Australian Government

Department of Education, Employment and Workplace Relations

ICAA5049B Develop high-level object-oriented class specifications

Release: 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

ICAA5049B Develop high-level object-oriented class specifications

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to analyse requirements and produce a set of high level object-oriented class specifications. There may be benefit in concurrent learning with the following units: • ICAA5050B Develop detailed component specifications from project specifications No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAA4233B	Determine and apply appropriate development methodologies

Innovation and Business Skills Australia

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	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.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Analyse behaviour of objects	1.1. Analyse behaviour scenarios and prepare *documentation* according to *standards* 1.2. Identify classes, objects and abstract data types according to *requirements* 1.3. Prepare class, object, module and process diagrams according to *specifications*
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 *appropriate person*

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• Problem solving skills for a defined range of unpredictable problems (e.g. when specifying and developing classes, objects and system abstract data types) • Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information (e.g. when documenting behaviour scenarios according to documentation standards) • Research skills for specifying, analysing and evaluating broad features of a

REQUIRED SKILLS AND KNOWLEDGE

particular business domain and best practice in program development (e.g. when classes, objects and system abstract data types are identified and developed according to requirements)

Required knowledge

- Detailed knowledge of object-oriented analysis tools and their use (e.g. when analysing object behaviour)
- Detailed knowledge of current industry-accepted object-oriented methodologies, including broad knowledge of general features and capabilities (e.g. when preparing state model)
- Broad knowledge of current program development methodologies (e.g. when iterating and reviewing)
- Detailed knowledge of configuration management (e.g. when iterating and reviewing)
- Detailed knowledge of data modelling techniques (e.g. when preparing state model)
- Broad knowledge of quality assurance practices (e.g. when iterating and reviewing)

Evidence Guide

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	Evidence of the following is essential: • Assessment must confirm sufficient knowledge of object-oriented techniques. • Assessment must confirm the ability to specify and model abstract data types. Specifications need to be deliverable. Assessment must confirm the interface between classes and objects. To demonstrate competency in this unit the learner will require access to: • Simulated case study • UML modelling tool
Context of and specific resources for assessment	The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In

EVIDENCE GUIDE	
	undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. • The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAA5050B Develop detailed component specifications from project specifications An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to

EVIDENCE GUIDE	
	broad quantity and quality parameters
	• Take some responsibility for the achievement of group outcomes
	• Maintain knowledge of industry products and services

Range Statement

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.	
Documentation may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates and report writing • maintaining equipment inventory • client training • satisfaction reports
Standards may include:	• ISO/IEC/AS standards • organisational standards • project standards (for further information refer to the Standards Australia website at: www.standards.com.au)
Requirements may be in reference to:	• business • system • application • network • people in the organisation
Specifications may include but are not limited to:	• technical requirements • user problem statement • current system functionality

RANGE STATEMENT	
Appropriate person may include:	• supervisor • teacher • authorised business representative • client

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	