



Australian Government

Department of Education, Employment and Workplace Relations

ICASAS401A Perform unit test for a class

Release: 1

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Modification History

Release	Comments
Release 1	This Unit first released with <i>ICA11 Information and Communications Technology Training Package version 1.0</i>

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to ensure that the system is proved adequate, before handover to the client or user, by unit testing functionality and reliability of individual components.

Application of the Unit

This unit applies to programmers or testers who are required to test classes.

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. Prepare for test	1.1 Determine test criteria 1.2 Prepare the test environment 1.3 Perform static tests using appropriate test tools to verify correct behaviour of modules 1.4 Use a test harness program to exercise module behaviour 1.5 Test objects containing lower level class instances separately 1.6 Prepare data to facilitate path testing 1.7 Prepare data to facilitate member function testing
2. Conduct test	2.1 Ensure clean test environment 2.2 Initialise test environment 2.3 Run test harness and document results in line with test and acceptance processes 2.4 Finalise test environment
3. Analyse and classify results	3.1 Review and classify test results to highlight areas of concern 3.2 Compare test results against requirements and design specifications in line with quality benchmarks 3.3 Forward test results to appropriate person 3.4 Review feedback 3.5 Ensure compliance with documentation and reporting standards

Required Skills and Knowledge

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

Required skills

- communication skills to present and actively question and listen
- literacy skills to analyse and evaluate information when details and comments are logged and signatures are gained
- problem-solving skills for a defined range of unpredictable problems, such as memory leakage, global name space pollution, and static variables
- technical skills to use testing tools and methodologies.

Required knowledge

- object-oriented programming language
- automated test tools, with detailed knowledge of features and processes in some areas
- client business domain relating to class to be tested
- input and output requirements
- organisational requirements relating to class to be tested
- system testing
- underlying test data.

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 ability to: • prepare a test environment • conduct unit test, covering: • member function test • path test • static test • analyse test results.
Context of and specific resources for assessment	Assessment must ensure access to: • suitable test plan • specific requirements • design documents used in the analysis of the test • suitable class to test • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of a test for a particular class • direct observation of candidate conducting test • evaluation of candidate's documented analysis of test results and feedback.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. 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. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

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>Test criteria</i> may include:	- object-oriented language criteria that may encompass: - inheritance between classes - interaction between methods of the classes - procedural language criteria - proper instantiation of classes - procedural language criteria that may encompass: - behaviour that affects the attributes of the program - parameters - procedures - return values.
<i>Test environment</i> may include:	- data - network or communications and other equipment - operating system - other support software - program libraries.
<i>Quality benchmarks</i> may relate to:	- organisational standards - products, such as Protocol and Service Multiplexor (PSM).
<i>Appropriate person</i> may include:	- project leader or programmer responsible for code - supervisor.

Unit Sector(s)

Systems administration and support