

# Program Information Document

## ICT40120 Certificate IV in Information Technology (Programming)

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.

This ICT40120 National Training Package qualification reflects the role of individuals who are job ready and competent in a wide range of information and communications technology (ICT) roles and apply a broad range of skills in varied work contexts, using problem solving skills and effective communication with others.

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

- > building user interfaces, basic web development, testing and applying basic object-oriented language skills.

### Employment Opportunities

- > Assistant applications programmer, Assistant programmer
- > Assistant web application programmer, Assistant web developer
- > Assistant software or web Tester
- > Help desk and customer support

The recommended full-time study plan, see below, will require 12 months of study to complete this qualification.

### 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 the following digital capabilities:

- > Navigate and manage files and folders in a Windows environment, or similar.
- > Connect to a network through Wi-Fi.
- > Use a word processor such as MS Word to produce well-structured documents.
- > Able to install and configure new software on a Windows computer
- > Use a video chat tools or video conferencing tools such as Google Meet, FaceTime, Zoom, Teams etc.
- > Recognise the purpose of basic components of computer hardware such as RAM, hard drive, network card, external drive.
- > Problem solve computer issues that may arise in relation to the above
- > Use a web Browser and the internet to research a topic.
- > Prompt an AI tool, such as ChatGPT, Gemini etc

If you need to develop yourself in many of these capabilities, we suggest you consider enrolling in our Certificate III in Information Technology.

Information on the contents of the Certificate III can be found here:  
[Certificate III in Information Technology Program Information Document](#).

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## Incidental Costs

You will be required to provide your own access to the following hardware. This hardware costs approximately \$300.00.

- > 1TB SSD portable hard drive,
- > webcam and
- > headset with microphone.

## 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.

## 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

ICT40120 Certificate IV in Information Technology (Programming)

National Code: ICT40120 TAFE SA Code: TP01248

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	Training Package Core/Specialist Elective/Elective	Assumed knowledge & skills
ICTPRG302	Apply introductory programming techniques	Core	None
ICTPRG437	Build a user interface	Specialist Elective	None
ICTPRG440	Apply introductory programming skills in different languages	Specialist Elective	ICTPRG302 ICTPRG437
ICTICT451	Comply with IP, ethics and privacy policies in ICT environments	Core	None
BSBXCS404	Contribute to cyber security risk management	Core	None
ICTWEB451	Apply structured query language in relational databases	Elective	None
ICTWEB431	Create and style simple markup language documents	Elective	None
ICTPRG435	Write scripts for software applications	Elective	ICTPRG302 ICTWEB431
ICTICT426	Identify and evaluate emerging technologies and practices	Core	None
ICTSAS432	Identify and resolve client ICT problems	Core	None

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Units of Competency (listed in delivery sequence) (cont)			
Unit Code	Unit Title	Training Package Core/Specialist Elective/Elective	Assumed knowledge & skills
ICTWEB430	Produce server-side script for dynamic web pages	Elective	ICTWEB431 ICTPRG435 ICTWEB451
ICTPRG441	Apply skills in object-oriented design	Elective	ICTPRG440
ICTPRG443	Apply intermediate programming skills in different languages	Elective	ICTPRG302 ICTPRG440
ICTICT449	Use version control systems in development environments	Specialist Elective	ICTPRG440
ICTPRG430	Apply introductory object-oriented language skills	Specialist Elective	ICTPRG302 ICTPRG440
BSBCRT404	Apply advanced critical thinking to work processes	Core	None
BSBXBD403	Analyse big data	Elective	None
ICTPRG433	Test software developments	Specialist Elective	ICTPRG440
ICTICT443	Work collaboratively in the ICT industry	Core	None
ICTCLD401	Configure cloud services	Elective	None

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## Study Plan for Full-Time Students (12 months)

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

Stage 1	
Term 1	Term 2
<b>ICTWEB451</b> (WEB451SQL) (2)	
<b>ICTPRG302</b> (PRG302PYB) (2)	<b>ICTSAS432</b> (SAS432) (2) *
<b>ICTPRG437</b> (PRG437UWP) (2)	<b>ICTPRG440</b> (PRG440CSB) (4)
<b>ICTWEB431</b> (WEB4C4HL5) (2)	<b>ICTPRG435</b> (PRG435JSB) (2)
<b>ICTICT426*</b> (ICT426) (2)	<b>BSBXCS404*</b> (XCS404) (2)
<b>ICTICT451*</b> (ICT451) (2)	
<b>IT Practical (8)</b>	<b>IT Practical (8)</b>
<b>20 hours / week</b>	<b>20 hours / week</b>

Stage 2	
Term 1	Term 2
<b>ICTPRG430</b> (PRG430JAB) (2)	
<b>ICTPRG443</b> (PRG443PYI) (2)	
<b>ICTPRG441</b> (PRG441UML) (2)	
<b>ICTWEB430</b> (WEB430PHP) (2)	
<b>ICTPRG449</b> (PRG449GIT) (2)	<b>ICTPRG433</b> (PRG443NUT) (2)
<b>BSBCRT404*</b> (CRT404) (2)	<b>ICTICT443</b> (ICT443) (2) *
<b>BSBXBD403</b> (XBD403PBI) (2)	<b>ICTCLD401</b> (CLD401ACF) (4)
<b>IT Practical (6)</b>	<b>IT Practical (4)</b>
<b>20 hours / week</b>	<b>20 hours / week</b>

**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 Certificate IV in Information Technology (Programming) 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.

Stage 1	
Term 1	Term 2
<b>ICTPRG302</b> (PRG302PYB) (2)	<b>ICTPRG440</b> (PRG440CSB) (4)
<b>ICTPRG437</b> (PRG437UWP) (2)	<b>BSBXCS404*</b> (XCS404) (2)
<b>ICTICT426*</b> (ICT426) (2)	
<b>IT Practical (4)</b>	<b>IT Practical (4)</b>
<b>10 hours / week</b>	<b>10 hours / week</b>

Stage 3	
Term 1	Term 2
<b>ICTPRG441</b> (PRG441UML) (2)	
<b>ICTWEB430</b> (WEB430PHP) (2)	
<b>ICTPRG449</b> (PRG449GIT) (2)	<b>ICTPRG433</b> (PRG443NUT) (2)
<b>BSBCRT404*</b> (CRT404) (2)	<b>ICTICT443*</b> (ICT443) (2)
<b>IT Practical (2)</b>	<b>IT Practical (2)</b>
<b>10 hours / week</b>	<b>10 hours / week</b>

Stage 2	
Term 1	Term 2
<b>ICTWEB451</b> (WEB451SQL) (2)	
<b>ICTWEB431</b> (WEB4C4HL5) (2)	<b>ICTPRG435</b> (PRG435JSB) (2)
<b>ICTICT451*</b> (ICT451) (2)	<b>ICTSAS432*</b> (SAS432) (2)
<b>IT Practical (4)</b>	<b>IT Practical (4)</b>
<b>10 hours / week</b>	<b>10 hours / week</b>

Stage 4	
Term 1	Term 2
<b>ICTPRG443</b> (PRG443PYI) (2)	
<b>ICTPRG430</b> (PRG430JAB) (2)	
<b>BSBXBD403</b> (XBD403PBI) (2)	<b>ICTCLD401</b> (CLD401ACF) (4)
<b>IT Practical (6)</b>	<b>IT Practical (4)</b>
<b>10 hours / week</b>	<b>10 hours / week</b>

**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.

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**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.

## 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, **PRG302PYB** indicates that the content for delivery of unit **ICTPRG302** will include coverage of Python Basics (**PYB**).

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 Descriptions

Unit Code	IT Studies subject code	Description
ICTPRG302	<b>PRG302PYB</b>	<p>This unit describes the skills and knowledge required to create simple applications in <b>Python</b> through introductory programming techniques.</p> <p>It applies to those who have responsibility for creating applications and includes applying language syntax, control structures to create code, using programming standards, testing and debugging.</p>
ICTPRG437	<b>PRG437UWP</b>	<p>This unit describes the skills and knowledge required to design, build and test a user interface (UI) to specification using Visual Studio with the Universal Windows Platform (<b>UWP</b>) and <b>XAML</b>.</p> <p>It applies to those who work as user-interface designers and are responsible for specifying the layout and style of the desired user interface. This includes developers working in the area of user interface design and implementation.</p>
ICTPRG440	<b>PRG440CSB</b>	<p>This unit describes the skills and knowledge required to carry out introductory programming activities including application of basic language syntax, coding and debugging code using Visual Studio with the Universal Windows Platform (<b>UWP</b>) and basic <b>C#.NET</b>.</p> <p>It applies to those who work in programming, development and technical roles. This includes programmers, software developers and as IT staff responsible for conducting programming activities, including writing, maintaining and updating programs, defining data and file handling.</p>
ICTICT451	<b>ICT451</b>	<p>This unit describes the skills and knowledge required to comply with the protection and lawful use of intellectual property (IP) and to implement relevant organisational ethics and privacy policies.</p> <p>It applies to individuals who are required to use IP owned by other persons and organisations, and to support organisations and stakeholders with the compliance of organisational ethics, and privacy policies.</p>
BSBXCS404	<b>XCS404</b>	<p>This unit describes the skills and knowledge required to contribute to cyber security risk management, which includes assisting in developing and managing associated risk management strategies.</p> <p>It applies to those working in a broad range of industries and job roles who work alongside technical experts to develop cyber security risk-management strategies.</p>



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ICTWEB431	<b>WEB4C4HL5</b>	<p>This unit describes the skills and knowledge required to design and create basic markup language documents and cascading style sheets (CSS) using the <b>HTML5</b> standard in order to define the structure and style of a website.</p> <p>It applies to individuals in ICT roles who are required to create web pages with consistency in appearance and user experience.</p>
ICTPRG435	<b>PRG435JSB</b>	<p>This unit describes the skills and knowledge required to write scripts using <b>JavaScript</b> and automate client side validation of data on a web page form. The use of functions is explored and updating html elements by ID.</p> <p>It applies to those who work in Information and Communications Technology (ICT) support roles and who are required to automate tasks.</p>
ICTICT426	<b>ICT426</b>	<p>This unit describes the skills and knowledge required to identify emerging technologies and practices in the ICT sector and evaluate their potential impact on organisational practices.</p> <p>It applies to individuals who work across a wide range of information technology (IT) areas, including technical support, network administration, web technologies, software applications and digital media technologies.</p>
ICTSAS432	<b>SAS432</b>	<p>This unit describes the skills and knowledge required to identify, record, prioritise and resolve client Information and Communications Technology (ICT) support activities and escalate as required.</p> <p>It applies to experienced individuals who use specialised and technical knowledge to take responsibility in providing client-based ICT support to end users in an office or working environment.</p>
ICTWEB451	<b>WEB451SQL</b>	<p>This unit describes the skills and knowledge required to produce structured query language (<b>SQL</b>) statements to work with server-side scripts, enabling web developers to interact with web server databases.</p> <p>The unit applies to individuals in a range of roles who are responsible for creating server-side interaction with dynamic web pages, using SQL as a means of communicating with databases</p>
ICTWEB430	<b>WEB430PHP</b>	<p>This unit describes the skills and knowledge required to produce server-side scripts for dynamic web pages using a range of relevant features from database integration using <b>PHP</b> and <b>MySQL</b>.</p> <p>It applies to individuals working as web designers who apply a wide range of knowledge and skills across different information and communications technology (ICT) environments to support organisations that require broad ICT support.</p>
ICTPRG441	<b>PRG441UML</b>	<p>This unit describes the skills and knowledge required to produce an object-oriented design from specifications, applying the cyclic process of iteration from identification of class, instance, role and type to the final object-oriented model of the application using <b>UML</b>. This unit covers sequence, activity and state diagrams. An Agile approach with SCRUM is used in conjunction with OO development methodologies.</p> <p>It applies to those who are required to design systems using an object-oriented method.</p>
ICTPRG443	<b>PRG443PYI</b>	<p>This unit describes the skills and knowledge required to carry out intermediate programming activities involving coding, debugging and testing of code, and creating applications using <b>Python</b> coding at an intermediate level. The unit will cover lists with sorting and searching techniques, functions with parameter passing and the design and testing of code.</p> <p>It applies to those who are programmers in a variety of fields and are required to conduct programming activities and produce software programs.</p>



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ICTICT449	<b>ICT449GIT</b>	<p>This unit describes the skills and knowledge required to use version control systems to track content, versions and maintain a code repository of work when developing in an ICT environment. It uses the free, open-source version control tool that developers install locally on their personal computers called <b>Git</b>.</p> <p>It applies to individuals who work in a development environment and create a history of changes to track multiple versions of their own or team's work. These development environments include processes of designing, building and testing code and product.</p>
ICTPRG430	<b>PRG430JAB</b>	<p>This unit describes the performance outcomes, skills and knowledge required to undertake introductory programming tasks using an object-oriented programming language <b>Java</b> including tool usage, documentation, debugging, and testing techniques. Topics include classes, aggregation, inheritance, polymorphism, arrays, text and binary streams. NetBeans is used as the development environment.</p> <p>It applies to individuals who are programmers in a variety of fields and who are required to produce simple programs in object-oriented languages.</p>
BSBCRT404	<b>CRT404</b>	<p>This unit describes the skills and knowledge required to use advanced-level critical thinking skills in a professional context. This includes using methods of analysis, synthesis and evaluation.</p> <p>This unit applies to individuals who evaluate processes, products and services that may be proposed or already existing. This unit applies to individuals who are typically responsible for developing work processes, products and services that may be proposed or already existing.</p>
BSBXBD403	<b>XBD403PBI</b>	<p>This unit describes the skills and knowledge required to analyse transactional and non-transactional big data using <b>Power BI</b> to provide insights that are used in an organisation. It involves identifying trends and relationships within big data and establishing data acceptability. It also involves forming recommendations based on the analysis and reporting on analysis findings.</p> <p>It applies to those who work in a broad range of industries and job roles using big data analysis techniques in their day-to-day work.</p>
ICTPRG433	<b>PRG433NUT</b>	<p>This unit describes the skills and knowledge required to prepare test plans, write test procedures and scripts according to test plans and maintain test plans and scripts. It focuses on using the .Net <b>NUnit</b> tool.</p> <p>It applies to those who are responsible for test plan preparation, execution, maintenance and reporting as well as defect management in the software development life cycle.</p>
ICTICT443	<b>ICT443</b>	<p>This unit describes the skills required to work collaboratively in virtual Information and Communications (ICT) team environments to achieve organisational objectives. It includes contributing to performance and capability within teams, participating in team activities, exchanging knowledge and skills and providing support to team members.</p> <p>It applies to all individuals who work in teams that utilise multiple technologies to complete a collective task.</p>
ICTCLD401	<b>CLD401ACF</b>	<p>This unit describes the skills and knowledge required to configure core cloud services including compute, storage, databases and autoscaling according to business needs and workload. It uses the <b>Amazon</b> cloud services.</p> <p>The unit applies to cloud computing architects, developers and cloud engineers utilising cloud services and those engaged in deploying cloud computing solutions for a business.</p>