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ICT50220 Diploma of Information Technology (Cyber Security)

This qualification comes from a training package created by the Commonwealth Government for Information and Communications Technology (ICT) defining core and elective competency units. We've chosen specific elective units from the training package, based on input from industry experts, to address South Australia's workforce requirements.

The Diploma of Information Technology, specialising in Cyber Security reflects the role of individual in a variety of information and communications technology (ICT) roles who have established specialised skills in a technical ICT function.

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

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

- Protecting sensitive data and information through security architecture.
- Developing disaster recovery and contingency plans
- Manage network security
- Gather, analyse, and interpret threat data
- Undertake penetration testing

Employment Opportunities

- Network security administrator
- Cyber security operations administrator
- Cyber security specialist
- Network security support officer
- Website security support officer
- Information systems security support officer
- Cyber network services administrator
- Cyber security network support administrator

The recommended fulltime study plan will require 12 months of study to complete this qualification.

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Assumed Skills and Knowledge

There are no formal entry requirements for this course however, participants are best equipped to achieve the course outcomes if they have completed:

- 22603VIC Certificate IV in Cyber Security or
- Other study equivalent to it; or
- Have work experience and knowledge equivalent to it.

Information on the contents of the 22603VIC Certificate IV in Cyber Security can be found here:

Certificate IV in Cyber Security Program Information Document.

Incidentals Costs

You will be required to provide your own access to the following hardware. This hardware costs approximately $700.00.

- 1TB SSD portable hard drive,
- webcam,
- headset with microphone,
- Raspberry Pi 4 Starter Kit 8GB (Inc. SD Card)
  - PIR Motion Sensor (compatible with your Raspberry Pi)
  - Raspberry Pi Camera Module
  - Temperature and Humidity Sensor - DHT22 (SEN0137)
  - Fingerprint Sensor - Basic Fingerprint Sensor with Socket Header Cable (ADA4690)
  - 150mm Socket to Socket (F to F) Jumper Leads

Software

All software required to complete this course will be available for students at no additional cost.

Hardware

Access to computer hardware is provided at certain TAFE SA campuses.

It is important to note that for students studying this course and not able to attend a suitable campus it will be assumed that you have the necessary computer hardware to run the required resources. It is recommended that you have the following as a minimum.

- Intel i5 CPU (or equivalent AMD), (Intel i7, preferred)
- 16GB of RAM, (32GB, preferred)
- 1Tb SSD

Note: Apple MAC notebooks are not compatible with some of the software required for this course and cannot be supported.

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Internet

To study away from a campus you will be required to have internet access.

This qualification requires students to use virtual machines for learning activities and assessments. Students will be required to obtain these from either their local campus or from the Internet. Virtual machine file sizes can vary but are generally above 20GB in size. The time to download these virtual machines from the Internet may vary depending on your Internet connection speed.

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Required Competencies

Diploma of Information Technology (Cyber Security)
National Code: ICT50220 TAFE SA Code: TP01271

This table shows the units of competency that you must have on your academic record to achieve this qualification. The National Training Package requires 20 units. The units are listed in the sequence that you should complete them. This is particularly important for part-time students. Standard study plans are provided below. The table also provides details of any assumed knowledge and skills for each unit. You must have these skills before attempting these units.

Units of Competency (listed in delivery sequence)

Unit Code	**Unit Title**	**Core/Specialist Elective/Elective**	**Assumed knowledge & skills**
ICTPRG443	Apply intermediate programming skills in different languages	Elective	ICTPRG435 or ICTPRG302
ICTCLD507	Build and deploy resources on cloud platforms	Elective	ICTCLD401
VU23218	Implement network security infrastructure for an organisation	Elective	VU23213
ICTCYS407	Gather, analyse and interpret threat data	Specialist Elective	None
ICTICT532	Apply IP, ethics and privacy policies in ICT environments	Core	None
BSBXCS402	Promote workplace cyber security awareness and best practices	Core	None
ICTSAS526	Review and update disaster recovery and contingency plans	Specialist Elective	None
ICTSAS524	Develop, implement and evaluate an incident response plan	Specialist Elective	None
ICTDAT501	Gather, analyse and verify data from different source inputs	Elective	ICTCYS407
ICTNWK540	Design, build and test network servers	Elective	VU23214 or ICTSAS518
ICTSAS527	Manage client problems	Core	None
VU23300	Detect and respond to cyber security threats	Elective	VU23213 VU23218
ICTICT517	Match ICT needs with the strategic direction of the organisation	Core	ICTCLD401
ICTIOT501	Install IoT devices and networks	Elective	VU23214
BSBXTW401	Lead and facilitate a team	Core	None

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ICTCYS603	Undertake penetration testing for organisations	Elective	VU23215 VU23222
ICTCYS610	Protect critical infrastructure for organisations	Specialist Elective	ICTNWK422
ICTCYS613	Utilise design methodologies for security architecture	Specialist Elective	None
ICTNWK546	Manage network security	Elective	ICTNWK422
BSBCRT512	Originate and develop concepts	Core	None

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Study Plan for Full-Time Students (12 months)

The following table shows the recommended study plan for Diploma of Information Technology (Cyber Security). Each stage is one semester (or 6 months) in length. Codes in brackets are the IT Subject names which are described in the Subject Description table below.

Stage 1	
Term 1	**Term 2**
ICTPRG443 (PRG443PYI) (2)	
ICTCLD507 (CLD5C2AZA) (4)	
VU23218 (CVU218FGT) (2)	
ICTCYS407 (CYS407SPB) (2)	**ICTSAS524** (SAS524) (2)
ICTICT532 (ICT532) (2) *	**ICTDAT501** (DAT501SPA) (2)
BSBXCS402 (XCS402) (2) *	**ICTNWK540** (NWK540LXN) (4)
ICTSAS526 (SAS526) (2)	**ICTSAS527** (SAS527) (2) *
IT Practical (4)	**IT Practical (2)**
20 hours / week	**20 hours / week**

Stage 2	
Term 1	**Term 2**
VU23300 (CVU300CCO) (4)	
ICTICT517 (ICT517) (2) *	
ICTIOT501 (IOT501) (2)	
ICTCYS603 (CYS603) (2)	
ICTCYS610 (CYS610) (2)	**ICTNWK546** (NWK546) (4)
ICTCYS613 (CYS613) (2)	**BSBCRT512** (CRT512) (2) *
BSBXTW401 (XTW401) (2)	
IT Practical (4)	**IT Practical (4)**
20 hours / week	**20 hours / week**

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Please Note: This program structure is subject to change.

Legend:

* Competencies delivered online are marked with an asterisk

( ) The number in brackets after the subject is the number of hours per week that you would expect to attend class for that subject as a campus or virtual student.

IT Practical sessions provide support to complete subject activities and assessments.

NOTE: The study plan is for a full-time student with class-attendance. This is usually 20 hours a week of attendance. It is expected that an additional 12-15 hours would be required outside of class time to complete activities and assessments.

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Study Plan for Part-Time Students (24 months)

The following table shows the recommended study plan for studying the Diploma of Information Technology (Cyber Security) as part-time (half-time). If a half-time plan does not meet your needs, you can study more or less subjects per term/semester, but you must follow the recommended sequence in the Required Competencies table above. Each stage is one semester (or 6 months) in length. Codes in brackets are the IT Subject names which are described in the Subject Description table below.

Stage 1	
Term 1	**Term 2**
ICTPRG443 (PRG443PYI) (2)	
BSBXCS402 (XCS402) (2) *	**ICTNWK540** (NWK540LXN) (4)
ICTSAS526 (SAS526) (2)	**ICTSAS527** (SAS527) (2) *
IT Practical (4)	**IT Practical (2)**
10 hours / week	**10 hours / week**

Stage 2	
Term 1	**Term 2**
ICTCLD507 (CLD5C2AZA) (2)	
VU23218 (CVU218FGT) (2)	
ICTCYS407 (CYS407SPB) (2)	**ICTSAS524** (SAS524) (2)
ICTICT532 (ICT532) (2) *	**ICTDAT501** (DAT501SPA) (2)
IT Practical (2)	**IT Practical (2)**
10 hours / week	**10 hours / week**

Stage 3	
Term 1	**Term 2**
VU23300 (CVU300CCO) (4)	
ICTCYS603 (CYS603) (2)	
BSBXTW401 (XTW401) (2)	
IT Practical (2)	**IT Practical (4)**
10 hours / week	**10 hours / week**

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Stage 4	
Term 1	**Term 2**
ICTICT517 (ICT517) (2) *	
ICTIOT501 (IOT501) (2)	
ICTCYS610 (CYS610) (2)	**ICTNWK546** (NWK546) (4)
ICTCYS613 (CYS613) (2)	**BSBCRT512** (CRT512) (2) *
IT Practical (2)	**IT Practical (2)**
10 hours / week	**10 hours / week**

Legend:

* Competencies delivered online are marked with an asterisk

( ) The number in brackets after the subject is the number of hours per week that you would expect to attend class for that subject as a campus or virtual student.

NOTE: The study plan is for a part-time student studying a half-time load. This is approximately 10 hours a week of class time. It is expected that an additional 6-10 hours would be required outside of class time to complete activities and assessments

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IT Studies Subjects

TAFE SA IT Studies uses subject codes to indicate the context that has been chosen for the unit, guided by industry needs in South Australia. For example, **PRG443PYI** indicates that the content for delivery of unit PRG443**PYI** will include coverage of **Python** programming language.

The table below provided information on the context for each unit and provides the subject code that is used. If a subject contains more than one unit delivery and assessment will be done holistically so you will be awarded the same result for all units assessed in that subject that you have enrolled in. Your final official results will refer to the units.

Subject Description

Unit Code	IT Studies subject code	Description
ICTPRG443	**PRG443PYI**	In this unit you will learn the skills and knowledge required to carry out intermediate programming activities involving coding, debugging and testing of code, and creating applications using different programming languages. You will learn about Python.
ICTCLD507	**CLD5C2AZA**	In this unit describes the skills and knowledge required to configure, deploy and monitor a range of technology resources of core cloud computing service on a cloud platform. The unit applies to cloud engineers, cloud systems administrators and those who work within cloud computing operations to provision, implement and maintain cloud computing solutions for a business with little guidance or supervision. These ICT professionals may work from designs developed by cloud architects and focus on operational concerns, including automation and maintaining cloud resources.
VU23218	**CVU218FGT**	In this unit will provide a sound working knowledge of the features of the Fortinet product FortiGate that will support the network security for an organisation. This includes threat inspection and mitigation techniques, network security architectures, introduction to firewall setup and configuration, intrusion prevention system (IPS) setup and operation as well as internetworking operating system (IOS) software features to harden routers and switches. The subject also investigates proxy server vulnerabilities, Wireless Lan (WLAN) security vulnerabilities and the application of Virtual Private Networks (VPN's) and cryptography fundamentals.
ICTCYS407	**CYS407SPB**	In this unit you will learn the skills and knowledge required to gather data from various sources, analyse, and interpret information for threats, inconsistencies and discrepancies.
ICTICT532	**ICT532**	In this unit describes the skills and knowledge required to maintain professional and ethical conduct, as well as to ensure that personal information of stakeholders is handled in a confidential and professional manner when dealing with stakeholders in an Information and Communications Technology (ICT) environment. It applies to ICT personnel who are required to gather information to determine the organisation's code of ethics and protect and maintain privacy policies and system security.
BSBXCS402	**XCS402**	In this unit describes the skills and knowledge required to promote cyber security in a work area. It applies to those working in a broad range of industries who as part of their job role support policies, procedures and practice within an organisation that promote cyber security.
ICTSAS526	**SAS526**	In this unit you will learn the skills and knowledge required to analyse the impact of the system on the organisation and carry out risk analysis, disaster recovery and

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		contingency planning.
ICTSAS524	**SAS524**	In this unit you will learn the skills and knowledge required to develop and implement an incident response plan. The results of the incident response plan must be evaluated if they affect the mission of the organisation.
ICTIOT501	**IOT501**	In this unit you will learn the skills and knowledge required to install IoT (Internet of Things) devices and networks, including connecting, programming and testing the networks and devices for functionality against a given performance objective.
ICTNWK540	**NWK540LXN**	In this unit you will learn the skills and knowledge required to design, install and test servers in complex network environments. You will learn about Linux OS.
ICTSAS527	**SAS527**	In this unit describes the skills and knowledge required to liaise and support clients to manage and resolve problems in an Information and Communications Technology (ICT) environment. It applies to individuals who apply high level technical and specialised knowledge in assisting clients to support, manage and resolve problems.
VU23300	**CVU300CCO**	In this unit describes the performance outcomes, skills and knowledge required to detect and respond to cyber security threats in an organisation. It requires the ability to prepare an organisation for an incident, know how the incident could occur and the processes and procedures to respond. The unit also includes the use of tools and processes to analyse data and detect intrusions. The unit applies to cyber security practitioners who are responsible for implementing and monitoring cyber security operations for an organisation. The unit applies procedures and processes developed by the National Institute of Standards and Technology (NIST) and it aligns with the Cisco Cyber Operations course.
ICTICT517	**ICT517**	In this unit describes the skills and knowledge required to ensure information and communications technology (ICT) products and systems match the strategic direction of the organisation. It applies to individuals whose responsibilities may include improving, evaluating, acquiring, maintaining and supporting ICT for organisations.
ICTDAT501	**DAT501SPA**	In this unit you will learn the skills and knowledge required to gather, analyse, test and verify data from different source inputs.
BSBXTW401	**XTW401**	In this unit describes the skills and knowledge required to effectively lead and facilitate a team in a workplace within any industry. In this unit has a specific focus on the teamwork skills required for team leader or supervisor level (depending on organisational structure) workers with responsibility for others or teams.
ICTCYS603	**CYS603**	In this unit describes the skills and knowledge required to use a range of methodologies to simulate an attack on an organisation's information and security systems and report the results back to the organisation.
ICTCYS610	**CYS610**	In this unit you will learn the skills and knowledge required to analyse an organisation's critical cyber operations and develop and implement a critical protections strategy that addresses the needs of the organisation.
ICTCYS613	**CYS613**	In this unit you will learn the skills and knowledge required to design security architecture to organisation requirements, utilising specific design methodologies.
ICTNWK546	**NWK546**	In this unit you will learn the skills and knowledge required to implement and manage

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		security functions throughout a network.
BSBCRT512	**CRT512**	In this unit describes the skills and knowledge required to originate and develop concepts for products, programs, processes or services to an operational level. In this unit applies to individuals who develop concepts for any business or community activity or process. This may include marketing and advertising campaigns, staff development programs, information technology and communication systems, radio and television programs and entertainment events. These individuals operate with a high degree of autonomy and also collaborate with others to generate ideas and refine concepts for implementation.