RII40820 Certificate IV in Civil Construction Design

# Modification History

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| Release | Comments |
| Release 2 | This version was released with RII Resources and Infrastructure Training Package version 7.0.  Version created to fix typographical and/or unit grid errors. |
| Release 1 | This version first released with RII Resources and Infrastructure Industry Training Package Version 6.0. |

# Qualification Description

This qualification reflects the role of individuals who provide design support for professional engineers. They perform tasks involving a broad range of work activities, most of which are specialised and within known or changing contexts and could include civil works drafting. In their area of responsibility, they apply design work instructions and practices to ensure the quantity and quality of their own work and the output of others. They contribute to the development of technical solutions to non-routine problems.

### Licensing, legislative, regulatory or certification considerations

Licensing, legislative and certification requirements that apply to this qualification can vary between states, territories, and industry sectors. Users must check requirements with relevant body before applying the qualification.

# Entry Requirements

Nil

# Packaging Rules

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

Total number of units = 12

12 elective units, of which:

* at least two (2) must be chosen from Group A
* at least two (2) must be chosen from Group B
* at least two (2) must be chosen from Group C
* at least two (2) must be chosen from Group D
* the remaining elective units may be chosen from any elective group in this qualification, or alternatively up to two (2) may be chosen from elsewhere in this training package or from another endorsed training package or accredited course.

All elective units selected from outside this qualification must reflect current occupational and learning outcomes of this AQF qualification level.

There are prerequisites to imported units listed in this qualification. Where a unit is imported all prerequisites specified must be complied with and the combined choice of imported elective units and/or their prerequisites must not compromise the AQF alignment of this qualification. Refer to RII Companion Volume Implementation Guide Pathways Section for further guidance.

| Unit code | Unit title |
| --- | --- |
| Group A | |
| BSBINS402 | Coordinate workplace information systems |
| BSBLDR413 | Lead effective workplace relationships |
| BSBLDR411 | Demonstrate leadership in the workplace |
| BSBPEF402 | Develop personal work priorities |
| BSBSTR401 | Promote innovation in team environments |
| BSBSTR402 | Implement continuous improvement |
| Group B | |
| MEM30031A | Operate computer-aided design (CAD) system to produce basic drawing elements |
| MEM30032A | Produce basic engineering drawings |
| MEM30033A\* | Use computer-aided design (CAD) to create and display 3-D models |
| Group C | |
| RIICWD501E | Prepare detailed design of foundations |
| RIICWD502E | Prepare detailed design of lighting |
| RIICWD504E | Prepare detailed design of environmental controls |
| RIICWD505E | Prepare detailed design of landscaping |
| RIICWD506E | Prepare detailed design of canals |
| RIICWD507D | Prepare detailed geotechnical design |
| RIICWD508E | Prepare detailed design of rural roads |
| RIICWD511E | Prepare detailed design of sub-divisions |
| RIICWD513E | Prepare detailed design of rail civil infrastructure |
| RIICWD514E | Prepare detailed design of dams |
| RIICWD515E | Prepare detailed design of airfield civil works |
| RIICWD516E | Prepare detailed design of bicycle ways |
| RIICWD517E | Prepare detailed design of industrial hardstands |
| RIICWD518E | Prepare detailed design of open car parks |
| RIICWD519E | Prepare detailed design of intermodal facilities civil works |
| RIICWD521E | Prepare detailed design of flexible pavements |
| RIICWD522E | Prepare stabilised material mix design |
| RIICWD523E | Prepare asphalt mix design |
| RIICWD524E | Prepare design of spray seal surfacing |
| RIICWD525E | Select pavement surfacing |
| RIICWD527E | Prepare detailed design of traffic signals |
| RIICWD529E | Prepare detailed design of underground services |
| RIICWD530E | Prepare detailed design of surface drainage |
| RIICWD531E | Prepare detailed design of subsurface drainage |
| RIICWD537E | Prepare detailed design of marine structures civil works |
| Group D | |
| CPPSIS3015 | Collect basic surveying data |
| CPPSIS5032 | Capture new spatial data |
| CPPSIS5035 | Obtain and validate spatial data |
| CPPSIS5036 | Integrate spatial datasets |
| MEM23004A | Apply technical mathematics |
| MEM23007A\* | Apply calculus to engineering tasks |
| MEM30005A\* | Calculate force systems within simple beam structures |
| MEM30006A\* | Calculate stresses in simple structures |
| MEM30012A | Apply mathematical techniques in a manufacturing engineering or related environment |
| MSL924003 | Process and interpret data |
| MSL954004 | Obtain representative samples in accordance with sampling plan |
| MSL973021 | Conduct field-based acceptance tests for construction materials |
| MSL973022 | Conduct laboratory-based acceptance tests for construction materials |
| MSL974016 | Perform physical and mechanical tests |
| MSL974019 | Perform chemical tests and procedures |
| MSL974026\* | Perform tests to determine the properties of construction materials |
| MSL975031\* | Supervise sampling, inspections and testing at construction sites |
| MSL975044\* | Perform complex tests to measure engineering properties of materials |
| RIICBS401E | Supervise asphalt paving and compaction operations |
| RIICBS402E | Supervise the application of bituminous sprayed treatments |
| RIICBS403E | Supervise the application of polymer modified binders |
| RIICBS404E | Supervise the selection and use of bituminous emulsions |
| RIICBS405E | Supervise micro surfacing operations |
| RIICBS406E | Supervise pavement profiling operations using a profiler |
| RIICBS407E | Supervise the manufacture and delivery of hot mix asphalt |
| RIICBS408E | Supervise the manufacture of cold mixes |
| RIICBS409E | Supervise the manufacture of polymer modified binders |
| RIICBS410E | Supervise the manufacture of bituminous emulsions |
| RIICBS411E | Supervise the manufacture of micro surfacing mixes |
| RIICPL401E | Supervise the installation of underground services using open excavation |
| RIICRC401E | Supervise flexible pavement construction |
| RIICRC402E | Supervise rigid pavement construction |
| RIICRC403E | Supervise the stabilisation of materials |
| RIICRC404E | Inspect and report on pavement condition |
| RIICRC405E | Carry out pavement condition measurement |
| RIICSG401E | Supervise civil concrete structure construction |
| RIICSG402E | Supervise civil steel structure construction |
| RIICSG403E | Supervise civil timber structure construction |
| RIICSG404E | Supervise civil masonry, crib and gabion structure construction |
| RIICTC401E | Supervise tunnel construction |
| RIICTT401E | Supervise the installation of underground services using trenchless technology |
| RIICTT402E | Supervise repair and rehabilitation of underground services using trenchless technology |
| RIILAT402E | Provide leadership in the supervision of diverse work teams |
| RIIMEX403E | Supervise canal construction |
| RIIMPO402D | Apply the principles of earthworks construction |
| RIISTD202E | Collect routine site samples |

\*Note the following prerequisite unit requirements.

| UNIT IN THIS QUALIFICATION | PREREQUISITE UNITS |
| --- | --- |
| MEM23007A Apply calculus to engineering tasks | * MEM23004A Apply technical mathematics |
| MEM30005A Calculate force systems within simple beam structures | * MEM30012A Apply mathematical techniques in a manufacturing engineering or related environment |
| MEM30006A Calculate stresses in simple structures | * MEM30012A Apply mathematical techniques in a manufacturing engineering or related environment |
| MEM30033A Use computer-aided design (CAD) to create and display 3-D models | * MEM30031A Operate computer-aided design (CAD) system to produce basic drawing elements |
| MSL974026 Perform tests to determine the properties of construction materials | * MSL973022 Conduct laboratory-based acceptance tests for construction materials |
| MSL975031 Supervise sampling, inspections and testing at construction sites | * MSL954004 Obtain representative samples in accordance with sampling plan * MSL973021 Conduct field-based acceptance tests for construction materials |
| MSL975044 Perform complex tests to measure engineering properties of materials | * MSL973022 Conduct laboratory-based acceptance tests for construction materials * MSL974026 Perform tests to determine the properties of construction materials |

# Qualification Mapping Information

Supersedes and is equivalent to RII40815 Certificate IV in Civil Construction Design.

# Links

Companion Volume Implementation Guide is found on VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>