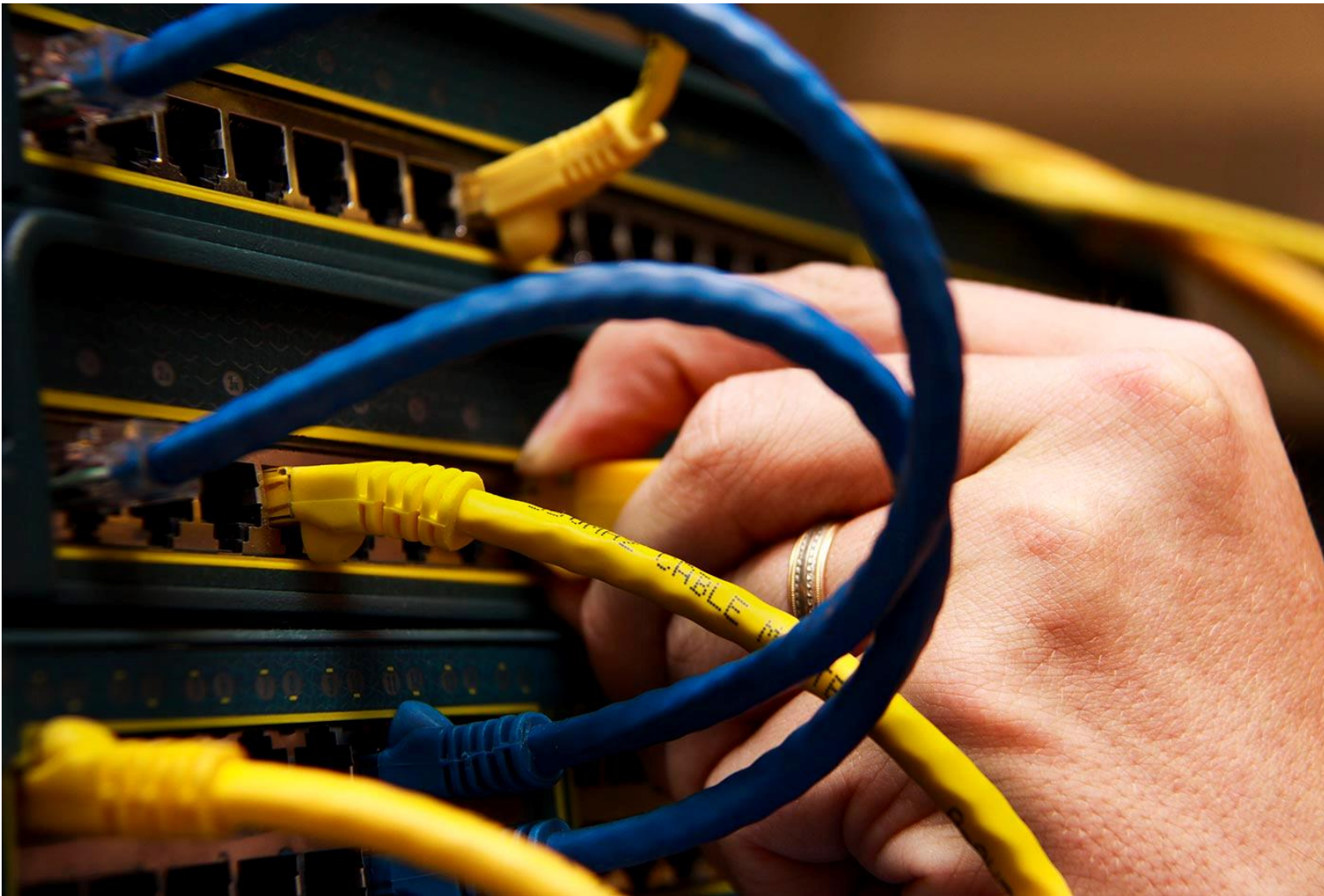# Information Technology Qualification Packaging based on Unit Resources Available from LRES Training Management

Last Updated: Thursday, 23 June 2022

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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

ICT50220 - 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
- Telecommunications network engineering.

Core units
BSBCRT512 Originate and develop concepts
BSBXCS402 Promote workplace cyber security awareness and best practices
BSBXTW401 Lead and facilitate a team
ICTICT517 Match ICT needs with the strategic direction of the organisation
ICTICT532 Apply IP, ethics and privacy policies in ICT environments
ICTSAS527 Manage client problems

Elective units
Group A Advanced Networking Specialisation
ICTNWK529 Install and manage complex ICT networks
ICTNWK536 Plan, implement and test enterprise communication solutions
ICTNWK540 Design, build and test network servers
ICTNWK546 Manage network security

ICTNWK557 Configure and manage advanced virtual computing environments
ICTNWK559 Install an enterprise virtual computing environment

Group B - Advanced programming specialisation
ICTPRG535 Build advanced user interfaces
ICTPRG547 Apply advanced programming skills in another language
ICTPRG549 Apply intermediate object-oriented language skills
ICTPRG554 Manage data persistence using noSQL data stores
ICTPRG556 Implement and use a model view controller framework

Group C - Back end web development specialisation
ICTDBS507 Integrate databases with websites
ICTPRG553 Create and develop REST APIs
ICTPRG554 Manage data persistence using noSQL data stores
ICTWEB522 Develop website information architecture
ICTWEB525 Implement quality assurance process for websites

Group D - Business analysis specialisation
ICTSAD507 Design and implement quality assurance processes for business solutions
ICTSAD508 Develop technical requirements for business solutions
ICTSAD509 Produce ICT feasibility reports
ICTSAS502 Establish and maintain client user liaison
ICTSAS526 Review and update disaster recovery and contingency plans

Group E - Cloud architect specialisation
ICTCLD501 Develop cloud disaster recovery plans
ICTCLD502 Design and implement highly-available cloud infrastructure
ICTCLD503 Implement web-scale cloud infrastructure
ICTCLD504 Improve cloud-based infrastructure

Group F - Cloud engineer specialisation
ICTCLD505 Implement cloud infrastructure with code
ICTCLD506 Implement virtual network in cloud environments
ICTCLD507 Build and deploy resources on cloud platforms
ICTCLD508 Manage infrastructure in cloud environments

Group G - Cyber security specialisation
ICTCYS407 Gather, analyse and interpret threat data
ICTCYS610 Protect critical infrastructure for organisations
ICTCYS613 Utilise design methodologies for security architecture
ICTSAS524 Develop, implement and evaluate an incident response plan
ICTSAS526 Review and update disaster recovery and contingency plans

Group H - Database and data management specialisation
ICTDBS503 Create a data warehouse
ICTDBS505 Monitor and improve knowledge management systems
ICTDBS506 Design databases

ICTDBS507 Integrate databases with websites
ICTSAD502 Model data processes

Group I - Front end web development specialisation
ICTICT530 Design user experience solutions
ICTWEB513 Build dynamic websites
ICTWEB514 Create dynamic web pages
ICTWEB518 Build a document using extensible markup language
ICTWEB519 Develop complex web page layouts
ICTWEB520 Develop complex cascading style sheets

Group J - Game art and design specialisation
ICTGAM539 Create and implement designs for 3-D games environments
ICTGAM542 Animate 3-D characters for digital games
ICTGAM543 Produce digital animation sequences
ICTGAM545 Manage technical art and rigging in 3-D animations
ICTGAM552 Create complex 3-D characters for games

Group K - Game programming specialisation
ICTGAM423 Apply artificial intelligence in game development
ICTGAM533 Create complex 3-D interactive games
ICTGAM535 Develop complex 3-D software for games and interactive media
ICTGAM537 Prepare games for different platforms and delivery modes
ICTICT433 Build graphical user interfaces

Group L - Systems administration specialisation
ICTNWK615 Design and configure desktop virtualisation
ICTSAS512 Review and manage delivery of maintenance services
ICTSAS518 Install and upgrade operating systems
ICTSAS524 Develop, implement and evaluate an incident response plan

Group M - Systems analysis specialisation
ICTNWK548 Model preferred system solutions
ICTSAD501 Model data objects
ICTSAD502 Model data processes
ICTSAS506 Update ICT system operational procedures
ICTSAS520 Develop detailed test plans

Group N - Telecommunications network engineering specialisation
ICTICT519 Develop detailed component specifications from project specifications
ICTNPL413 Evaluate networking regulations and legislation for the telecommunications industry
ICTNWK423 Manage network and data integrity
ICTNWK541 Configure, verify and troubleshoot WAN links and IP services
ICTPMG505 Manage ICT projects
ICTTEN519 Design network building projects

Group O - 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
ICTICT520 Confirm transition strategy for a new system
ICTICT521 Select new technology supported business model
ICTICT524 Determine ICT strategies and solutions for organisations
ICTICT525 Identify and manage the implementation of industry specific technologies
ICTICT526 Verify client business requirements
ICTICT528 Deploy smart contracts
ICTSAS517 Use network tools
ICTSAS519 Perform systems tests
ICTSAS521 Perform integration tests
ICTSAS523 Perform stress and load test on integrated platforms
ICTSAS522 Manage the testing process
ICTSAS528 Review and develop ICT maintenance strategy
ICTSAS529 Prioritise ICT change requests

Blockchain Solutions

ICTICT527 Develop and maintain blockchain solutions

Business Management

BSBPMG537 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
CUAPHI514 Employ specialised imaging technologies

Digital Media

CUAPOS401 Edit screen content for fast turnaround
CUASOU407 Edit sound
CUASOU504 Produce sound recordings
ICTDMT501 Incorporate and edit digital video

Gaming Development

ICTGAM419 Build a database to support a computer game
ICTGAM532 Create design concepts for digital games and 3-D media
ICTGAM534 Manage interactive media productions
ICTGAM536 Design interactive 3-D applications for scientific and mathematical modelling
ICTGAM538 Manage testing of games and interactive media
ICTGAM540 Design and create models for 3-D and digital effects environments

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

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

Networking
ICTNWK515 Develop configuration management protocols
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
ICTNWK560 Determine best-fit topologies for wide area networks
ICTNWK561 Design enterprise wireless local area networks
ICTNWK623 Manage ICT security

Programming
ICTPRG509 Build using rapid application development
ICTPRG530 Manage projects using software management tools
ICTPRG531 Prepare for application development using current methods
ICTPRG532 Apply advanced object-orientated language skills
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
BSBPMG532 Manage project quality
BSBPMG536 Manage project risk
BSBPMG539 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

Telecommunications Network Engineering - General
ICTICT531 Test network using virtual instruments
ICTPMG402 Schedule installation of customer premises equipment
ICTPMG506 Prepare network project briefs
ICTPRG605 Manage development of technical solutions from business specifications
ICTSAS525 Develop and conduct client acceptance test
ICTSUS502 Install and test virtual infrastructure
ICTTEN426 Design network projects
ICTTEN520 Commission network equipment
ICTTEN521 Integrate network systems and equipment
ICTTEN522 Cut over new and replacement network equipment
ICTTEN523 Locate, diagnose and rectify complex system equipment faults
ICTTEN524 Diagnose and organise repair of complex equipment faults
ICTTEN525 Install, configure and test local area network switches
ICTTEN526 Dimension and design a radio frequency identification system
ICTTEN527 Plan wireless mesh networks
UEPOPS423 Plan a scheduled outage

Telecommunications Network Engineering - Networking
ICTNWK555 Determine best-fit topologies for local networks
ICTNWK610 Design and build integrated VoIP networks

Telecommunications Network Engineering – Optical Networks
ICTOPN507 Plan and configure dense wavelength division multiplexing optical networks
ICTOPN508 Perform acceptance and commissioning tests on optical networks
ICTOPN509 Plan for optical system upgrades
ICTOPN510 Test and commission dense wavelength division multiplexing transmission systems

ICTOPN511 Test performance of specialised optical devices

ICTOPN512 Analyse and integrate specialised optical devices

Telecommunications Network Engineering – Radio Communications

ICTCMP502 Conduct radio communications site audits

ICTRFN504 Test cellular handset enhancements and international roaming agreements

ICTRFN505 Test and measure cellular phone and network equipment performance

ICTRFN506 Evaluate radio frequency signal coverage plots

ICTRFN603 Monitor the capacity of and recommend changes to cellular mobile networks

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

The achievement of a specialisation will be identified on testamurs as follows:

- ICT50220 Diploma of Information Technology (Advanced Networking)
- ICT50220 Diploma of Information Technology (Advanced Programming)
- ICT50220 Diploma of Information Technology (Back End Web Development)
- ICT50220 Diploma of Information Technology (Business Analysis)
- ICT50220 Diploma of Information Technology (Cloud Architecture)
- ICT50220 Diploma of Information Technology (Cloud Engineering)
- ICT50220 Diploma of Information Technology (Cyber Security)
- ICT50220 Diploma of Information Technology (Database and Data Management)
- ICT50220 Diploma of Information Technology (Front End Web Development)
- ICT50220 Diploma of Information Technology (Game Art and Design)
- ICT50220 Diploma of Information Technology (Game Programming)
- ICT50220 Diploma of Information Technology (Systems Administration)
- ICT50220 Diploma of Information Technology (Systems Analysis)
- ICT50220 Diploma of Information Technology (Telecommunications Network Engineering).

Packaging rules to achieve a specialisation

Advanced Networking

- Select all 6 elective units from Group A - Advanced networking specialisation

Advanced Programming

- Select all 5 elective units from Group B - Advanced programming specialisation

Back End Web Development

- Select all 5 elective units from Group C - Back end web development specialisation

Business Analysis

- Select all 5 elective units from Group D - Business analysis specialisation

Cloud Architecture

- Select all 4 elective units from Group E - Cloud architect specialisation

Cloud Engineering

- Select all 4 elective units from Group F - Cloud engineers specialisation

Cyber Security
- Select all 5 elective units from Group G - Cyber security specialisation

Database and Data Management
- Select all 5 elective units from Group H - Database and data management specialisation

Front End Web Development
- Select all 6 elective units from Group I - Front end web development specialisation

Game Art and Design
- Select all 5 elective units from Group J - Game art and design specialisation

Game Programming
- Select all 5 elective units from Group K - Game programming specialisation

Systems Administration
- Select all 4 elective units from Group L - Systems administration specialisation

Systems Analysis
- Select all 5 elective units from Group M - Systems analysis specialisation

Telecommunications Network Engineering
- Select all 6 elective units from Group N - Telecommunications network engineering 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

ICT60220 - Advanced Diploma of Information Technology (Release 2)

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
- Telecommunications network engineering.

Core units

BSBCRT611 Apply critical thinking for complex problem solving
BSBTWK502 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 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 - Telecommunications network engineering specialisation
ICTNPL413 Evaluate networking regulations and legislation for the telecommunications industry
ICTNWK612 Plan and manage troubleshooting advanced integrated IP networks
ICTPMG613 Manage ICT project planning
ICTTEN615 Manage network traffic
ICTTEN622 Produce ICT network architecture designs

Group H - 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
ICTCYS614 Analyse cyber security insider risks and threats and devise recommendations
ICTCYS615 Detect and respond to cyber security insider risks and threats
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

BSBPMG532 Manage project quality
BSBPMG536 Manage project risk
BSBPMG539 Manage project governance
ICTICT505 Determine acceptable developers for projects
ICTICT529 Organise and lead agile projects
ICTPMG612 Manage ICT project initiation
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
ICTSUS603 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
ICTNWK617 Configure and manage a storage area network
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

BSBLDR601 Lead and manage organisational change
BSBSTR601 Manage innovation and continuous improvement
BSBPMG537 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

Telecommunications Network Engineering – General

BSBLDR523 Lead and manage effective workplace relationships
BSBPMG530 Manage project scope
BSBPMG430 Undertake project work
ICTICT818 Develop knowledge management strategies
ICTICT819 Lead analysis of information and communications technology business strategy
ICTICT822 Manage automated ICT system applications
ICTPMG506 Prepare network project briefs
ICTPRG605 Manage development of technical solutions from business specifications
ICTSUS604 Prepare business cases for sustainability and competitive advantage in ICT projects
ICTSUS811 Conduct and manage life cycle assessments for sustainability
ICTSUS812 Lead applied research in ICT sustainability
ICTTEN613 Assess integration of international network equipment into Australian networks
ICTTEN614 Conduct network system optimisation and administration
ICTTEN616 Rectify client services following network outages and faults
ICTTEN617 Manage common channel signalling networks
ICTTEN618 Analyse and organise repair of highly complex networks
ICTTEN619 Test new software and hardware releases
ICTTEN620 Produce and evaluate architecture designs for convergent cellular mobile networks
ICTTEN621 Design and configure IP-MPLS networks with virtual private network tunnelling
ICTTEN623 Design and manage internet protocol TV in a service provider network
ICTTEN817 Plan transmission networks
ICTTEN818 Align systems with product and technology strategy
ICTTEN819 Translate domain and solution architectures into platform requirements and designs

ICTTEN820 Manage end to end architectural solutions across multiple domains
ICTTEN821 Manage solution architecture and impacts
ICTTEN822 Manage application layer solutions
ICTTEN823 Manage voice, data and internet protocol network solutions
ICTTEN824 Manage network testing strategies
ICTTEN825 Investigate applications of cloud networks in network switching
ICTTEN826 Evaluate and apply digital signal processing to communication systems
ICTTEN827 Produce engineering solutions
ICTTEN828 Manage development and application of testing artefacts

Telecommunications Network Engineering – Networking
ICTNPL412 Apply business acumen to network planning
ICTNWK546 Manage network security
ICTNWK560 Determine best-fit topologies for wide area networks
ICTNWK561 Design enterprise wireless local area networks

Telecommunications Network Engineering – Optical Networks
ICTOPN605 Manage optical ethernet transmission
ICTOPN606 Manage dense wavelength division multiplexing transmission systems
ICTOPN607 Design dense wavelength division multiplexing systems
ICTOPN608 Analyse optical transmission systems

Telecommunications Network Engineering – Radio Communications
ICTRFN804 Produce radio link budgets
ICTRFN805 Analyse cellular mobile network systems
ICTRFN806 Analyse satellite communications systems

Specialisations
The achievement of a specialisation will be identified on testamurs as follows:
- ICT60220 Advanced Diploma of Information Technology (Advanced Data Management Information)
- ICT60220 Advanced Diploma of Information Technology (Cyber Security)
- ICT60220 Advanced Diploma of Information Technology (Full Stack Web Development)
- ICT60220 Advanced Diploma of Information Technology (Further Programming)
- ICT60220 Advanced Diploma of Information Technology (IT Strategy and Organisational Development)
- ICT60220 Advanced Diploma of Information Technology (Systems Development and Analysis)
- ICT60220 Advanced Diploma of Information Technology (Telecommunications Network Engineering).

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

Telecommunications Network Engineering

- Select all 5 elective units from Group G - Telecommunications network engineering 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 <mark>highlighted</mark> are those available from LRES Training Management

ICT20319 - Certificate II in Telecommunications Technology (Release 2)

Packaging Rules

Total number of units = 13

7 core units, plus

6 elective units

The elective units selected may consist of:

- up to 6 units from any group of elective units listed below according to the specialisation packaging rules, outlined below, where a specialisation is the required outcome
- up to 2 units from this Training Package or any currently endorsed Training Package or accredited course where the units are packaged in an Australian Qualifications Framework (AQF) Level 2 or 3 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.

Core units

BSBCUS201 Deliver a service to customers
ICTTEN202 Use hand and power tools
ICTTEN207 Install and test internet protocol devices in convergence networks
ICTTEN208 Use electrical skills when working with telecommunications networks
ICTTEN211 Work effectively in a telecommunications network environment
ICTWHS204 Follow work health and safety and environmental policy and procedures
ICTWOR202 Work effectively in the digital and telecommunications industry

Elective units
Group A Cabling

ICTCBL205 Joint metallic conductor cable on customer premises
ICTCBL206 Alter services to existing cable system
ICTCBL210 Install a telecommunications service to a building
ICTCBL211 Install an above ground equipment enclosure
ICTCBL212 Erect aerial cable supports
ICTCBL219 Apply safe technical work practices for cabling registration when configuring an ADSL circuit
ICTCBL239 Install customer cable support systems
ICTCBL240 Place and secure customer cable
ICTCBL241 Terminate metallic conductor customer cable
ICTCBL242 Install functional and protective telecommunications earthing system
ICTCBL246 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule*
ICTCBL249 Haul underground cable for installation and maintenance work
ICTCBL250 Haul and fix aerial cable
ICTCBL251 Install aerial and underground cable lead-ins
ICTCBL252 Joint and terminate coaxial cable
ICTCBL253 Construct underground telecommunications infrastructure
ICTCBL254 Joint metallic conductor cable in access network

ICTCBL330 Splice and terminate optical fibre cable for telecommunications projects
ICTCMP201 Organise and monitor cabling to ensure compliance with regulatory and industry standards
ICTCMP203 Perform restricted customer premises broadband cabling work: ACMA Restricted Rule*

Group B Networking
ICTTEN203 Install and configure a home or small office network
ICTTEN204 Install and configure a small to medium business network
ICTTEN205 Build and maintain a secure network
ICTTEN206 Operate new media software packages

Group C Radio Communications
ICTRFN201 Install a satellite antenna
ICTRFN202 Install a terrestrial antenna
ICTRFN304 Construct and test a radio communications device

Group D Rigging
ICTTCR203 Use safe rigging practices to climb and perform rescues on telecommunications network structures
CPCCLDG3001A Licence to perform dogging
CPCCLRG3001A Licence to perform rigging basic level*

Group E General
CPCCWHS1001 Prepare to work safely in the construction industry
HLTAID001 Provide cardiopulmonary resuscitation
OR
HLTAID003 Provide first aid
ICTICT206 Install software applications
ICTPMG201 Prepare site for support installation
ICTPMG202 Plan, organise and undertake work activities
ICTSAS203 Connect hardware peripherals
ICTWHS201 Provide telecommunications services safely on roofs
ICTWHS202 Work safely in a radio frequency electromagnetic radiation environment
ICTWHS205 Work safely near power infrastructure at a telecommunications workplace
OR
UETTDREL14A Working safely near live electrical apparatus as a non-electrical worker
*Note the following prerequisite unit requirements:

Prerequisite unit requirements in this qualification	
Unit in this qualification	Prerequisite unit
CPCCLRG3001A Licence to perform rigging basic level	CPCCLDG3001A Licence to perform dogging
ICTCBL246 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule	ICTTEN208 Use electrical skills when working with telecommunications networks ICTWHS204 Follow work health and safety and environmental policy and procedures

ICTCMP203 Perform restricted customer premises broadband cabling work: ACMA Restricted Rule	ICTCBL246 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule OR ICTCBL239 Install customer cable support systems and ICTCBL240 Place and secure customer cable and ICTCBL241 Terminate metallic conductor customer cable and ICTCMP201 Organise and monitor cabling to ensure compliance with regulatory and industry standards

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
BSBWOR502 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