



**Australian Government**

# **ICT60220 Advanced Diploma of Information Technology**

**Release 3**

# ICT60220 Advanced Diploma of Information Technology

## Modification History

Release	Comments
Release 3	<p>This version first released with ICT Information and Communications Technology Training Package Version 8.0.</p> <ul style="list-style-type: none"> <li>• 5 newly created units of competency were added to <i>Group H General Electives</i>.</li> <li>• 12 units of competency have been replaced with their relevant superseding unit.</li> </ul> <p>The following unit of competency was updated with minor editorial corrections:</p> <ul style="list-style-type: none"> <li>• ICTWEB433 Confirm accessibility of websites.</li> </ul>
Release 2	<p>This version first released with ICT Information and Communications Technology Training Package Version 7.2.</p> <p>Version created to add the following units of competency in the elective list:</p> <ul style="list-style-type: none"> <li>• ICTCYS614 Analyse cyber security insider risks and threats and devise recommendations</li> <li>• ICTCYS615 Detect and respond to cyber security insider risks and threats.</li> </ul> <p>Minor editorial corrections made to the packaging rules.</p>
Release 1	<p>This version first released with ICT Information and Communications Technology Training Package Version 7.0.</p>

## Qualification Description

This qualification reflects the role of individuals in a variety of information and communications technology (ICT) roles who have significant experience in specialist technical skills, or managerial business and people management skills.

Individuals in these roles carry out complex tasks in a specialist field, working independently, leading a team or a strategic direction of a business. They apply their skills across a wide range of industries and business functions, or as a business owner (sole trader/contractor).

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

- advanced data management information: creating, designing and monitoring complex systems that store data, and optimising organisational knowledge management
- cyber security: protecting sensitive data and information through security architecture, and developing disaster recovery and contingency plans

- full stack web development: building advanced user interfaces, developing representational state transfer application program interfaces (REST APIs) and designing user experience solutions
- further programming: applying advanced ICT languages to maintain security and manage data
- IT strategy and organisational development: managing and communicating strategic ICT business solutions
- systems development and analysis: modelling and testing data objects, data processes and preferred ICT system solutions
- telecommunications network engineering: managing logistics, organisational specifications, regulations and legislative requirements across network projects.

### **Licensing, legislative, regulatory or certification considerations**

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

## **Entry Requirements**

Nil

## **Packaging Rules**

**Total number of units = 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, not duplicate the outcome of another unit chosen for the qualification, 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

ICTCLD603 Design hybrid cloud-based network architectures

ICTCLD604 Manage data in cloud environments

#### **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**

ICTDAT601 Develop data integration strategies

ICTDAT602 Review data lifecycles

ICTDAT603 Assess advanced data processes

ICTDBS505 Monitor and improve knowledge management systems

### **Project Management**

BSBPMG532 Manage project quality

BSBPMG536 Manage project risk  
BSBPMG539 Manage project governance  
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  
ICTSAD614 Lead ICT requirements elicitation  
ICTICT616 Develop communities of practice  
ICTICT617 Lead the evaluation and implementation of current industry specific technologies  
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  
ICTNWK612 Plan and manage troubleshooting advanced integrated IP 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  
ICTNWK624 Configure advanced internetwork routing solutions  
ICTNWK625 Plan and configure advanced internetwork switching solutions  
ICTNWK627 Implement voice applications over secure wireless networks  
ICTNWK628 Design and build integrated VoIP networks  
ICTNWK629 Configure and manage storage area networks  
ICTSAS530 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**

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:

- 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.

## **Qualification Mapping Information**

No equivalent qualification. Supersedes and is not equivalent to:

- ICT60120 Advanced Diploma of Information Technology
- ICT60615 Advanced Diploma of Telecommunications Network Engineering
- ICT80315 Graduate Certificate in Telecommunications
- ICT80415 Graduate Diploma of Telecommunications Network Engineering
- ICT80515 Graduate Diploma of Telecommunications and Strategic Management
- ICT80615 Graduate Certificate in Telecommunications Network Engineering.

## **Links**

Companion Volume Implementation Guide is found on VETNet -

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