



Australian Government

ICTPRG441 Apply skills in object-oriented design

Release: 1

ICTPRG441 Apply skills in object-oriented design

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 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 those 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 Gather and determine specifications in object-oriented design 1.2 Create static class diagram according to given set of specifications 1.3 Develop communication diagrams and sequence diagrams according to given set of specifications 1.4 Develop activity diagram and state diagram using given set of specifications
2. Refine design	2.1 Investigate and refine behaviour, state of classes and collaboration between classes 2.2 Validate visibility of class services and state data 2.3 Identify generalisations and specialisations within classes 2.4 Refine class design and apply aggregation and

	composition principles
3. Document design	3.1 Create detailed unified modelling language (UML) static class diagrams 3.2 Develop detailed UML communication and sequence diagrams 3.3 Create detailed UML activity and 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 strategies to construct meaning from specifications
Writing	Prepares required documentation expressing ideas and information for specific audiences according to organisational procedures
Problem-solving	- Decides on a course of action using analytical processes - Uses systematic, analytical processes in predictable and unpredictable situations, setting goals, gathering information and identifying and evaluating options against agreed criteria when refining design
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 ICTPRG415 Apply skills in object-oriented design.

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 ICTPRG441 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 one object-oriented design from requirements, documents and system specifications, which includes:
 - static class diagrams
 - communication and sequence diagrams
 - activity and state diagrams
 - diagrams mentioned above using unified modelling language (UML)
 - refining class design
 - documentation of design.

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, refinement techniques and programming design principles that may be used for applying skills in object-oriented design
- unified modelling language
- different programming methodologies, documentation techniques and development methodologies that may be used for applying skills in object-oriented design.

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:

- programming design software, tools and licenses
- required hardware and its components

- system specifications
- requirement documents
- design specifications.

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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