



**Australian Government**

# **RII40809 Certificate IV in Civil Construction Design**

**Release 3**

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### **Modification History**

Not applicable.

### **Description**

This qualification reflects the role of people providing design support for professional engineers. They perform tasks involving a broad range of varied activities most of which are complex and non-routine, for example, this might include Civil Works drafting. They are responsible for applying the design work instructions and practices to ensure the quantity and quality of the output of others and contribute to the development of technical solutions to non-routine problems.

### **Pathways Information**

Not applicable.

### **Licensing/Regulatory Information**

Not applicable.

### **Entry Requirements**

Not applicable.

## Employability Skills Summary

The following table includes a summary of the employability skills as identified by the resources and infrastructure industry for this qualification. The table should be interpreted in conjunction with the detailed requirements of each unit of competency packaged in this qualification. The outcomes required here are broad industry requirements that may vary depending on packaging options.

Employability Skill	Industry/enterprise requirements for this qualification include:
Communication	<ul style="list-style-type: none"> <li>• provide clear and direct feedback</li> <li>• listen carefully to instructions and information</li> <li>• read and interpret project plans and safety signs</li> <li>• calculate basic weights, distances and volumes</li> <li>• complete accurate work plans, technical reports, risk assessments, etc</li> <li>• negotiate solutions to customer and workplace based issues</li> <li>• negotiate project details with clients</li> <li>• network with other professionals working in the same field</li> <li>• adjust communication style to meet the needs of people with diverse backgrounds</li> </ul>
Teamwork	<ul style="list-style-type: none"> <li>• plan and lead team performance and operations</li> <li>• coordinate project activities and timelines with clients</li> <li>• work cooperatively with people of different ages, gender, race, religion or political persuasion and people with disability</li> <li>• recognise and respond sensitively to people from culturally and linguistically diverse backgrounds</li> <li>• provide feedback and advice to staff</li> <li>• participate in site-wide planning and coordination activities</li> </ul>
Problem-solving	<ul style="list-style-type: none"> <li>• re-allocate staff and resources in response to changing weather, site conditions and priorities</li> <li>• work with staff to solve problems and coordinate team member's responsibilities and activities</li> <li>• work cooperatively with clients to resolve contract and operational issues</li> <li>• participate in ongoing review and adjustment of operations against performance indicators and project milestones</li> </ul>
Initiative and enterprise	<ul style="list-style-type: none"> <li>• act independently to identify potential improvements to working practice and conditions</li> <li>• identify and take steps to resolve risks in the workplace</li> <li>• encourage the exploration and application of innovative approaches to improve on operational performance</li> </ul>
Planning and organising	<ul style="list-style-type: none"> <li>• manage and coordinate time and priorities for self and team</li> <li>• identify and obtain appropriate personnel and resources for work</li> </ul>

	<ul style="list-style-type: none"> <li>• ensure that risks are assessed and appropriate emergency plans are in place</li> <li>• ensure that project planning incorporates the possibility of adapting to future changes</li> </ul>
Self-management	<ul style="list-style-type: none"> <li>• take responsibility for ensuring team targets and goals are achieved</li> <li>• understand the standard of work expected at the work site</li> <li>• proactively manage team performance</li> <li>• develop trust and confidence in staff and customers</li> </ul>
Learning	<ul style="list-style-type: none"> <li>• be willing to learn new ways of working</li> <li>• seek information to improve performance from people and workplace documents like policies, procedures etc</li> <li>• understand equipment characteristics, technical capabilities, limitations and procedures</li> <li>• participate in, and where appropriate, lead change processes</li> <li>• work with staff to create learning and development plans</li> <li>• prepare and lead formal or informal training sessions</li> </ul>
Technology	<ul style="list-style-type: none"> <li>• apply a range of basic IT skills in monitoring and reporting on systems</li> <li>• operate equipment safely and according to manufacturer and workplace guidelines</li> <li>• use communications technology appropriate to the workplace (email, mobile, radio, etc)</li> <li>• computer technology is used to monitor and communicate project status</li> <li>• use IT to create documents and maintain records of work activities</li> </ul>

## Packaging Rules

### Requirements for completion of the qualification

The following table provides the packaging rules for this qualification, followed by the list of relevant units of competency.

Successful completion of twelve (12) units of competency made up of:

- a minimum of two (2) units of competency from Group A units listed
- a minimum of two (2) units of competency from Group B Drafting units listed
- a minimum of two (2) units of competency from Group C Design units listed
- a minimum of two (2) units of competency from Group D Technical units listed
- up to one (1) unit may come from this, or any other Training Package or accredited course.

Units of competency chosen must

- be relevant to the competency requirements for the job function
- reflect the competency profile for the occupation at the enterprise level
- in the case of accredited course units of competency, not duplicate in part or in whole any unit from a Training Package

Care must be taken to ensure that all prerequisites specified within imported units, or units chosen as electives, are complied with.

<b>Group A Units</b>	
<i>Unit code</i>	<i>Unit title</i>
BSBINM401A	Implement workplace information system
BSBINN301A	Promote innovation in a team environment
BSBMGT401A	Show leadership in the workplace
BSBMGT403A	Implement continuous improvement
BSBWOR401B	Establish effective workplace relationships
BSBWOR404B	Develop work priorities
<b>Group B Drafting Units</b>	
<i>Unit code</i>	<i>Unit title</i>
MEM09011B	Apply basic engineering design concepts
MEM30001A	Use computer aided drafting systems to produce basic engineering drawings
MEM30002A	Produce basic engineering graphics
MEM30003A	Produce detailed engineering drawings

MEM30004A	Use CAD to create and display 3D models
<b>Group C Design Units</b>	
<i>Unit code</i>	<i>Unit title</i>
RIICWD501A	Prepare detailed design of foundations
RIICWD502A	Prepare detailed design of lighting
RIICWD504A	Prepare detailed design of environmental controls
RIICWD505A	Prepare detailed design of landscaping
RIICWD506A	Prepare detailed design of canals
RIICWD507A	Prepare detailed geotechnical design
RIICWD508A	Prepare detailed design of rural roads
RIICWD511A	Prepare detailed design of sub-divisions
RIICWD513A	Prepare detailed design of rail civil infrastructure
RIICWD514A	Prepare detailed design of dams
RIICWD515A	Prepare detailed design of airfield civil works
RIICWD516A	Prepare detailed design of bicycle ways
RIICWD517A	Prepare detailed design of industrial hardstands
RIICWD518A	Prepare detailed design of open car parks
RIICWD519A	Prepare detailed design of inter modal facilities civil works
RIICWD521A	Prepare detailed design of flexible pavements
RIICWD522A	Prepare stabilised material mix design
RIICWD523A	Prepare asphalt mix design
RIICWD524B	Prepare design of spray seal surfacing
RIICWD525B	Select pavement surfacing
RIICWD527A	Prepare detailed design of traffic signals
RIICWD529A	Prepare detailed design of underground services

RIICWD530A	Prepare detailed design of surface drainage
RIICWD531A	Prepare detailed design of subsurface drainage
RIICWD537A	Prepare detailed design of marine structures civil works
<b>Group D Technical Units</b>	
<i>Unit code</i>	<i>Unit title</i>
MSL924001A	Process and interpret data
PMLTEST403B	Assist with geotechnical site investigations
MSL974003A	Perform chemical tests and procedures
MSL974005A	Perform physical tests
MSL974010A	Perform mechanical tests
MSL975007A	Supervise earthworks inspection, sampling and testing operations
MSL975016A	Perform complex tests to measure engineering properties of materials
CPPSIS5032A	Capture new spatial data
CPPSIS5035A	Obtain and validate existing spatial data
CPPSIS5036A	Integrate spatial datasets
CPPSIS3015A	Collect basic spatial data
RIICBS401B	Apply the principles for the asphalt paving and compaction
RIICBS402B	Apply the principles for the application of bituminous sprayed treatment
RIICBS403B	Apply the principles for the application of polymer modified binder
RIICBS404B	Apply the principles for the selection and use of bituminous emulsion
RIICBS405A	Apply the principles for the application of slurry surfacing
RIICBS406A	Apply the principles of pavement profiling using a profiler
RIICBS407A	Apply the principles for the manufacture and delivery of hot mix asphalt
RIICBS408A	Apply the principles for the manufacture of cold mix
RIICBS409A	Apply the principles for the manufacture of polymer modified binders

RIICBS410A	Apply the principles for the manufacture of bituminous emulsion
RIICBS411A	Apply the principles for the manufacture of slurry surfacing
RIICPL401A	Apply the principles for the installation of underground service using open excavation
RIICRC401A	Apply the principles of flexible pavement construction
RIICRC402A	Apply the principles of rigid pavement construction
RIICRC403A	Apply the principles of the stabilisation of materials
RIICRC404A	Inspect and report on pavement condition
RIICRC405A	Carry out pavement condition measurement
RIICSG401A	Apply the principles of civil concrete structures construction
RIICSG402A	Apply the principles of civil steel structures construction
RIICSG403A	Apply the principles of civil timber structures construction
RIICSG404A	Apply the principles of civil masonry, crib and gabion structure construction
RIICTC401A	Apply the principles of tunnel construction
RIICTT401A	Apply the principles for the installation of underground services using trenchless technology
RIICTT402A	Apply the principles for the repair and rehabilitation of underground services using trenchless technology
RIIMEX403A	Apply the principles of canal construction
RIIMPO402A	Apply the principles of earthworks construction
RIISTD202A	Collect routine site samples