



Australian Government

ICTPRG443 Apply intermediate programming skills in different languages

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 6.0.

Application

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 different programming languages.

It applies to those who are programmers in a variety of fields and are required to conduct programming activities and 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. Establish task requirements and define data structures and code	1.1 Establish user requirements and specifications 1.2 Design, define and use data structures that are aggregate of other data types 1.3 Code using user-defined data structures 1.4 Create, manipulate and destroy dynamic variables, including data structures, using facilities in language
2. Code using standard algorithms	2.1 Code using modular programming approach, including pass-by-reference parameter passing 2.2 Create and manipulate 2-D data structures using code 2.3 Create and maintain sorted data structures and use

ELEMENT	PERFORMANCE CRITERIA
	language-provided facilities 2.4 Code using simple binary search technique 2.5 Code binary file-handling solutions using random-access algorithms
3. Debug, document and test code	3.1 Use 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 and document maintainable code according to organisational guidelines and coding standards 3.4 Apply internal documentation to code using documentation tools available in target language 3.5 Design and document tests according to organisational guidelines 3.6 Test produced code and confirm compliance with program specification 3.7 Capture and record test results
4. Develop, test and document files and application	4.1 Build application according to user requirement 4.2 Access multiple source-code files 4.3 Employ integrated development environment (IDE) project maintenance facilities and automate program building using created files 4.4 Develop program specification solution according to coding standards 4.5 Design algorithm and document, construct and test applications according to problem description using target language 4.6 Document completed application according to organisational procedures

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 applies applicable strategies and constructs meaning from texts relating to organisational guidelines and coding standards
Writing	Prepares required documentation expressing ideas and information for

SKILL	DESCRIPTION
	specific audiences according to organisational procedures 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 - Identifies possible solutions to difficult problems using a systematic process
Self-management	- Takes personal responsibility and follows explicit and implicit policies, procedures and industry standards - Uses systematic processes, setting goals, gathering required information and identifying and evaluating options against agreed criteria
Technology	Interprets key principles and concepts underpinning the design and operation of digital systems and tools

Unit Mapping Information

Supersedes and is not equivalent to ICTPRG418 Apply intermediate 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>