
ICTOPN506 Analyse and integrate specialised optical devices in the network  
ICTPMG501 Manage ICT projects  
ICTSAD506 Produce a feasibility report  
ICTSAS406 Implement and hand over system components  
ICTSAS501 Develop, implement and evaluate an incident response plan  
ICTSAS502 Establish and maintain client user liaison  
ICTSAS503 Perform systems test  
ICTSAS505 Review and update disaster recovery and contingency plans  
ICTSAS512 Review and manage delivery of maintenance services  
ICTSAS515 Manage the testing process  
ICTSUS601 Integrate sustainability in ICT planning and design projects  
ICTSUS602 Establish a business case for sustainability and competitive advantage in ICT projects  
ICTTEN422 Configure and troubleshoot advanced network switching  
ICTTEN512 Design and implement an enterprise voice over internet protocol and a unified communications network  
ICTTEN514 Install, configure and test a server  
ICTTEN515 Dimension and design a radio frequency identification system  
ICTTEN516 Produce technical solutions from business specifications  
ICTTEN517 Plan a wireless mesh network  
ICTTEN610 Design and configure an IP-MPLS network with virtual private network tunnelling

## ICT60215 - Advanced Diploma of Network Security (Release 2)

### Packaging Rules

Total number of units = 12

5 core units *plus*

7 elective units

The elective units consist of:

- up to 7 from the elective units listed below
- up to 2 from elsewhere in ICT Information and Communications Technology Training Package at Diploma or Advanced Diploma level
- up to 2 from 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.

### Core units

ICTNWK502 Implement secure encryption technologies

ICTNWK509 Design and implement a security perimeter for ICT networks

ICTNWK601 Design and implement a security system

ICTNWK602 Plan, configure and test advanced server based security

ICTSUS601 Integrate sustainability in ICT planning and design projects

### Elective units

BSBPMG517 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

ICTICT609 Lead the evaluation and implementation of current industry specific technologies

ICTNWK603 Plan, configure and test advanced internetwork routing solutions

ICTNWK604 Plan and configure advanced internetwork switching solutions

ICTNWK605 Design and configure secure integrated wireless systems

ICTNWK606 Implement voice applications over secure wireless networks

ICTNWK607 Design and implement wireless network security

ICTNWK608 Configure network devices for a secure network infrastructure

ICTNWK609 Configure and manage intrusion prevention system on network sensors

ICTNWK610 Design and build integrated VoIP networks

ICTNWK611 Configure call processing network elements for secure VoIP networks

ICTNWK612 Plan and manage troubleshooting advanced integrated IP networks

ICTNWK613 Develop plans to manage structured troubleshooting process of enterprise networks

ICTNWK615 Design and configure desktop virtualisation

ICTNWK616 Manage security, privacy and compliance of cloud service deployment

ICTPMG804 Evaluate and use telecommunications management networks

ICTPMG802 Manage a telecommunications project

ICTSUS602 Establish a business case for sustainability and competitive advantage in ICT projects

ICTSUS804 Use ICT to improve sustainability outcomes

ICTSUS805 Manage improvements in ICT sustainability





## ICT50115 - Diploma of Information Technology (Release 2)

### Packaging Rules

Total number of units = 20

4 core units *plus*

16 elective units

The elective units consist of:

- up to 16 units 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 from elsewhere in ICT Information and Communications Technology Training Package 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

BSBSUS501 Develop workplace policy and procedures for sustainability

BSBWHS501 Ensure a safe workplace

ICTICT509 Gather data to identify business requirements

ICTICT511 Match ICT needs with the strategic direction of the enterprise

### Specialist elective units

#### Group A Networking

ICTNWK501 Plan, implement and test enterprise communication solutions

ICTNWK502 Implement secure encryption technologies

ICTNWK503 Install and maintain valid authentication processes

ICTNWK504 Design and implement an integrated server solution

ICTNWK505 Design, build and test a network server

ICTNWK506 Configure, verify and troubleshoot WAN links and IP services in a medium enterprise network

ICTNWK507 Install, operate and troubleshoot medium enterprise routers

ICTNWK508 Install, operate and troubleshoot medium enterprise switches

ICTNWK509 Design and implement a security perimeter for ICT networks

ICTNWK510 Develop, implement and evaluate system and application security

ICTNWK511 Manage network security

ICTNWK513 Manage system security

ICTNWK514 Model preferred system solutions

ICTNWK515 Develop configuration management protocols

ICTNWK516 Determine best-fit topology for a local network

ICTNWK517 Determine best-fit topology for a wide area network

ICTNWK518 Design an enterprise wireless local area network

ICTNWK519 Design an ICT security framework  
ICTNWK520 Design ICT system security controls  
ICTNWK521 Install, configure and test a payment gateway  
ICTNWK522 Build decks using wireless markup language  
ICTNWK524 Install and configure network access storage devices  
ICTNWK525 Configure an enterprise virtual computing environment  
ICTNWK527 Manage an enterprise virtual computing environment  
ICTNWK529 Install and manage complex ICT networks  
ICTNWK531 Configure an internet gateway  
ICTNWK532 Identify and resolve network problems  
ICTNWK533 Configure and manage advanced virtual computing environments  
ICTNWK534 Monitor and troubleshoot virtual computing environments  
ICTNWK535 Install an enterprise virtual computing environment  
ICTNWK614 Manage ICT security  
ICTNWK615 Design and configure desktop virtualisation

### **Group B Programming**

ICTPRG501 Apply advanced object-oriented language skills  
ICTPRG502 Manage a project using software management tools  
ICTPRG503 Debug and monitor applications  
ICTPRG504 Deploy an application to a production environment  
ICTPRG505 Build advanced user interface  
ICTPRG506 Design application architecture  
ICTPRG507 Implement security for applications  
ICTPRG508 Create mashups  
ICTPRG509 Build using rapid application development  
ICTPRG510 Maintain custom software  
ICTPRG511 Monitor and support data conversion to new ICT system  
ICTPRG512 Prepare for the build phase of an ICT system  
ICTPRG513 Coordinate the build phase of an ICT system  
ICTPRG514 Prepare for software development using rapid application development  
ICTPRG515 Review developed software  
ICTPRG516 Develop integration blueprint for ICT systems  
ICTPRG517 Install, test and evaluate pilot version of ICT system  
ICTPRG518 Monitor the system pilot  
ICTPRG523 Apply advanced programming skills in another language  
ICTPRG524 Develop high-level object-oriented class specifications  
ICTPRG525 Build Java applets  
ICTPRG526 Maintain functionality of legacy code programs  
ICTPRG527 Apply intermediate object-oriented language skills  
ICTPRG528 Perform ICT data conversion  
ICTPRG601 Develop advanced mobile multi-touch applications  
ICTSAD501 Model data objects  
ICTSAD502 Model data processes  
ICTSAD503 Minimise risk of new technologies to business solutions

### **Group C IT Support**

ICTICT501 Research and review hardware technology options for organisations  
ICTICT502 Develop detailed component specifications from project specifications  
ICTICT503 Validate quality and completeness of system design specifications  
ICTICT504 Confirm transition strategy for a new system  
ICTICT506 Implement process re-engineering strategies  
ICTICT507 Select new technology models for business  
ICTICT510 Determine appropriate ICT strategies and solutions  
ICTICT512 Plan process re-engineering strategies for business  
ICTICT514 Identify and manage the implementation of current industry-specific technologies  
ICTICT515 Verify client business requirements  
ICTSAD506 Produce a feasibility report  
ICTSAS501 Develop, implement and evaluate an incident response plan  
ICTSAS502 Establish and maintain client user liaison  
ICTSAS503 Perform systems tests  
ICTSAS504 Develop and conduct client acceptance test  
ICTSAS505 Review and update disaster recovery and contingency plans  
ICTSAS506 Update ICT system operational procedures  
ICTSAS507 Implement and evaluate systems for regulatory and standards compliance  
ICTSAS509 Provide client ICT support services  
ICTSAS510 Review and develop ICT maintenance strategy  
ICTSAS511 Prioritise ICT change requests  
ICTSAS512 Review and manage delivery of maintenance services  
ICTSAS513 Develop detailed test plans  
ICTSAS515 Manage the testing process  
ICTSAS517 Use network tools  
ICTSAS518 Install and upgrade operating systems

#### **Group D Web design and development**

ICTWEB411 Produce basic client-side script for dynamic web pages  
ICTWEB429 Create a markup language document to specification  
ICTWEB501 Build a dynamic website  
ICTWEB502 Create dynamic web pages  
ICTWEB503 Create web-based programs  
ICTWEB504 Build a document using eXtensible markup language  
ICTWEB505 Develop complex web page layouts  
ICTWEB506 Develop complex cascading style sheets  
ICTWEB507 Customise a complex ICT content management system  
ICTWEB508 Develop website information architecture  
ICTWEB509 Use site server tools for transaction management  
ICTWEB510 Analyse information and assign meta tags  
ICTWEB511 Implement quality assurance process for websites  
ICTWEB512 Administer business websites and servers  
ICTWEB515 Implement and use web services  
ICTWEB516 Research and apply emerging web technology trends

#### **Group E Digital games**

ICTGAM501 Create design concepts for digital games and 3-D media

ICTGAM503 Create a complex 3-D interactive computer game  
ICTGAM504 Manage interactive media production  
ICTGAM506 Create complex code for mobile game devices  
ICTGAM507 Develop intermediate 3-D software for games and interactive media  
ICTGAM508 Develop complex 3-D software for games and interactive media  
ICTGAM509 Design interactive 3-D applications for scientific and mathematical modelling  
ICTGAM510 Prepare games for different platforms and delivery modes  
ICTGAM511 Manage testing of games and interactive media  
ICTGAM512 Create and implement designs for a 3-D games environment  
ICTGAM514 Design and create models for a 3-D and digital effects environment  
ICTGAM515 Design and create advanced particles, fluids and bodies for 3-D digital effects  
ICTGAM516 Animate a 3-D character for digital games  
ICTGAM517 Produce a digital animation sequence  
ICTGAM518 Animate physical attributes of models and elements  
ICTGAM519 Manage technical art and rigging in 3-D animation  
ICTGAM520 Create and combine 3-D digital games and components  
ICTGAM521 Create interactive 3-D environments for digital games  
ICTGAM522 Complete digital editing for the 3-D and digital effects environment  
ICTGAM523 Collaborate in the design of 3-D game levels and environments  
ICTGAM524 Integrate multiple data sources into interactive 3-D environments  
ICTGAM525 Apply digital texturing for the 3-D environment in digital games  
ICTGAM526 Create complex 3-D characters for games  
ICTGAM527 Integrate database with online game  
ICTGAM529 Analyse business opportunities in the digital games environment

#### **Group F Digital media technologies**

BSBCRT501 Originate and develop concepts  
CUADIG502 Design digital applications  
CUADIG503 Design e-learning resources  
CUADIG507 Design digital simulations  
CUAPHI504 Employ specialised imaging technologies  
CUAPOS201 Perform basic vision and sound editing  
CUAPOS401 Edit screen content for fast turnaround  
CUASOU307 Record and mix a basic music demo  
CUASOU504 Produce sound recordings  
ICTDMT501 Incorporate and edit digital video  
ICTICT406 Build a graphical user interface  
ICTICT419 Work effectively in the digital media industry

#### **Group G Project management**

ICTPMG501 Manage ICT projects

# ICT40418 - Certificate IV in Information Technology Networking (Release 1)

## Packaging Rules

Total number of units = 17

8 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 ICT Information and Communications Technology Training Package 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

BSBWHS304 Participate effectively in WHS communication and consultation processes

ICTICT401 Determine and confirm client business requirements

ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

ICTNWK401 Install and manage a server

ICTNWK403 Manage network and data integrity

ICTNWK404 Install, operate and troubleshoot a small enterprise branch network

ICTNWK420 Install and configure virtual machines

ICTTEN416 Install, configure and test an internet protocol network

## Elective units

BSBCRT401 Articulate, present and debate ideas

BSBWOR404 Develop work priorities

ICTICT403 Apply software development methodologies

ICTICT408 Create technical documentation

ICTICT427 Identify, evaluate and apply current industry-specific technologies to meet organisational needs

ICTICT428 Select cloud storage solutions

ICTNWK405 Build a small wireless local area network

ICTNWK407 Install and configure client-server applications and services

ICTNWK408 Configure a desktop environment

ICTNWK409 Create scripts for networking

ICTNWK410 Install hardware to a network

ICTNWK411 Deploy software to networked computers

ICTNWK412 Create network documentation

ICTNWK419 Identify and use current virtualisation technologies

ICTNWK421 Install, configure and test network security

ICTOPN402 Use advanced optical test equipment

ICTPMG401 Support small scale ICT projects

ICTPRG425 Use structured query language

ICTSAS426 Locate and troubleshoot ICT equipment, system and software faults

ICTSUS402 Install and test power saving hardware

ICTSUS403 Install and test power management software

ICTSUS404 Install thin client applications for power over ethernet

ICTTEN417 Install, configure and test a router

ICTTEN418 Install and test a radio frequency identification system

ICTTEN419 Implement and troubleshoot enterprise routers and switches

ICTTEN420 Design, install and configure an internetwork

ICTTEN513 Install, configure and test a local area network switch

# ICT50418 - Diploma of Information Technology Networking (Release 1)

## Packaging Rules

Total number of units = 16

5 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 ICT Information and Communications Technology Training Package 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

ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

ICTICT517 Match ICT needs with the strategic direction of the organisation

ICTNWK529 Install and manage complex ICT networks

ICTSUS501 Implement server virtualisation for a sustainable ICT system

ICTTEN611 Produce an ICT network architecture design

## Elective units

BSBSUS501 Develop workplace policy and procedures for sustainability

ICTICT501 Research and review hardware technology options for organisations

ICTICT509 Gather data to identify business requirements

ICTICT514 Identify and manage the implementation of current industry specific technologies

ICTICT603 Manage the use of appropriate development methodologies

ICTNWK502 Implement secure encryption technologies

ICTNWK503 Install and maintain valid authentication processes

ICTNWK504 Design and implement an integrated server solution

ICTNWK505 Design, build and test a network server

ICTNWK506 Configure, verify and troubleshoot WAN links and IP services in a medium enterprise network

ICTNWK507 Install, operate and troubleshoot medium enterprise routers

ICTNWK508 Install, operate and troubleshoot medium enterprise switches

ICTNWK509 Design and implement a security perimeter for ICT networks

ICTNWK510 Develop, implement and evaluate system and application security

ICTNWK511 Manage network security

ICTNWK513 Manage system security

ICTNWK524 Install and configure network access storage devices

ICTNWK525 Configure an enterprise virtual computing environment

ICTNWK527 Manage an enterprise virtual computing environment

ICTNWK531 Configure an internet gateway

ICTNWK533 Configure and manage advanced virtual computing environments

ICTNWK534 Monitor and troubleshoot virtual computing environments

ICTNWK535 Install an enterprise virtual computing environment

ICTNWK536 Plan, implement and test enterprise communication solutions

ICTNWK615 Design and configure desktop virtualisation



ICTOPN502 Perform acceptance and commissioning tests on optical network  
ICTOPN503 Plan for an optical system upgrade and cut over  
ICTOPN505 Test the performance of specialised optical devices  
ICTOPN506 Analyse and integrate specialised optical devices in the network  
ICTPMG501 Manage ICT projects  
ICTSAD506 Produce a feasibility report  
ICTSAS406 Implement and hand over system components  
ICTSAS501 Develop, implement and evaluate an incident response plan  
ICTSAS502 Establish and maintain client user liaison  
ICTSAS505 Review and update disaster recovery and contingency plans  
ICTSAS512 Review and manage delivery of maintenance services  
ICTSAS519 Perform systems test  
ICTSAS522 Manage the testing process  
ICTSUS601 Integrate sustainability in ICT planning and design projects  
ICTSUS602 Establish a business case for sustainability and competitive advantage in ICT projects  
ICTTEN422 Configure and troubleshoot advanced network switching  
ICTTEN512 Design and implement an enterprise voice over  
ICTTEN514 Install, configure and test a server  
ICTTEN515 Dimension and design a radio frequency identification system  
ICTTEN516 Produce technical solutions from business specifications  
ICTTEN517 Plan a wireless mesh network

# ICT50120 - Diploma of Information Technology (Release 1)

## 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

ICTSAS527 Manage client problems

### 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

ICTSAS522 Manage the testing process

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**

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**

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 5 elective units from Group L Systems Administration Specialisation

Systems Analysis

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



# ICT60120 - Advanced Diploma of Information Technology (Release 1)

## Packaging Rules

Total number of units = 16

**6 core units** plus

**10 elective units**, of which:

- at least 7 units must be selected from the elective units listed below
- up to 3 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 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 data management information
- Cyber security
- Full stack web development
- Further programming
- IT strategy and organisational development
- Systems development and analysis

## Core units

BSBCRT601 Research and apply concepts and theories of creativity

BSBWOR502 Lead and manage team effectiveness

BSBXCS402 Promote workplace cyber security awareness and best practices

ICTICT608 Interact with clients on a business level

ICTICT618 Manage IP, ethics and privacy in ICT environments

ICTSAD609 Plan and monitor business analysis activities in an ICT environment

## Elective units

Group A Advanced Data Management Information Specialisation

ICTDBS604 Build data warehouses

ICTDBS605 Develop knowledge management strategies

ICTDBS606 Determine database functionality and scalability

ICTICT523 Gather data to identify business requirements

Group B Cyber Security Specialisation

ICTCYS604 Implement best practices for identity management

ICTCYS606 Evaluate an organisation's compliance with relevant cyber security standards and law

ICTCYS608 Perform cyber security risk assessments

ICTCYS612 Design and implement virtualised cyber security infrastructure for organisations

Group C Full Stack Web Development Specialisation

ICTICT530 Design user experience solutions  
ICTPRG535 Build advanced user interfaces  
ICTPRG553 Create and develop REST APIs  
ICTSAD612 Implement and maintain uses of containerisation

#### Group D Further Programming Specialisation

ICTPRG537 Implement security for applications  
ICTPRG547 Apply advanced programming skills in another language  
ICTPRG554 Manage data persistence using noSQL data stores

#### Group E IT Strategy and Organisational Development Specialisation

ICTICT611 Develop ICT strategic business plans  
ICTSAD604 Manage and communicate ICT solutions  
ICTSAD608 Perform ICT-focused enterprise analysis  
ICTSAD611 Manage assessment and validation of ICT solutions

#### Group F Systems Development and Analysis Specialisation

ICTPRG605 Manage development of technical solutions from business specifications  
ICTSAD610 Analyse stakeholder requirements  
ICTSAD612 Implement and maintain uses of containerisation  
ICTSAD613 Install and configure container orchestration services

#### Group G General electives

##### **Advanced Cloud Computing**

ICTCLD601 Develop cloud computing strategies for businesses  
ICTCLD602 Manage information security compliance of cloud service deployment

##### **Advanced Cyber Security**

ICTCYS603 Undertake penetration testing for organisations  
ICTCYS607 Acquire digital forensic data  
ICTCYS609 Evaluate threats and vulnerabilities of IoT devices

##### **Application and Software Development**

ICTPRG549 Apply intermediate object-oriented language skills  
ICTPRG603 Develop advanced mobile multi-touch applications  
ICTPRG614 Create cloud computing services

##### **Cyber Security Network Operations**

ICTCYS601 Create cyber security standards for organisations  
ICTCYS602 Implement cyber security operations  
ICTCYS611 Configure security devices for organisations

##### **Data Management**

ICTDBS505 Monitor and improve knowledge management systems

##### **Project Management**

BSBPMG513 Manage project quality  
BSBPMG517 Manage project risk  
BSBPMG520 Manage project governance  
ICTICT505 Determine acceptable developers for projects  
ICTICT529 Organise and lead agile projects  
ICTPMG612 Manage ICT project initiation

ICTPMG613 Manage ICT project planning  
ICTPMG614 Manage ICT project delivery  
ICTPMG615 Manage ICT project closure  
ICTPMG616 Manage ICT project systems implementation  
ICTPMG617 Plan and direct complex ICT projects  
ICTSAS522 Manage the testing process

### **IT Work Ready Skills**

ICTICT522 Evaluate vendor products and equipment  
ICTICT612 Develop contracts and manage contract performance  
ICTICT613 Manage the use of development methodologies  
ICTICT616 Develop communities of practice  
ICTICT617 Lead the evaluation and implementation of current industry specific technologies  
ICTSAD602 Conduct knowledge audits  
ICTSAD605 Elicit ICT requirements  
ICTSUS601 Integrate sustainability in ICT planning and design projects  
PSPPCM023 Manage strategic contracts

### **Network Security**

CPPSEC3124 Prepare and present evidence in court  
CPPSEC5003 Assess security risk management options  
CPPSEC5004 Develop security risk management plans  
CPPSEC5005 Implement security risk management plans  
CPPSEC5006 Develop strategies to implement advanced technology security systems  
ICTNWK537 Implement secure encryption technologies  
ICTNWK538 Install and maintain valid authentication processes  
ICTNWK539 Design and implement integrated server solutions  
ICTNWK540 Design, build and test network servers  
ICTNWK541 Configure, verify and troubleshoot WAN links and IP services  
ICTNWK544 Design and implement a security perimeter for ICT networks  
ICTNWK549 Design ICT security frameworks  
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  
ICTNWK557 Configure and manage advanced virtual computing environments  
ICTNWK558 Monitor and troubleshoot virtual computing environments  
ICTNWK559 Install an enterprise virtual computing environment  
ICTNWK603 Plan, configure and test advanced internetwork routing solutions  
ICTNWK604 Plan and configure advanced internetwork switching solutions  
ICTNWK605 Design and configure secure integrated wireless systems  
ICTNWK606 Implement voice applications over secure wireless networks  
ICTNWK610 Design and build integrated VoIP networks  
ICTNWK611 Configure call processing network elements for secure VoIP networks  
ICTNWK612 Plan and manage troubleshooting advanced integrated IP networks  
ICTNWK613 Develop plans to manage structured troubleshooting process of enterprise networks  
ICTNWK615 Design and configure desktop virtualisation  
ICTNWK618 Design and implement a security system  
ICTNWK619 Plan, configure and test advanced server-based security

ICTNWK620 Design and implement wireless network security

ICTNWK621 Configure network devices for a secure network infrastructure

ICTNWK622 Configure and manage intrusion prevention system on network sensors

ICTSAS517 Use network tools

### **Strategy and Business Management**

BSBINN601 Lead and manage organisational change

BSBMGT608 Manage innovation and continuous improvement

BSBPMG518 Manage project procurement

ICTICT614 Identify and implement business innovation

ICTICT615 Implement knowledge management strategies

ICTSAD507 Design and implement quality assurance processes for business solutions

ICTSAD508 Develop technical requirements for business solutions

ICTSAS602 Implement change management processes

### **Web design and Development**

ICTWEB513 Build dynamic websites

ICTWEB514 Create dynamic web pages

ICTWEB517 Create web-based programs

ICTWEB519 Develop complex web page layouts

### **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:

- ICT60120 Advanced Diploma of Information Technology (Advanced Data Management Information)
- ICT60120 Advanced Diploma of Information Technology (Cyber Security)
- ICT60120 Advanced Diploma of Information Technology (Full Stack Web Development)
- ICT60120 Advanced Diploma of Information Technology (Further Programming)
- ICT60120 Advanced Diploma of Information Technology (IT Strategy and Organisational Development)
- ICT60120 Advanced Diploma of Information Technology (Systems Development and Analysis).

### **Packaging rules to achieve a specialisation**

Advanced Data Management Information

- Select all 4 elective units from Group A Advanced Data Management Information Specialisation

Cyber Security

- Select all 4 elective units from Group B Cyber Security Specialisation

Full Stack Web Development

- Select all 4 elective units from Group C Full Stack Web Development Specialisation

Further Programming

- Select all 3 elective units from Group D Further Programming Specialisation

IT Strategy and Organisational Development

- Select all 4 elective units from Group E IT Strategy and Organisational Development Specialisation

Systems Development and Analysis

- Select all 4 elective units from Group F Systems Development and Analysis Specialisation

# ICT80115 - Graduate Certificate in Information Technology and Strategic Management (Release 3)

## Packaging Rules

Total number of units = 4

1 core units *plus*

3 elective units

The elective units consist of:

- up to 3 from the elective units listed below
- up to 1 from elsewhere in ICT Information and Communications Technology Training Package, or any other Training Package or accredited course at Graduate Certificate level or above.

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

## Core units

ICTICT809 Facilitate business analysis

## Elective units

BSBLDR803 Develop and cultivate collaborative partnerships and relationships

ICTICT801 Lead research into identifying new marketplace opportunities

ICTICT802 Direct ICT services

ICTICT803 Endorse business plan components for a new initiative

ICTICT804 Direct ICT in a supply chain

ICTICT805 Direct ICT procurement

ICTICT806 Direct outsourced ICT services

ICTICT807 Direct research and business response to new ICT technology

ICTICT808 Direct the development of a knowledge management strategy for a business

ICTICT810 Synchronise ICT projects

ICTICT811 Manage an information architecture project

ICTICT812 Develop a business intelligence framework

ICTICT813 Manage ICT services

ICTICT814 Develop cloud computing strategies for a business

ICTSUS802 Conduct a business case study for integrating sustainability in ICT planning and design projects

ICTSUS803 Research strategies using SAP solutions for sustainable economic and environmental outcomes

ICTSUS804 Use ICT to improve sustainability outcomes

ICTSUS805A Manage improvements in ICT sustainability

ICTSUS808 Plan and manage virtualisation for ICT sustainability

# Incomplete Qualifications

Note: Units highlighted are those available from LRES Training Management

## ICT40115 - Certificate IV in Information Technology (Release 2)

### Packaging Rules

Total number of units = 20

5 core units plus

15 elective units

The elective units consist of:

- up to 15 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 from elsewhere in ICT Information and Communications Technology Training Package 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

BSBWHS304 Participate effectively in WHS communication and consultation processes

BSBSUS401 Implement and monitor environmentally sustainable work practices

ICTICT202 Work and communicate effectively in an ICT environment

ICTICT401 Determine and confirm client business requirements

ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

### Elective units

#### Specialist elective units

##### Group A Networking

ICTICT423 Select cloud storage strategies

ICTNWK401 Install and manage a server

ICTNWK402 Install and configure virtual machines for sustainable ICT

ICTNWK403 Manage network and data integrity

ICTNWK404 Install, operate and troubleshoot a small enterprise branch network

ICTNWK405 Build a small wireless local area network

ICTNWK406 Install, configure and test network security

ICTNWK407 Install and configure client-server applications and services

ICTNWK408 Configure a desktop environment

ICTNWK409 Create scripts for networking

ICTNWK410 Install hardware to a network

ICTNWK411 Deploy software to networked computers

ICTNWK412 Create network documentation

ICTNWK414 Create a common gateway interface script

ICTNWK416 Build security into virtual private networks

ICTNWK417 Build an enterprise wireless network

ICTNWK418 Implement backbone technologies in a local area network



ICTNWK419 Identify and use current virtualisation technologies

ICTSAS307 Install, configure and secure a small office or home office network

### **Group B Programming**

ICTICT410 Conduct post-implementation ICT system reviews

ICTICT420 Develop client user interface

ICTPRG401 Maintain open-source code programs

ICTPRG402 Apply query language

ICTPRG403 Develop data-driven applications

ICTPRG404 Test applications

ICTPRG405 Automate processes

ICTPRG406 Apply introductory object-oriented language skills

ICTPRG407 Write script for software applications

ICTPRG409 Develop mobile applications

ICTPRG410 Build a user interface

ICTPRG412 Configure and maintain databases

ICTPRG413 Use a library or pre-existing components

ICTPRG414 Apply introductory programming skills in another language

ICTPRG415 Apply skills in object-oriented design

ICTPRG416 Manage a software component reuse library

ICTPRG417 Apply mathematical techniques for software development

ICTPRG418 Apply intermediate programming skills in another language

ICTPRG419 Analyse software requirements

ICTPRG425 Use structured query language

ICTPRG426 Prepare software development review

ICTPRG427 Use XML effectively

ICTPRG428 Use regular expressions in programming languages

### **Group C ICT support**

ICTDBS403 Create basic databases

ICTDBS407 Monitor physical database implementation

ICTDBS408 Link an RFID system to a database

ICTDBS503 Create a data warehouse

ICTICT402 Determine project specifications and secure client agreement

ICTICT403 Apply software development methodologies

ICTICT404 Use online learning tools

ICTICT405 Develop detailed technical design

ICTICT406 Build a graphical user interface

ICTICT408 Create technical documentation

ICTICT411 Select and employ software and hardware testing tools

ICTICT412 Coordinate and maintain ICT work teams

ICTICT413 Relate to clients on a business level

ICTICT415 Provide one-to-one instruction

ICTICT416 Contribute to the development of strategic plans

ICTICT417 Identify, evaluate and apply current industry specific technologies to meet industry standards

ICTSAD401 Develop and present feasibility reports

ICTSAS402 Implement configuration management strategies

ICTSAS403 Review site environmental factors prior to ICT system implementation

ICTSAS404 Acquire ICT system components  
ICTSAS405 Identify and evaluate ICT industry vendor technologies  
ICTSAS407 Conduct pre-installation audit for software installation  
ICTSAS408 Complete data transition in data migration process  
ICTSAS409 Manage risks involving ICT systems and technology  
ICTSAS410 Identify and resolve client ICT problems  
ICTSAS411 Assist with policy development for client support procedures  
ICTSAS412 Action change requests  
ICTSAS413 Manage resolution of system faults on a live system  
ICTSAS414 Evaluate system status  
ICTSAS415 Optimise ICT system performance  
ICTSAS416 Implement maintenance procedures  
ICTSAS417 Undertake ICT system capacity planning  
ICTSAS418 Monitor and administer security of an ICT system  
ICTSAS419 Support system software  
ICTSAS420 Provide first-level remote help-desk support  
ICTSAS421 Support users and troubleshoot desktop applications  
ICTSAS424 Support different operating systems

#### **Group D Web design and development**

ICTICT407 Maintain website information standards  
ICTWEB401 Design a website to meet technical requirements  
ICTWEB402 Confirm accessibility of websites for people with special needs  
ICTWEB403 Transfer content to a website using commercial packages  
ICTWEB404 Maintain website performance  
ICTWEB405 Monitor traffic and compile website traffic reports  
ICTWEB406 Create website testing procedures  
ICTWEB407 Conduct operational acceptance tests of websites  
ICTWEB408 Ensure basic website security  
ICTWEB409 Develop cascading style sheets  
ICTWEB410 Apply web authoring tool to convert client data for websites  
ICTWEB411 Produce basic client-side script for dynamic web pages  
ICTWEB412 Produce interactive web animation  
ICTWEB413 Optimise search engines  
ICTWEB414 Design simple web page layouts  
ICTWEB415 Produce server-side script for dynamic web pages  
ICTWEB416 Customise content management system  
ICTWEB417 Integrate social web technologies  
ICTWEB418 Use development software and ICT tools to build a basic website  
ICTWEB419 Develop guidelines for uploading information to a website  
ICTWEB420 Write content for web pages  
ICTWEB421 Ensure website content meets technical protocols and standards  
ICTWEB422 Ensure website access and useability  
ICTWEB423 Ensure dynamic website security  
ICTWEB424 Evaluate and select a web hosting service  
ICTWEB425 Apply structured query language to extract and manipulate data  
ICTWEB429 Create a markup language document to specification

#### **Group E Digital games**

ICTGAM401 Produce an interactive game  
ICTGAM402 Identify and apply principles of games design and game playing  
ICTGAM403 Create design documents for interactive games  
ICTGAM405 Write story and content for digital games  
ICTGAM406 Create visual design components for interactive games  
ICTGAM407 Write scripts for interactive games  
ICTGAM408 Use 3-D animation interface and toolsets  
ICTGAM409 Create 3-D characters for interactive games  
ICTGAM410 Develop 3-D components for interactive games  
ICTGAM412 Design interactive media  
ICTGAM413 Design and create 3-D digital models  
ICTGAM414 Create audio for digital games  
ICTGAM415 Develop simple environments for 3-D games  
ICTGAM416 Prepare and complete image rendering processes  
ICTGAM417 Apply digital effects to interactive products  
ICTICT419 Work effectively in the digital media industry

#### **Group F Digital media technologies**

BSBCRT401 Articulate, present and debate ideas  
CUAANM301 Create 2D digital animations  
CUAANM302 Create 3D digital animations  
CUAANM402 Create digital visual effects  
CUADIG401 Author interactive media  
CUAPPM407 Create storyboards  
CUASOU202 Perform basic sound editing  
CUASOU304 Prepare audio assets  
ICTDMT401 Create visual design components for digital media

ICTDMT402 Produce interactive animation

ICTDMT403 Produce and edit digital images

#### **Group G Project management**

ICTPMG401 Support small scale ICT projects

## ICT41015 - Certificate IV in Computer Systems Technology (Release 2)

### Packaging Rules

Total number of units = 20

12 core units *plus*

8 elective units

The elective units consist of:

- up to 8 from the elective units listed below
- up to 4 from elsewhere in ICT Information and Communications Technology Training Package 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

BSBSUS401 Implement and monitor environmentally sustainable work practices

BSBWHS304 Participate effectively in WHS communication and consultation processes

ICTICT401 Determine and confirm client business requirements

ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

ICTICT421 Connect, maintain and configure hardware components

ICTNWK404 Install, operate and troubleshoot a small enterprise branch network

ICTNWK405 Build a small wireless local area network

ICTPRG414 Apply introductory programming skills in another language

ICTSAS425 Configure and troubleshoot operating system software

ICTSAS426 Locate and troubleshoot ICT equipment, system and software faults

ICTTEN417 Install, configure and test a router

ICTWEB411 Produce basic client-side script for dynamic web pages

### Elective units

BSBCRT401 Articulate, present and debate ideas

ICTICT405 Develop detailed technical design

ICTICT408 Create technical documentation

ICTICT412 Coordinate and maintain ICT work teams

ICTICT415 Provide one-to-one instruction

ICTICT417 Identify, evaluate and apply current industry specific technologies to meet industry standards

ICTICT423 Select cloud storage strategies

ICTNWK401 Install and manage a server

ICTNWK402 Install and configure virtual machines for sustainable ICT

ICTNWK403 Manage network and data integrity

ICTNWK407 Install and configure client-server applications and services

ICTNWK408 Configure a desktop environment

ICTNWK419 Identify and use current virtualisation technologies

ICTNWK507 Install, operate and troubleshoot medium enterprise routers

ICTPMG401 Support small scale ICT projects

ICTPRG406 Apply introductory object-oriented language skills

ICTPRG409 Develop mobile applications

ICTSAS307 Install, configure and secure a small office or home office network

ICTSAS420 Provide first-level remote help-desk support

ICTTEN202 Use hand and power tools

ICTTEN416 Install, configure and test an internet protocol network

ICTWEB414 Design simple web page layouts

ICTWEB415 Produce server-side script for dynamic web pages

ICTWEB425 Apply structured query language to extract and manipulate data

ICTWEB429 Create a markup language document to specification

## ICT40515 - Certificate IV in Programming (Release 1)

### 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 ICT Information and Communications Technology Training Package 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

ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

ICTPRG402 Apply query language

ICTPRG403 Develop data-driven applications

ICTPRG404 Test applications

ICTPRG405 Automate processes

ICTPRG406 Apply introductory object-oriented language skills

ICTPRG410 Build a user interface

ICTPRG414 Apply introductory programming skills in another language

ICTPRG415 Apply skills in object-oriented design

ICTPRG419 Analyse software requirements

### Elective units

BSBCRT401 Articulate, present and debate ideas

BSBWHS304 Participate effectively in WHS communication and consultation processes

ICTDBS403 Create basic databases

ICTICT404 Use online learning tools

ICTICT408 Create technical documentation

ICTICT417 Identify, evaluate and apply current industry specific technologies to meet industry standards

ICTICT420 Develop client user interface

ICTPMG401 Support small scale ICT projects

ICTPRG401 Maintain open-source code programs

ICTPRG407 Write script for software applications

ICTPRG409 Develop mobile applications

ICTPRG412 Configure and maintain databases

ICTPRG413 Use a library or pre-existing components

ICTPRG418 Apply intermediate programming skills in another language

ICTPRG427 Use XML effectively

ICTPRG428 Use regular expressions in programming languages

ICTPRG527 Apply intermediate object-oriented language skills

ICTSAD401 Develop and present feasibility reports

ICTSAD501 Model data objects

ICTSAD502 Model data processes



## ICT40120 – Certificate IV in Information Technology (Release 1)

### Packaging Rules

Total number of units = 20

7 core units plus

13 elective units, of which:

- at least 9 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 other currently endorsed training package qualification or accredited course at Australian Qualifications Framework (AQF) Level 3, 4 or 5.

Elective units must be relevant to the work environment and the qualification, maintain the overall 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.

- Database development
- Database maintenance
- Gaming development
- Networking
- Programming
- Systems administration support
- Web development

### Core units

BSBCRT404 Apply advanced critical thinking to work processes

BSBXCS404 Contribute to cyber security risk management

ICTICT426 Identify and evaluate emerging technologies and practices

ICTICT443 Work collaboratively in the ICT industry

ICTICT451 Comply with IP, ethics and privacy policies in ICT environments

ICTPRG302 Apply introductory programming techniques

ICTSAS432 Identify and resolve client ICT problems

### Elective units

Group A Database Development Specialisation

ICTDBS407 Monitor physical database implementation

ICTDBS413 Determine database requirements

ICTDBS415 Build a database

ICTDBS416 Create basic relational databases

ICTDBS418 Monitor and administer databases

Group B Database Maintenance Specialisation

ICTDAT401 Evaluate organisational compliance with data ethics legislation

ICTDAT402 Clean and verify data



ICTDBS414 Complete database backup and restore  
ICTDBS417 Identify and resolve common database performance problems  
ICTPRG554 Manage data persistence using noSQL data stores

#### Group C Gaming Development Specialisation

ICTGAM418 Use simple modelling for animation  
ICTGAM420 Produce interactive games  
ICTGAM421 Identify and apply games design and game play principles  
ICTGAM426 Write narrative scripts for interactive games  
ICTGAM427 Use 3-D software interface and toolsets  
ICTICT433 Build graphical user interfaces

#### Group D Networking Specialisation

ICTNWK420 Install and configure virtual machines  
ICTNWK421 Install, configure and test network security  
ICTNWK422 Install and manage servers  
ICTNWK423 Manage network and data integrity  
ICTNWK424 Install and operate small enterprise branch networks  
ICTNWK429 Install hardware to networks  
ICTTEN434 Install, configure and test internet protocol networks

#### Group E Programming Specialisation

ICTICT449 Use version control systems in development environments  
ICTPRG430 Apply introductory object-oriented language skills  
ICTPRG433 Test software developments  
ICTPRG437 Build a user interface  
ICTPRG440 Apply introductory programming skills in different languages

#### Group F Systems Administration Support Specialisation

ICTICT445 Connect and configure devices and hardware components  
ICTSAS436 Evaluate ICT system status  
ICTSAS438 Implement maintenance procedures  
ICTSAS441 Support ICT system software  
ICTSAS442 Provide first-level remote help desk support  
ICTSAS443 Support operating system users and troubleshoot applications

#### Group G Web Development Specialisation

ICTWEB431 Create and style simple markup language documents  
ICTWEB432 Design website layouts  
ICTWEB433 Confirm accessibility of websites  
ICTWEB434 Transfer content to websites  
ICTWEB443 Implement search engine optimisations  
ICTWEB450 Evaluate and select a web hosting service  
ICTWEB452 Create a markup language document

#### Group H General electives

#### **Cloud Computing**

ICTCLD301 Evaluate characteristics of cloud computing solutions and services

ICTCLD401 Configure cloud services

ICTICT428 Select cloud storage solutions

### **Cyber Security Incident Response**

ICTCYS401 Design and implement network security infrastructure for an organisation

ICTCYS402 Identify and confirm cyber security incidents

ICTCYS403 Plan and implement information security strategies for an organisation

ICTCYS404 Run vulnerability test assessments for an organisation

ICTCYS405 Develop cyber security incident response plans

ICTCYS406 Respond to cyber security incidents

ICTCYS407 Gather, analyse and interpret threat data

ICTICT424 Address cyber security requirements

ICTSAS214 Protect devices from spam and destructive software

ICTSAS440 Monitor and administer security of ICT systems

### **Data and Information Management**

ICTDBS503 Create a data warehouse

ICTICT450 Identify and use applications for distributed ledgers

ICTPRG438 Configure and maintain databases

ICTSAS215 Protect and secure information assets

### **Digital Media**

CUAANM402 Create digital visual effects

CUACAM301 Shoot material for screen productions

CUADIG401 Author interactive media

CUAPOS401 Edit screen content for fast turnaround

CUAPOS402 Manage media assets

CUAPPM407 Create storyboards

CUASOU202 Perform basic sound editing

CUASOU304 Prepare audio assets

ICTDMT404 Create visual design components for digital media

ICTDMT405 Produce interactive animations

ICTDMT406 Produce and edit digital images

### **Gaming Art and Development**

ICTGAM422 Create design documents for interactive games

ICTGAM423 Apply artificial intelligence in game development

ICTGAM424 Develop story and content in digital games

ICTGAM425 Create visual design components in interactive games

ICTGAM428 Create 3-D characters for interactive games

ICTGAM429 Develop 3-D components for interactive games

ICTGAM430 Design interactive media

ICTGAM431 Design and create 3-D digital models

ICTGAM432 Create audio for digital games

ICTGAM433 Prepare and complete image rendering processes

### **IT Support Services**

ICTICT429 Determine and confirm client business requirements

ICTICT431 Use online tools for learning

ICTICT436 Develop macros and templates for clients using standard products

ICTICT441 Provide one-to-one instruction

ICTICT446 Apply ICT service management principles  
ICTSAS428 Hand over ICT system components to clients  
ICTSAS433 Update ICT client support procedures and assist with policy development  
ICTSAS434 Action change requests and present updated ICT system to clients  
ICTSAS446 Fault find and troubleshoot ICT equipment, hardware and software problems

### **IT Work Ready Skills**

BSBWOR404 Develop work priorities

ICTICT435 Create technical documentation  
ICTICT440 Develop service level agreements  
ICTICT448 Prepare electronic portfolios of work  
ICTSAD402 Develop and present ICT feasibility reports

### **Networking**

ICTCLD301 Evaluate characteristics of cloud computing solutions and services  
ICTNWK416 Build security into virtual private networks  
ICTNWK425 Build small wireless local area networks  
ICTNWK426 Install and configure client-server applications and services  
ICTNWK427 Configure desktop environments  
ICTNWK428 Create scripts for networking  
ICTNWK430 Deploy software to networked computers  
ICTNWK431 Create network documentation  
ICTNWK432 Build an enterprise wireless network  
ICTNWK433 Install backbone technologies in a local area network

### **Project Management**

ICTICT447 Work effectively in agile environments  
ICTPMG411 Support small scale ICT projects

### **Programming**

ICTPRG429 Maintain open-source code programs  
ICTPRG431 Apply query language in relational databases  
ICTPRG432 Develop data-driven applications  
ICTPRG434 Automate processes  
ICTPRG435 Write scripts for software applications  
ICTPRG436 Develop mobile applications  
ICTPRG439 Use pre-existing components  
ICTPRG441 Apply skills in object-oriented design  
ICTPRG442 Apply mathematical techniques for software development  
ICTPRG443 Apply intermediate programming skills in different languages  
ICTPRG444 Analyse software requirements  
ICTPRG446 Prepare software development review  
ICTPRG447 Use extensible markup language  
ICTSAD501 Model data objects

ICTSAD502 Model data processes

### **Systems and Software Design**

ICTICT430 Apply software development methodologies  
ICTICT432 Develop detailed technical design  
ICTICT438 Select, configure and deploy software and hardware testing tools  
ICTICT444 Develop client user interface  
ICTNWK434 Identify and implement industry standard virtualisation technologies

ICTSAS445 Configure and troubleshoot operating system software

ICTTEN410 Locate, diagnose and rectify faults

ICTTEN417 Install, configure and test a router

ICTTEN418 Install and test a radio frequency identification system

ICTTEN419 Implement and troubleshoot enterprise routers and switches

ICTTEN420 Design, install and configure an internetwork

ICTTEN513 Install, configure and test a local area network switch

### **Systems Development and Maintenance**

ICTICT434 Maintain website information standards

ICTICT437 Conduct post-implementation ICT system reviews

ICTSAS309 Maintain and repair ICT equipment and software

ICTSAS435 Resolve system faults on a live system

ICTSAS437 Optimise ICT system performance

ICTSAS439 Analyse ICT system capacity and implement enhancements

ICTSAS444 Repair operating systems boot up procedures

ICTSUS402 Install and test power saving hardware

ICTSUS403 Install and test power management software

ICTSUS404 Install thin client applications for power over ethernet

### **Web design and development**

ICTWEB423 Ensure dynamic website security

ICTWEB430 Produce server-side script for dynamic web pages

ICTWEB435 Maintain website performance

ICTWEB436 Monitor traffic and compile website traffic reports

ICTWEB437 Create website testing procedures

ICTWEB438 Conduct operational acceptance tests of websites

ICTWEB439 Confirm basic website security

ICTWEB440 Use web authoring tools

ICTWEB441 Produce basic client-side script

ICTWEB442 Produce interactive web animation

ICTWEB444 Create responsive website layouts

ICTWEB445 Implement content management systems

ICTWEB446 Integrate social web technologies

ICTWEB447 Build basic website using development software and ICT tools

ICTWEB448 Confirm website content meets technical protocols and standards

ICTWEB449 Confirm website access and useability

ICTWEB451 Apply structured query language in relational databases

### **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:

- ICT40120 Certificate IV in Information Technology (Database Development)
- ICT40120 Certificate IV in Information Technology (Database Maintenance)
- ICT40120 Certificate IV in Information Technology (Gaming Development)
- ICT40120 Certificate IV in Information Technology (Networking)

- ICT40120 Certificate IV in Information Technology (Programming)
- ICT40120 Certificate IV in Information Technology (Systems Administration Support)
- ICT40120 Certificate IV in Information Technology (Web Development).

### **Packaging rules to achieve a specialisation**

#### Database Development

- Select all 5 elective units from Group A Database Development Specialisation

#### Database Maintenance

- Select all 5 elective units from Group B Database Maintenance Specialisation

#### Gaming Development

- Select all 6 elective units from Group C Gaming Development Specialisation

#### Networking

- Select all 7 elective units from Group D Networking Specialisation

#### Programming

- Select all 5 elective units from Group E Programming Specialisation

#### Systems Administration Support

- Select all 6 elective units from Group F Systems Administration Support Specialisation

#### Web Development

- Select all 7 elective units from Group G Web Development Specialisation

# ICT50715 - Diploma of Software Development (Release 1)

## Packaging Rules

Total number of units = 16

10 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 ICT Information and Communications Technology Training Package 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

ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

ICTPRG418 Apply intermediate programming skills in another language

ICTPRG501 Apply advanced object-oriented language skills

ICTPRG502 Manage a project using software management tools

ICTPRG503 Debug and monitor applications

ICTPRG504 Deploy an application to a production environment

ICTPRG520 Validate an application design against specifications

ICTPRG523 Apply advanced programming skills in another language

ICTPRG527 Apply intermediate object-oriented language skills

ICTPRG529 Apply testing techniques for software development

## Elective units

ICTICT403 Apply software development methodologies

ICTICT503 Validate quality and completeness of system design specifications

ICTICT509 Gather data to identify business requirements

ICTICT511 Match ICT needs with the strategic direction of the enterprise

ICTICT514 Identify and manage the implementation of current industry-specific technologies

ICTNWK514 Model preferred system solutions

ICTPMG501 Manage ICT projects

ICTPRG505 Build advanced user interface

ICTPRG506 Design application architecture

ICTPRG507 Implement security for applications

ICTPRG508 Create mashups

ICTPRG509 Build using rapid application development

ICTPRG510 Maintain custom software

ICTPRG512 Prepare for the build phase of an ICT system

ICTPRG513 Coordinate the build phase of an ICT system

ICTPRG514 Prepare for software development using rapid application development

ICTPRG515 Review developed software

ICTPRG601 Develop advanced mobile multi-touch applications

ICTPRG604 Create cloud computing services

ICTSAD501 Model data objects

ICTSAD502 Model data processes

ICTSAD506 Produce a feasibility report

ICTSAS502 Establish and maintain client user liaison

# ICT60515 - Advanced Diploma of Computer Systems Technology (Release 1)

## Packaging Rules

Total number of units = 18

12 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 ICT Information and Communications Technology Training Package at Advanced Diploma level
- up to 3 from 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

ICTNWK506 Configure, verify and troubleshoot WAN links and IP services in a medium enterprise network

ICTNWK507 Install, operate and troubleshoot medium enterprise routers

ICTNWK508 Install, operate and troubleshoot medium enterprise switches

ICTNWK509 Design and implement a security perimeter for ICT networks

ICTNWK529 Install and manage complex ICT networks

ICTNWK602 Plan, configure and test advanced server based security

ICTNWK607 Design and implement wireless network security

ICTPMG608 Manage ICT project systems implementation

ICTPMG609 Plan and direct complex ICT projects

ICTPRG527 Apply intermediate object-oriented language skills

ICTWEB501 Build a dynamic website

ICTWEB502 Create dynamic web pages

## Elective units

ICTDBS504 Integrate database with a website

ICTICT502 Develop detailed component specifications from project specifications

ICTICT604 Identify and implement business innovation

ICTICT609 Lead the evaluation and implementation of current industry specific technologies

ICTNWK502 Implement secure encryption technologies

ICTNWK503 Install and maintain valid authentication processes

ICTNWK504 Design and implement an integrated server solution

ICTNWK505 Design, build and test a network server

ICTNWK524 Install and configure network access storage devices

ICTNWK525 Configure an enterprise virtual computing environment

ICTNWK527 Manage an enterprise virtual computing environment

ICTNWK533 Configure and manage advanced virtual computing environments

ICTNWK534 Monitor and troubleshoot virtual computing environments

ICTNWK535 Install an enterprise virtual computing environment

ICTNWK603 Plan, configure and test advanced internetwork routing solutions

ICTNWK605 Design and configure secure integrated wireless systems

ICTNWK610 Design and build integrated VoIP networks



ICTNWK611 Configure call processing network elements for secure VoIP networks

ICTNWK612 Plan and manage troubleshooting advanced integrated IP networks

ICTNWK613 Develop plans to manage structured troubleshooting process of enterprise networks

ICTNWK615 Design and configure desktop virtualisation

ICTNWK616 Manage security, privacy and compliance of cloud service deployment

ICTPRG505 Build advanced user interface

ICTPRG601 Develop advanced mobile multi-touch applications

ICTPRG602 Manage the development of technical solutions from business specifications

ICTSAS517 Use network tools

ICTWEB503 Create web-based programs

ICTWEB505 Develop complex web page layouts

# ICT60115 - Advanced Diploma of Information Technology (Release 2)

## 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 Knowledge management  
Group B Systems development.

Of the remaining elective units:

- up to 6 may be from the specialist elective groups below or from Group C general elective units below
- up to 3 may be from elsewhere in ICT Information and Communications Technology Training Package 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.

## Core units

BSWOR502 Lead and manage team effectiveness

ICTICT608 Interact with clients on a business level

ICTICT610 Manage copyright, ethics and privacy in an ICT environment

ICTPMG609 Plan and direct complex ICT projects

ICTSUS601 Integrate sustainability in ICT planning and design projects

## Elective units

### Specialist elective units

#### Group A Knowledge management

ICTDBS501 Monitor and improve knowledge management system

ICTDBS601 Build a data warehouse

ICTDBS602 Develop a knowledge management strategy

ICTICT604 Identify and implement business innovation

ICTICT605 Implement a knowledge management strategy

#### Group B Systems development

ICTICT508 Evaluate vendor products and equipment

ICTICT602 Develop contracts and manage contracted performance

ICTPRG604 Create cloud computing services

ICTSAD504 Implement quality assurance processes for business solutions

ICTSAD505 Develop technical requirements for business solutions

ICTSAS601 Implement change management processes

### General elective units

#### Group C

BSBINN601 Lead and manage organisational change

BSBMGT608 Manage innovation and continuous improvement

ICTDBS603 Determine suitability of database functionality and scalability

ICTICT601 Develop ICT strategic and action plans

ICTICT603 Manage the use of appropriate development methodologies

ICTICT606 Develop communities of practice

ICTICT609 Lead the evaluation and implementation of current industry specific technologies

ICTNWK601 Design and implement a security system

ICTNWK616 Manage security, privacy and compliance of cloud service deployment

ICTPMG606 Manage ICT project quality

ICTPRG601 Develop advanced mobile multi-touch applications

ICTPRG602 Manage the development of technical solutions from business specifications

ICTSAD602 Conduct knowledge audits

## ICT51015 - Diploma of Telecommunications Engineering (Release 1)

### Packaging Rules

Total number of units = 12

5 core units plus

7 electives units

The electives consist of:

- up to 7 units selected from the electives listed below
- up to 2 may be selected from any currently endorsed Training Package or accredited course at AQF Level 5 or above.

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.

Refer to the *Specialisations* information below, and to the Companion Volume Implementation Guide, for advice about choosing electives to support specialisations in particular sectors of the information and communications industry.

### Core Units

BSBSUS501 Develop workplace policy and procedures for sustainability

BSBWHS501 Ensure a safe workplace

ICTPMG503 Prepare a project brief

ICTPMG504 Prepare project specifications

ICTTEN516 Produce technical solutions from business specifications

### Elective Units

#### Group A General administration

BSBPMG522 Undertake project work

ICTICT508 Evaluate vendor products and equipment

ICTEDU501 Develop and deliver training associated with new and modified products

ICTPRO501 Develop training, marketing and sales resources for telecommunications products

ICTSUS501 Implement server virtualisation for a sustainable ICT system

ICTTEN502 Design a telecommunications project

#### Group B General ICT

ICTNWK516 Determine best-fit topology for a local network

ICTCMP501 Undertake radio communications site audit

ICTICT516 Test telecommunications network using virtual instruments

ICTPMG502 Develop customer premises equipment installation project plans

ICTTEN503 Design an electronic system for a telecommunications network

ICTTEN504 Acceptance test new systems and equipment

ICTTEN505 Commission telecommunications network equipment

ICTTEN506 Integrate new systems and equipment into the telecommunications network

ICTTEN507 Cut over new and replacement network equipment

ICTTEN508 Locate, diagnose and rectify complex faults

ICTTEN509 Provide expert advice and support on complex faults

ICTTEN510 Undertake planned outage management  
ICTTEN511 Administer a data communications network  
ICTTEN512 Design and implement an enterprise voice over internet protocol and a unified communications network  
ICTTEN515 Dimension and design a radio frequency identification system  
ICTTEN517 Plan a wireless mesh network

### **Group C Radio communications**

ICTRFN501 Test cellular handset enhancements and international roaming agreements  
ICTRFN502 Test and measure cellular phone and network equipment performance  
ICTRFN503 Evaluate and analyse radio frequency signal coverage plots  
ICTRFN601 Monitor the capacity of and recommend changes to the cellular mobile network  
ICTRFN602 Produce and evaluate architecture designs for WIMAX networks

### **Group D Network engineering and management**

ICTNPL503 Apply service measures and demand forecasting to products and services planning

### **Group E Optical and network engineering**

ICTOPN501 Plan and configure dense wavelength division multiplexing systems  
ICTOPN502 Perform acceptance and commissioning tests on optical network  
ICTOPN503 Plan for an optical system upgrade and cut over  
ICTOPN504 Test and commission a dense wavelength division multiplexing transmission system  
ICTOPN505 Test the performance of specialised optical devices  
ICTOPN506 Analyse and integrate specialised optical devices in the network

### **Group F Management**

BSBDES501 Implement design solutions  
BSBDES502 Establish, negotiate and refine a design brief  
BSBDES601 Manage design realisation  
BSBDES602 Research global design trends  
BSBFIM501 Manage budgets and financial plans  
BSBPMG521 Manage project integration  
BSBWHS504 Manage WHS risks  
ICTNPL401 Apply business acumen to network planning  
ICTNPL409 Apply knowledge of regulation and legislation for the telecommunications industry  
ICTPMG610 Develop a project management plan

### **Group G Network engineering**

ICTNPL501 Develop planning strategies for core network design  
ICTNPL502 Develop planning strategies for access network design  
ICTNPL504 Develop planning strategies for building environment design  
ICTTEN501 Provide consultancy and technical support in the customer premises equipment sector  
ICTTEN513 Install, configure and test a local area network switch  
ICTTEN514 Install, configure and test a server

### **Specialisations**

The use of specialist streams is appropriate for this qualification in accordance with the AQF, Standards for Training Packages and the packaging rules. Where a specialist stream is achieved, testamurs must show the appropriate specialisation in brackets. Refer to the Companion Volume Implementation Guide for further advice about specialisations.

Minimum elective units required for the specific specialisations are described below.

### Management

Select the following 5 units:

- ICTNPL401 Apply business acumen to network planning
- ICTNPL409 Apply knowledge of regulation and legislation for the telecommunications industry
- ICTNPL503 Apply service measures and demand forecasting to products and services planning
- ICTPMG610 Develop a project management plan
- BSBFIM501 Manage budgets and financial plans.

The remaining 2 electives must be selected from Groups A, D and F only.

### Network Engineering

Select the following 4 units:

- BSBPMG522 Undertake project work
- ICTTEN502 Design a telecommunications project
- ICTTEN513 Install, configure and test a local area network switch
- ICTTEN514 Install, configure and test a server.

The remaining 3 electives must be selected from Groups A, B, C, D, E, and G only.

### Optical Network

Select the following 5 units:

- ICTOPN501 Plan and configure dense wavelength division multiplexing systems
- ICTOPN502 Perform acceptance and commissioning tests on optical network
- ICTOPN503 Plan for an optical system upgrade and cut over
- ICTOPN504 Test and commission a dense wavelength division multiplexing transmission system
- ICTOPN506 Analyse and integrate specialised optical devices in the network.

The remaining 2 electives must be selected from Groups A, B and E only.

### Radio Communications

Select the following 5 units:

- ICTRFN502 Test and measure cellular phone and network equipment performance
- ICTRFN503 Evaluate and analyse radio frequency signal coverage plots
- ICTRFN602 Produce and evaluate architecture designs for WiMAX networks
- ICTTEN502 Design a telecommunications project
- ICTTEN517 Plan a wireless mesh network.

The remaining 2 electives must be selected from Groups A, B and C only.

# ICT60615 - Advanced Diploma of Telecommunications Network Engineering (Release 1)

Total number of units = 10

4 Core units plus

6 Elective units

The elective units consist of:

- all 6 units may be selected from the electives units listed below, with a minimum of 2 electives at AQF Level 6
- up to 2 elective units may be substituted with units of competency from any currently endorsed Training Package or accredited course at AQF Level 6 or above.

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 are available within the ICT Information and Telecommunications Technology Training Package.

## Core Units

ICTPMG610 Develop a project management plan

ICTPMG611 Prepare a detailed design brief

ICTSUS601 Integrate sustainability in ICT planning and design projects

ICTTEN611 Produce an ICT network architecture design

## Elective Units

### ICT use (IP networks)

ICTNWK502 Implement secure encryption technologies

ICTNWK503 Install and maintain valid authentication processes

ICTNWK509 Design and implement a security perimeter for ICT networks

ICTNWK517 Determine best-fit topology for a wide area network

ICTNWK518 Design an enterprise wireless local area network

ICTNWK520 Design ICT system security controls

ICTSAS409 Manage risks involving ICT systems and technology

ICTSAS505 Review and update disaster recovery and contingency plans

### Network planning

ICTNPL601 Plan the development and growth of the telecommunications network

ICTNPL602 Forecast service demand

ICTNPL603 Undertake network performance analysis

### Planning

BSBDES601 Manage design realisation

BSBDES602 Research global design trends

### Work health and safety

BSBWHS501 Ensure a safe workplace

BSBWHS504 Manage WHS risks

### **Optical networks**

ICTOPN601 Manage optical ethernet transmission

ICTOPN602 Manage dense wavelength division multiplexing transmission system

ICTOPN603 Design a dense wavelength division multiplexing system

ICTOPN604 Analyse optical transmission systems

### **Radio frequency networks**

ICTRFN601 Monitor the capacity of and recommend changes to the cellular mobile network

ICTRFN602 Produce and evaluate architecture designs for WiMAX networks

### **Sustainability**

ICTSUS602 Establish a business case for sustainability and competitive advantage in ICT projects

### **Telecommunications engineering networks**

ICTTEN601 Undertake qualification testing of new or enhanced equipment and systems

ICTTEN602 Undertake system administration

ICTTEN603 Undertake network traffic management

ICTTEN604 Coordinate fault rectification and restoration of service following network outages

ICTTEN605 Implement planned network changes with minimal impact to the customer

ICTTEN606 Manage a common channel signalling network

ICTTEN607 Analyse and organise repair of highly complex telecommunications network faults

ICTTEN608 Verify new software and hardware releases

ICTTEN609 Produce and evaluate architecture designs for convergent cellular mobile networks

### **Emerging technologies**

ICTTEN612 Design and manage internet protocol TV in a service provider network

### **IP networks**

ICTTEN610 Install and configure an IP-MPLS network with virtual private network tunnelling



## ICT80215 - Graduate Certificate in Information Technology Sustainability (Release 3)

### 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
- up to 1 from elsewhere in ICT Information and Communications Technology Training Package, or any other Training Package or accredited course at Graduate Certificate level or above.

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

### Core units

ICTSUS802 Conduct a business case study for integrating sustainability in ICT planning and design projects

### Elective units

BSBLDR803 Develop and cultivate collaborative partnerships and relationships

ICTICT806 Direct outsourced ICT services

ICTICT807 Direct research and business response to new ICT technology

ICTICT809 Facilitate business analysis

ICTICT810 Synchronise ICT projects

ICTSUS801 Plan and manage virtualisation for ICT sustainability

ICTSUS803 Research strategies using SAP solutions for sustainable economic and environmental outcomes

ICTSUS804 Use ICT to improve sustainability outcomes

ICTSUS805 Manage improvements in ICT sustainability

ICTSUS806 Lead applied research in ICT sustainability

ICTSUS807 Conduct and manage a life cycle assessment for sustainability

# ICT80415 - Graduate Diploma of Telecommunications Network Engineering (Release 2)

## Packaging Rules

Total number of units = 8

3 core units *plus*

5 elective units

The elective units must be relevant to the industry-supported vocational outcomes, local industry requirements and is to be chosen as follows:

The elective units consist of:

- up to 5 from the elective units listed below
- up to 1 from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Graduate Certificate level or above.

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.

## Core Units

ICTPMG802 Manage a telecommunications project

ICTPMG804 Evaluate and use telecommunications management networks

ICTSUS806 Lead applied research in ICT sustainability

## Elective Units

BSBINN801 Lead innovative thinking and practice

ICTICT809 Facilitate business analysis

ICTICT801 Lead research into identifying new marketplace opportunities

ICTICT803 Endorse business plan components for a new initiative

ICTICT808 Direct the development of a knowledge management strategy for a business

ICTICT812 Develop a business intelligence framework

ICTICT814 Develop cloud computing strategies for a business

ICTICT815 Manage automated ICT system applications using enterprise wide operating system

ICTRFN801 Produce a radio link budget

ICTRFN802 Analyse a cellular mobile network system

ICTRFN803 Analyse a satellite communications system

ICTSUS807 Conduct and manage a life cycle assessment for sustainability

ICTTEN801 Plan a transmission network

ICTTEN805 Manage solution architecture and impacts in line with organisational processes

ICTTEN807 Manage voice, data and internet protocol network solutions

ICTTEN808 Manage network testing strategies

ICTTEN809 Analyse business specifications to produce technical solutions

ICTTEN810 Investigate the application of cloud networks in telecommunications switching

ICTTEN811 Evaluate and apply network security

ICTTEN812 Evaluate and apply digital signal processing to communications system

ICTTEN813 Produce engineering solutions using numerical computations and simulation

# ICT80515 - Graduate Diploma of Telecommunications and Strategic Management (Release 2)

## Packaging Rules

Total number of units = 8

2 core units *plus*

6 elective units

The elective units must be relevant to the industry-supported vocational outcomes, local industry requirements and is to be chosen as follows:

The elective units consist of:

- up to 6 from the elective units listed below
- up to 1 from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Graduate Certificate level or above.

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.

## Core Units

BSBINN801 Lead innovative thinking and practice

ICTICT809 Facilitate business analysis

## Elective Units

ICTICT801 Lead research into identifying new marketplace opportunities

ICTICT803 Endorse business plan components for a new initiative

ICTICT808 Direct the development of a knowledge management strategy for a business

ICTICT812 Develop a business intelligence framework

ICTICT814 Develop cloud computing strategies for a business

ICTICT815 Manage automated ICT system applications using enterprise wide operating system

ICTPMG802 Manage a telecommunications project

ICTPMG804 Evaluate and use telecommunications management networks

ICTRFN801 Produce a radio link budget

ICTRFN802 Analyse a cellular mobile network system

ICTRFN803 Analyse a satellite communications system

ICTSUS806 Lead applied research in ICT sustainability

ICTSUS807 Conduct and manage a life cycle assessment for sustainability

ICTTEN801 Plan a transmission network

ICTTEN805 Manage solution architecture and impacts in line with organisational processes

ICTTEN807 Manage voice, data and internet protocol network solutions

ICTTEN808 Manage network testing strategies

ICTTEN809 Analyse business specifications to produce technical solutions

ICTTEN810 Investigate the application of cloud networks in telecommunications switching

ICTTEN811 Evaluate and apply network security

ICTTEN812 Evaluate and apply digital signal processing to communications system

ICTTEN813 Produce engineering solutions using numerical computations and simulation