



Australian Government

ICTPRG418 Apply intermediate programming skills in another language

Release: 1

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Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 1.0.

Application

This unit describes the skills and knowledge required to carry out intermediate programming activities using another programming language. The language may be an object-oriented language.

It applies to individuals who are programmers in a variety of fields and who are required to produce software programs.

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. Code using user-defined data structures	1.1 Design, define and use data structures that are aggregate of other data types 1.2 Code using array of user-defined data types 1.3 Use facilities in language to create, manipulate and destroy dynamic variables such as arrays
2. Code using standard algorithms	2.1 Use modular programming approach to coding, including pass-by-reference parameter passing 2.2 Write code to create and manipulate 2-D array

ELEMENT	PERFORMANCE CRITERIA
	2.3 Create and maintain sorted array and use language-provided facilities for sorting array of ordered elements 2.4 Code simple binary search technique for use with array of sorted data 2.5 Code binary file-handling solutions using random-access algorithms
3. Debug code	3.1 Use stand-alone debugging tools or tools provided by integrated development environment (IDE) to debug code 3.2 Use debugger to trace code execution and examine variable contents to detect and correct errors
4. Document activities	4.1 Follow organisational guidelines for developing maintainable code and adhere to provided coding standard when documenting activities 4.2 Apply internal documentation, suitable for use by peers, to all code created 4.3 Use documentation tools available in target language when documenting activities
5. Test code	5.1 Design and document tests 5.2 Undertake limited testing of produced code to ensure compliance with program specification 5.3 Capture and record test results
6. Create application	6.1 Build application in response to user requirement 6.2 Access multiple source-code files 6.3 Employ IDE project maintenance facilities or make files to automate program building 6.4 Develop program specification solution when provided with basic design document 6.5 Design algorithm and document, construct and test applications in response to problem description using target language 6.6 Document completed application

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Reading	3.1, 3.2, 4.1, 6.1	Interprets and critically analyses and applies appropriate strategies to construct meaning from texts relating to organisational guidelines and coding standards
Writing	1.2-1.3, 2.1-2.5, 4.1, 4.2, 4.3, 6.1, 6.6	- Communicates complex relationships between ideas and information, matching style of writing to purpose and audience when documenting activities - Displays knowledge of structure and layout, employing broad vocabulary, grammatical structure and conventions appropriate to text when documenting activities
Navigate the world of work	4.1	Takes personal responsibility for following explicit and implicit policies, procedures and industry standards
Get the work done	All	- Uses systematic, analytical processes, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria - Uses analytical processes to decide on a course of action, establishing criteria for deciding between options - Uses a systematic process to identify possible solutions to a difficult problem - Understands key principles and concepts underpinning the design and operation of digital systems and tools

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICTPRG418 Apply intermediate programming skills in another language	ICAPRG418A Apply intermediate programming skills in another language	Updated to meet Standards for Training Packages	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -

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

Assessment Requirements for ICTPRG418 Apply intermediate programming skills in another language

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Performance Evidence

Evidence of the ability to:

- design and build application programs in response to a user specification, including:
 - coding using user-defined data structures and standard algorithms
 - debugging and testing the code
 - producing technical documentation of activities and completed application.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe in detail:
 - dynamic variables
 - medium-size application development
 - standard array and file handling algorithms
 - user-defined data structures
- describe a limited range of development methodologies and their application
- outline the principles of language development.

Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development field of work and include access to:

- software development environment
- technical requirements.

Assessors must satisfy NVR/AQTF assessor requirements.

Links

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