



Australian Government

ICTPRG440 Apply introductory programming skills in different languages

Release: 1

ICTPRG440 Apply introductory programming skills in different languages

Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 6.0.

Application

This unit describes the skills and knowledge required to carry out introductory programming activities including application of basic language syntax, coding and debugging code in different languages.

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.

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

Unit Sector

Programming and software development

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Apply basic language syntax and layout	1.1 Identify basic language syntax rules 1.2 Use language data types, operators and expressions 1.3 Use sequence, selection and iteration constructs using required language syntax
2. Code using data structures and standard algorithms	2.1 Use data structures 2.2 Create and manipulate data structures through code 2.3 Create sequential search, binary search, insertion and deletion algorithms on data structures

3. Debug, document and test code	3.1 Debug code using stand-alone debugging tools and tools provided by integrated development environment (IDE) 3.2 Trace code execution and examine variable contents using debugger 3.3 Develop maintainable code according to organisational guidelines and provided coding standard when documenting activities 3.4 Apply internal documentation to all code created using documentation tools available in target language 3.5 Design and document tests according to organisational guidelines 3.6 Capture and record test results according to organisational requirements
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Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

SKILL	DESCRIPTION
Reading	Interprets and critically analyses and applies strategies and constructs meaning from complex texts
Writing	- Prepares documentation recording process and results for tests performed according to organisational requirements - Writes and edits code and technical data in a logical manner using required syntax
Problem solving	Decides on a course of action using analytical processes
Self-management	- Takes personal responsibility and follows explicit and implicit policies, procedures and industry standards - Automatically implements standard procedures in routine decisions when programming according to guidelines and standards
Technology	Interprets key principles and concepts underpinning the design and operation of digital systems and tools

Unit Mapping Information

Supersedes and is equivalent to ICTPRG414 Apply introductory programming skills in another language.

Links

Companion Volume Implementation Guide is found on VETNet -

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

Assessment Requirements for ICTPRG440 Apply introductory programming skills in different languages

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Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- create, maintain and update at least one program using coding activities, basic language syntax and layout.

In the course of the above, the candidate must:

- write code using at least two data structures and at least two standard algorithms according to organisational guidelines
- debug at least one program written above using debugging tools provided by integrated development environment (IDE)
- document activities undertaken in at least one program developed above according to organisational guidelines and coding standards
- test program created above and confirm specifications are met
- record results for tests performed above, according to organisational guidelines.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- language syntax rules
- organisational procedures and guidelines that may be used to apply introductory programming skills in different languages
- coding techniques and standards
- documentation techniques that may be used to document programming activities
- application development processes, debugging methodologies, testing techniques and basic data structures guidelines that may be used to apply introductory programming skills in different languages.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

- integrated development environment (IDE) for determined language
- specific tools and licences, depending on particular platform and language.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

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