



Australian Government

MEM30219 Certificate III in Engineering - Mechanical Trade

Release 2

MEM30219 Certificate III in Engineering - Mechanical Trade

Modification History

Release 2. Mandatory training contract pathway added.

Release 1. Supersedes and is equivalent to MEM30205 Certificate III in Engineering – Mechanical Trade.

Qualification Description

This qualification defines the skills and knowledge required of an engineering tradesperson – mechanical within metal, engineering, manufacturing and associated industries. The qualification has been specifically developed for apprentices in the above trade.

This qualification must be undertaken through a Training Contract or through formal trade recognition assessment processes.

The skills associated with this qualification are intended to apply to a wide range of mechanical trade work, including undertaking fitting, assembly, manufacture, installation, modification, testing, fault finding, maintenance and service of mechanical equipment, machinery and the use of machine tools.

This qualification is designed to provide an industry recognised skills profile related to trade work as an Engineering Tradesperson - Mechanical.

Assessment of some units of competency must, where indicated, include evidence of the candidate's performance in a functioning workplace where there is a sufficient range of appropriate tasks and materials to cover the scope of application of those units. All outcomes must reflect the standard of performance inherent in the job.

No licensing, legislative or certification requirements apply to this qualification at the time of publication. However, in some jurisdictions units in this qualification may relate to licensing or regulatory requirements. Local regulations should be checked.

Entry Requirements

There are no entry requirements for this qualification.

Packaging Rules

To be awarded the MEM30219 Certificate III in Engineering - Mechanical Trade, units of competency to the value of 96 points must be achieved, chosen as outlined below:

- core units of competency listed below (totalling 33 points)
- elective units of competency to a minimum value of 40 points from Groups A, B and C electives as described below
- elective units of competency to a maximum value of 23 points from Group D to bring the total value to 96 points.

To be awarded the MEM30219 Certificate III in Engineering - Mechanical Trade (Machining), units of competency to the value of 96 points must be achieved, chosen as outlined below:

- core units of competency listed below (totalling 33 points)
- elective units of competency to a minimum value of 40 points from Group A electives as described below
- elective units of competency to a maximum value of 23 points from Group D to bring the total value to 96 points.

To be awarded the MEM30219 Certificate III in Engineering - Mechanical Trade (Fitting), units of competency to the value of 96 points must be achieved, chosen as outlined below:

- core units of competency listed below (totalling 33 points)
- elective units of competency to a minimum value of 40 points from Group B electives as described below
- elective units of competency to a maximum value of 23 points from Group D to bring the total value to 96 points.

To be awarded the MEM30219 Certificate III in Engineering - Mechanical Trade (Fitting/machining), units of competency to the value of 96 points must be achieved, chosen as outlined below:

- core units of competency listed below (totalling 33 points)
- elective units of competency to a minimum value of 40 points from Group C electives as described below
- elective units of competency to a maximum value of 23 points from Group D to bring the total value to 96 points.

Appropriate Group D elective units to the value of 8 points may be chosen from this Training Package, other endorsed Training Packages and accredited courses where those units are available for inclusion at Certificate III. Only select units that would be suitable for occupational outcomes in a mechanical trade environment.

Registered Training Organisations (RTOs) must seek a determination from the industry parties in respect of the allocation of points values for units of competency drawn from other Training Packages or accredited courses. Determination of points requests are to be submitted to the industry parties through Innovation and Business Skills Australia (IBSA) Manufacturing. Refer to the MEM Companion Volume Implementation Guide for information on determination of unit points values.

Prerequisites

Points associated with prerequisites count towards the total. Units with prerequisite requirements are marked with an asterisk (refer to the individual units for details). All prerequisites are included in the units listed.

Core units of competency

| Unit code | Unit title | P | Pre req |
|-----------|--|---|---------|
| MEM09002 | Interpret technical drawing | 4 | * |
| MEM11011 | Undertake manual handling | 2 | * |
| MEM12023 | Perform engineering measurements | 5 | * |
| MEM12024 | Perform computations | 3 | * |
| MEM13015 | Work safely and effectively in manufacturing and engineering | 2 | |
| MEM14006 | Plan work activities | 4 | * |
| MEM16006 | Organise and communicate information | 2 | * |
| MEM16008 | Interact with computing technology | 2 | * |
| MEM17003 | Assist in the provision of on-the-job training | 2 | * |
| MEM18001 | Use hand tools | 2 | * |
| MEM18002 | Use power tools/hand held operations | 2 | * |
| MSMENV272 | Participate in environmentally sustainable work practices | 3 | |

Elective units of competency

- Packaging for a generic qualification – choose a minimum value of 40 points in **any combination** from Groups A, B and C
- Packaging for a trade specialisation – choose a minimum value of 40 points from **one of either** Group A or B or C

Group A – Machining Trade specialisation

| Unit code | Unit title | P | Pre req |
|-----------|------------------------------|---|---------|
| MEM05005 | Carry out mechanical cutting | 2 | * |
| MEM07005 | Perform general machining | 8 | * |
| MEM07006 | Perform lathe operations | 4 | * |
| MEM07007 | Perform milling operations | 4 | * |

| Unit code | Unit title | P | Pre req |
|-----------|--|---|---------|
| MEM07008 | Perform grinding operations | 4 | * |
| MEM07009 | Perform precision jig boring operations | 4 | * |
| MEM07010 | Perform tool and cutter grinding operations | 4 | * |
| MEM07011 | Perform complex milling operations | 4 | * |
| MEM07012 | Perform complex grinding operations | 4 | * |
| MEM07013 | Perform machining operations using horizontal and vertical boring machines | 4 | * |
| MEM07014 | Perform electro-discharge machining (EDM) operations | 4 | * |
| MEM07015 | Set computer controlled machines and processes | 2 | * |
| MEM12003 | Perform precision mechanical measurement | 2 | * |
| MEM12006 | Mark off/out (general engineering) | 4 | * |
| MEM18003 | Use tools for precision work | 4 | * |
| MEM18055 | Dismantle, replace and assemble engineering components | 3 | * |

Group B - Fitting Trade specialisation

| Unit code | Unit title | P | Pre req |
|-----------|--|---|---------|
| MEM05005 | Carry out mechanical cutting | 2 | * |
| MEM07005 | Perform general machining | 8 | * |
| MEM07006 | Perform lathe operations | 4 | * |
| MEM10006 | Install machine/plant | 4 | * |
| MEM12006 | Mark off/out (general engineering) | 4 | * |
| MEM18003 | Use tools for precision work | 4 | * |
| MEM18004 | Maintain and overhaul mechanical equipment | 4 | * |

| Unit code | Unit title | P | Pre req |
|-----------|--|---|---------|
| MEM18005 | Perform fault diagnosis, installation and removal of bearings | 4 | * |
| MEM18006 | Perform precision fitting of engineering components | 6 | * |
| MEM18007 | Maintain and repair mechanical drives and mechanical transmission assemblies | 4 | * |
| MEM18008 | Balance equipment | 2 | * |
| MEM18009 | Perform precision levelling and alignment of machines and engineering components | 4 | * |
| MEM18012 | Perform installation and removal of mechanical seals | 2 | * |
| MEM18013 | Perform gland packing | 2 | * |
| MEM18018 | Maintain pneumatic system components | 4 | * |
| MEM18020 | Maintain hydraulic system components | 4 | * |
| MEM18055 | Dismantle, replace and assemble engineering components | 3 | * |

Group C – Fitting/Machining Trade specialisation

| Unit code | Unit title | P | Pre req |
|-----------|--|---|---------|
| MEM05005 | Carry out mechanical cutting | 2 | * |
| MEM07005 | Perform general machining | 8 | * |
| MEM07006 | Perform lathe operations | 4 | * |
| MEM07007 | Perform milling operations | 4 | * |
| MEM07008 | Perform grinding operations | 4 | * |
| MEM07010 | Perform tool and cutter grinding operations | 4 | * |
| MEM07013 | Perform machining operations using horizontal and vertical boring machines | 4 | * |
| MEM07014 | Perform electro-discharge machining (EDM) operations | 4 | * |
| MEM07015 | Set computer controlled machines and processes | 2 | * |

| Unit code | Unit title | P | Pre req |
|-----------|--|---|---------|
| MEM10006 | Install machine/plant | 4 | * |
| MEM12003 | Perform precision mechanical measurement | 2 | * |
| MEM12006 | Mark off/out (general engineering) | 4 | * |
| MEM18003 | Use tools for precision work | 4 | * |
| MEM18005 | Perform fault diagnosis, installation and removal of bearings | 4 | * |
| MEM18006 | Perform precision fitting of engineering components | 6 | * |
| MEM18007 | Maintain and repair mechanical drives and mechanical transmission assemblies | 4 | * |
| MEM18008 | Balance equipment | 2 | * |
| MEM18009 | Perform precision levelling and alignment of machines and engineering components | 4 | * |
| MEM18012 | Perform installation and removal of mechanical seals | 2 | * |
| MEM18013 | Perform gland packing | 2 | * |
| MEM18018 | Maintain pneumatic system components | 4 | * |
| MEM18020 | Maintain hydraulic system components | 4 | * |
| MEM18055 | Dismantle, replace and assemble engineering components | 3 | * |

Group D – General electives

| Unit code | Unit title | P | Pre req |
|-----------|--|---|---------|
| MEM05004 | Perform routine oxy fuel gas welding | 2 | * |
| MEM05005 | Carry out mechanical cutting | 2 | * |
| MEM05006 | Perform brazing and/or silver soldering | 2 | * |
| MEM05007 | Perform manual heating and thermal cutting | 2 | * |
| MEM05012 | Perform routine manual metal arc welding | 2 | * |

| Unit code | Unit title | P | Pre req |
|-----------|--|---|---------|
| MEM05041 | Weld using flame powder spraying | 4 | * |
| MEM05049 | Perform routine gas tungsten arc welding | 2 | * |
| MEM05050 | Perform routine gas metal arc welding | 2 | * |
| MEM06007 | Perform basic incidental heat/quenching, tempering and annealing | 2 | * |
| MEM07002 | Perform precision shaping/planing/slotting operations | 4 | * |
| MEM07005 | Perform general machining | 8 | * |
| MEM07006 | Perform lathe operations | 4 | * |
| MEM07007 | Perform milling operations | 4 | * |
| MEM07008 | Perform grinding operations | 4 | * |
| MEM07009 | Perform precision jig boring operations | 4 | * |
| MEM07010 | Perform tool and cutter grinding operations | 4 | * |
| MEM07011 | Perform complex milling operations | 4 | * |
| MEM07012 | Perform complex grinding operations | 4 | * |
| MEM07013 | Perform machining operations using horizontal and vertical boring machines | 4 | * |
| MEM07014 | Perform electro-discharge machining (EDM) operations | 4 | * |
| MEM07015 | Set computer controlled machines and processes | 2 | * |
| MEM07016 | Set and edit computer controlled machines and processes | 4 | * |
| MEM07021 | Perform complex lathe operations | 4 | * |
| MEM07030 | Perform basic metal spinning lathe operations | 8 | * |
| MEM07031 | Perform complex metal spinning lathe operations | 4 | * |
| MEM07032 | Use workshop machines for basic operations | 2 | * |
| MEM07040 | Set multistage integrated processes | 6 | * |
| MEM08010 | Manually finish/polish materials | 6 | * |

| Unit code | Unit title | P | Pre req |
|-----------|---|---|---------|
| MEM08011 | Prepare surfaces using solvents and/or mechanical means | 2 | * |
| MEM08014 | Apply protective coatings (basic) | 4 | * |
| MEM09003 | Prepare basic engineering drawing | 8 | * |
| MEM09011 | Apply basic engineering design concepts | 6 | * |
| MEM10002 | Terminate and connect electrical wiring | 3 | * |
| MEM10004 | Enter and change programmable controller operational parameters | 2 | * |
| MEM10005 | Commission programmable controller programs | 4 | * |
| MEM10006 | Install machine/plant | 4 | * |
| MEM10010 | Install pipework and pipework assemblies | 4 | * |
| MEM11010 | Operate mobile load shifting equipment | 4 | * |
| MEM11016 | Order materials | 2 | * |
| MEM11022 | Operate fixed/moveable load shifting equipment | 4 | * |
| MEM12002 | Perform electrical/electronic measurement | 2 | * |
| MEM12003 | Perform precision mechanical measurement | 2 | * |
| MEM12006 | Mark off/out (general engineering) | 4 | * |
| MEM12019 | Measure components using coordinate measuring machines | 4 | * |
| MEM12020 | Set and operate coordinate measuring machines | 2 | * |
| MEM13001 | Perform emergency first aid | 1 | * |
| MEM13002 | Undertake work health and safety activities in the workplace | 3 | * |
| MEM13003 | Work safely with industrial chemicals and materials | 2 | * |
| MEM15001 | Perform basic statistical quality control | 2 | * |
| MEM15003 | Use improvement processes in team activities | 4 | * |
| MEM15004 | Perform inspection | 2 | * |

| Unit code | Unit title | P | Pre req |
|-----------|--|---|---------|
| MEM16005 | Operate as a team member to conduct manufacturing, engineering or related activities | 2 | * |
| MEM18003 | Use tools for precision work | 4 | * |
| MEM18004 | Maintain and overhaul mechanical equipment | 4 | * |
| MEM18005 | Perform fault diagnosis, installation and removal of bearings | 4 | * |
| MEM18006 | Perform precision fitting of engineering components | 6 | * |
| MEM18007 | Maintain and repair mechanical drives and mechanical transmission assemblies | 4 | * |
| MEM18008 | Balance equipment | 2 | * |
| MEM18009 | Perform precision levelling and alignment of machines and engineering components | 4 | * |
| MEM18010 | Perform equipment condition monitoring and recording | 4 | * |
| MEM18011 | Shut down and isolate machines/equipment | 2 | * |
| MEM18012 | Perform installation and removal of mechanical seals | 2 | * |
| MEM18013 | Perform gland packing | 2 | * |
| MEM18018 | Maintain pneumatic system components | 4 | * |
| MEM18020 | Maintain hydraulic system components | 4 | * |
| MEM18049 | Disconnect/reconnect fixed wired equipment up to 1000 volts a.c./1500 volts d.c. | 3 | * |
| MEM18055 | Dismantle, replace and assemble engineering components | 3 | * |
| MEM24001B | Perform basic penetrant testing | 2 | * |
| MEM24003B | Perform basic magnetic particle testing | 2 | * |
| MEM24005B | Perform basic eddy current testing | 2 | * |
| MEM24007B | Perform ultrasonic thickness testing | 2 | * |
| MSMENV472 | Implement and monitor environmentally sustainable work practices | 4 | |

| Unit code | Unit title | P | Pre req |
|------------|---|---|---------|
| TLILIC0003 | Licence to operate a forklift truck | 0 | |
| TLILIC0002 | Licence to operate a vehicle loading crane (capacity 10 metre tonnes and above) | 1 | |

Qualification Mapping Information

Release 2. Supersedes and is equivalent to MEM30219 Certificate III in Engineering – Mechanical Trade (Release 1).

Release 1. Supersedes and is equivalent to MEM30205 Certificate III in Engineering – Mechanical Trade.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>