



Australian Government

Department of Education, Employment and Workplace Relations

ICAPRG524A Develop high-level object-oriented class specifications

Release: 1

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Modification History

Release	Comments
Release 1	This Unit first released with <i>ICAI1 Information and Communications Technology Training Package version 1.0</i>

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to analyse requirements and produce a set of high-level object-oriented class specifications.

Application of the Unit

This unit applies to systems designers who are required to develop object designs as part of the systems design process.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
<i>Elements describe the essential outcomes of a unit of competency.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.</i>

Elements and Performance Criteria

1. Analyse behaviour of objects	1.1 Analyse behaviour scenarios and prepare <i>documentation</i> according to <i>standards</i> 1.2 Identify classes, objects and abstract data types according to <i>requirements</i> 1.3 Prepare class, object, module and process diagrams according to <i>specifications</i>
2. Prepare state model	2.1 Analyse data requirements and iterate data flows 2.2 Prepare state-transition diagrams according to standards 2.3 Improve abstract data types and specifications
3. Describe roles and responsibilities of classes	3.1 Review functional requirements, assign responsibilities and update class structures 3.2 Specify interface and class communication requirements 3.3 Prepare interaction diagrams according to standards
4. Iterate and review the object model	4.1 Review current object model, class functionality and data transformation 4.2 Identify and develop class relationships, priorities and inheritance hierarchy 4.3 Review class-service requirements and initial test criteria 4.4 Identify object processes and reuse classes 4.5 Document model and forward to <i>appropriate person</i>

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to present information and liaise with colleagues
- literacy skills to analyse, evaluate and present information when documenting behaviour scenarios
- problem-solving skills to specify and develop classes, objects and system abstract data types
- research skills to specify, analyse and evaluate broad features of a particular business domain and best practice in program development
- technical skills to:
 - develop class relationships
 - prepare diagrams for class, object, module and process
 - prepare interaction diagrams.

Required knowledge

- overview knowledge of:
 - configuration management
 - current industry-accepted object-oriented methodologies
 - current program development methodologies
- detailed knowledge of:
 - data modelling techniques
 - object-oriented analysis tools
 - quality assurance practices.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	<p>Evidence of the ability to:</p> <ul style="list-style-type: none"> • specify and model abstract data types • specify the interface between classes and objects • document the result.
Context of and specific resources for assessment	<p>Assessment must ensure access to:</p> <ul style="list-style-type: none"> • business, system and user requirement • unified modelling language (UML) modelling tool • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	<p>A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:</p> <ul style="list-style-type: none"> • direct observation of identifying classes, objects and abstract data types and preparing class, object, module and process diagrams • verbal or written questioning to assess knowledge of roles and responsibilities of classes • review of documented model.
Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate.</p> <p>Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed.</p> <p>Indigenous people and other people from a non-English speaking background may need additional support.</p> <p>In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.</p>

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

<i>Documentation</i> may follow:	<ul style="list-style-type: none"> • audit trails • client training • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC), and Australian Standards (AS) standards • maintaining equipment inventory • naming standards • project-management templates and report writing • satisfaction reports • version control.
<i>Standards</i> may include:	<ul style="list-style-type: none"> • ISO, IEC and AS standards • organisational standards • project standards.
<i>Requirements</i> may refer to:	<ul style="list-style-type: none"> • application • business • network • people in the organisation • system.
<i>Specifications</i> may include:	<ul style="list-style-type: none"> • current system functionality • technical requirements • user-problem statement.
<i>Appropriate person</i> may include:	<ul style="list-style-type: none"> • authorised business representative • client • supervisor.

Unit Sector(s)

Programming and software development