Australian Government

Department of Education, Employment and Workplace Relations

# ICAPRG413A Use a library or pre-existing components

**Release: 1**

# ICAPRG413A Use a library or pre-existing components

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0* |

## Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to identify, evaluate and incorporate reuse components from a library or other source as part of a software project.

## Application of the Unit

This unit applies to individuals working in a programming role in a variety of IT areas who are required to use programming libraries to support their work.

## 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 |
|---|---|
| *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

| | |
|---|---|
| 1. Identify potential reuse units | 1.1 Analyse ***project*** design and functionality to identify ***reuse components***<br>1.2 Source reuse components with desired functionality |
| 2. Evaluate reuse components for suitability in parent project | 2.1 Evaluate reuse component or libraries for suitability for use within the parent software project<br>2.2 Compare functionality of each potential reuse component to functionality required by parent project<br>2.3 Evaluate cost of implementing reuse component<br>2.4 Consider technical impact on parent project design<br>2.5 Consider reuse component vendor licensing issues<br>2.6 Finalise selection of reuse components<br>2.7 Document selection, evaluation and decision processes as part of the parent project-design ***documentation*** |
| 3. Incorporate reuse components | 3.1 Configure ***development environment*** to include reuse components during build process<br>3.2 Construct test programs or use provided example programs to become familiar with reuse components in preparation for incorporation into parent project<br>3.3 Add reuse components to parent project incrementally<br>3.4 Resolve reuse component dependencies<br>3.5 Assemble and test parent project with a focus on the functionality provided by reuse components |

# Required Skills and Knowledge

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

### Required skills

- analytical skills to:
  - analyse project design and functionality
  - evaluate reuse components
- literacy skills to document selection, evaluation and decision processes
- numeracy skills to evaluate cost of reusing components
- planning and organisational skills to identify, analyse and evaluate a range of solutions
- problem-solving skills to solve issues with the use of the library
- research skills for identifying, analysing and evaluating broad features of current reuse issues and best practice in component reuse
- technical skills to:
  - complete abstraction for a range of solutions
  - apply appropriate naming standards for a range of solutions.

### Required knowledge

- broad knowledge of:
  - contract specifications
  - current industry development and design methodologies
- detailed knowledge of:
  - domain modelling
  - genericity specification
  - content and structure of libraries
  - techniques for metrics collection
  - patterns, frameworks and idioms
  - repository tools.

# 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:<br>• meet project requirements by efficiently identifying, modifying and integrating components for reuse. |
| **Context of and specific resources for assessment** | Assessment must ensure access to:<br>• software development environment<br>• reuse library<br>• technical requirements<br>• appropriate learning and assessment support when required<br>• 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:<br>• verbal or written questioning to assess knowledge of the purpose of reuse libraries<br>• review of the documentation when selecting a reuse component<br>• evaluation of the completed program code incorporating the reuse library. |
| **Guidance information for assessment** | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate.<br>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.<br>Indigenous people and other people from a non-English speaking background may need additional support.<br>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.*

| | |
|---|---|
| ***Project*** may include: | • business improvement process<br>• business involved in a total organisational change<br>• ebusiness solution involving the total organisation or part of the organisation<br>• systems-only change. |
| ***Reuse components*** may include: | • code<br>• design patterns<br>• metadata<br>• requirements<br>• specifications. |
| ***Documentation*** may follow: | • audit trails<br>• International Organization for Standardization (ISO), International Electrotechnical Commission (IEC), and Australian Standards (AS) standards<br>• naming standards<br>• project-management templates<br>• report-writing protocols<br>• version control. |
| ***Development environment*** may include: | • computer language used<br>• development methodology<br>• development tools<br>• operating systems<br>• target environments<br>• version control systems. |

# Unit Sector(s)

Programming and software development