



Australian Government

ICTPRG415 Apply skills in object-oriented design

Release: 2

ICTPRG415 Apply skills in object-oriented design

Modification History

Release	Comments
Release 2	This version released with ICT Information and Communications Technology Training Package Version 5.0.
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 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.

It applies to system designers who are required to design systems using an object-oriented method.

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. Derive high-level design from specification	1.1 Develop static class diagram from given set of specifications 1.2 Develop either communication diagram or sequence diagram from given set of specifications 1.3 Develop either activity diagram or state diagram from given set of specifications

ELEMENT	PERFORMANCE CRITERIA
2. Refine design	2.1 Investigate and refine behaviour, state of classes and collaboration between classes 2.2 Validate correct visibility of class services and state data 2.3 Identify generalisations within classes 2.4 Identify specialisations within classes 2.5 Apply principles of aggregation and composition to refine class design
3. Document design	3.1 Create detailed uniform modelling language (UML) static class diagrams 3.2 Create detailed UML communication or sequence diagrams 3.3 Create detailed UML activity or state diagrams

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 appropriate strategies to construct meaning from specifications
Writing	Communicates complex relationships between ideas and information, matching style of writing and diagrams to purpose and audience
Get the work done	- Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria when refining the design - Uses analytical processes to decide on a course of action, establishing criteria for deciding between options - 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
ICTPRG415 Apply skills in object-oriented design (Release 2)	ICTPRG415 Apply skills in object-oriented design (Release 1)	Updated template to apply consistent format between units. Minor updates to performanc e criteria.	Equivalent unit

Links

Companion Volume Implementation Guides are available from VETNet -

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

Assessment Requirements for ICTPRG415 Apply skills in object-oriented design

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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:

- produce an object-oriented design from requirements, documents or system specifications, including:
 - static class diagrams
 - collaboration or sequence diagrams
 - activity or state diagrams
- refine the design
- document the design.

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

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:

- design quality metrics such as coupling and cohesion
- design refinement techniques
- programming design principles
- different programming methodologies
- developmental life cycle options.

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:

- system specifications
- requirement documents
- design specifications
- detailed design.

Assessors must satisfy NVR/AQTF assessor requirements.

Links

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