



Australian Government

MEM31922 Certificate III in Engineering - Fabrication Trade

Release: 1

MEM31922 Certificate III in Engineering - Fabrication Trade

Modification History

Release 1. New and revised elective units added including to specialisations.

Qualification Description

This qualification defines the skills and knowledge required of an Engineering Tradesperson - Fabrication within metal, engineering, manufacturing and associated industries. The qualification has been specifically developed to meet the needs of 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 fabrication work, including undertaking metal fabrication, structural steel erection, sheetmetal work, welding, blacksmithing and surface finishing.

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

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.

In some jurisdictions, units in this qualification may relate to licensing or regulatory requirements. Licensing and regulatory information is included in the relevant units of competency.

No licensing, legislative or certification requirements apply to this qualification at the time of publication. Local regulations should be checked.

Entry Requirements

There are no entry requirements for this qualification.

Packaging Rules

To be awarded the MEM31922 Certificate III in Engineering – Fabrication Trade, units of competency to the value of 96 points must be achieved, chosen as outlined below:

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

To be awarded the MEM31922 Certificate III in Engineering – Fabrication Trade (Boilermaking), units of competency to the value of 96 points must be achieved, chosen as outlined below:

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

To be awarded the MEM31922 Certificate III in Engineering – Fabrication Trade (Welding), units of competency to the value of 96 points must be achieved, chosen as outlined below:

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

To be awarded the MEM31922 Certificate III in Engineering – Fabrication Trade (Boilermaking/welding), units of competency to the value of 96 points must be achieved, chosen as outlined below:

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

To be awarded the MEM31922 Certificate III in Engineering – Fabrication Trade (Sheetmetal working), units of competency to the value of 96 points must be achieved, chosen as outlined below:

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

To be awarded the MEM31922 Certificate III in Engineering – Fabrication Trade (Blacksmithing), units of competency to the value of 96 points must be achieved, chosen as outlined below:

- all core units of competency listed below (totalling 33 points)
- elective units of competency to a minimum value of 40 points from Group F as described below

- elective units of competency to a maximum value of 23 points from Group H to bring the total value to 96 points.

To be awarded the MEM31922 Certificate III in Engineering – Fabrication Trade (Surface finishing), units of competency to the value of 96 points must be achieved, chosen as outlined below:

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

Appropriate Group H 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 fabrication trade environment.

Registered Training Organisations (RTOs) must seek a determination from the industry parties in respect of the allocations of point 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 point 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

Unit code	Unit title	Points	Prerequisites
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	*

Unit code	Unit title	Points	Prerequisites
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

Packaging for a generic fabrication trade qualification - choose a minimum value of 40 points from Group A.

Packaging for a trade specialisation - choose a minimum value of 40 points from **one of either** Group B or C or D or E or F or G.

Group A – Fabrication Trade generic electives

Unit code	Unit title	Points	Prerequisites
MEM05003	Perform soft soldering	2	*
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	*
MEM05009	Perform automated thermal cutting	2	*
MEM05010	Apply fabrication, forming and shaping techniques	8	*
MEM05012	Perform routine manual metal arc welding	2	*
MEM05014	Monitor quality of production welding/fabrications	2	*
MEM05037	Perform geometric development	6	*
MEM05049	Perform routine gas tungsten arc welding	2	*
MEM05050	Perform routine gas metal arc welding	2	*

Unit code	Unit title	Points	Prerequisites
MEM05052	Apply safe welding practices	4	*
MEM05056	Perform routine flux core arc welding	2	*
MEM05057	Perform routine submerged arc welding	2	*
MEM05059	Perform advanced welding using submerged arc welding process	4	*
MEM05065	Maintain weld records	4	*
MEM05071	Perform advanced manual thermal cutting, gouging and shaping	2	*
MEM05072	Perform advanced welding using manual metal arc welding process	4	*
MEM05073	Perform advanced welding using gas metal arc welding process	4	*
MEM05074	Perform advanced welding using gas tungsten arc welding process	4	*
MEM05075	Perform advanced welding using oxy acetylene welding process	4	*
MEM05084	Perform advanced welding using flux core arc welding process	4	*
MEM05086	Set and edit computer controlled thermal cutting machines	4	*
MEM05089	Assemble fabricated components	8	*
MEM05090	Weld using manual metal arc welding process	4	*
MEM05091	Weld using gas metal arc welding process	4	*
MEM05092	Weld using gas tungsten arc welding process	4	*
MEM05093	Weld using submerged arc welding process	4	*
MEM05094	Repair, replace and/or modify fabrications	4	*
MEM05095	Weld using flame powder spraying	4	*
MEM05096	Weld using flux core arc welding process	4	*

Unit code	Unit title	Points	Prerequisites
MEM05097	Weld using oxy fuel gas welding process	4	*
MEM08010	Manually finish/polish materials	6	*
MEM09011	Apply basic engineering design concepts	6	*
MEM12007	Mark off/out structural fabrications and shapes	4	*
MEM18055	Dismantle, replace and assemble engineering components	3	*

Group B – Boilermaking Trade specialisation electives

Unit code	Unit title	Points	Prerequisites
MEM05004	Perform routine oxy fuel gas welding	2	*
MEM05005	Carry out mechanical cutting	2	*
MEM05007	Perform manual heating and thermal cutting	2	*
MEM05009	Perform automated thermal cutting	2	*
MEM05010	Apply fabrication, forming and shaping techniques	8	*
MEM05012	Perform routine manual metal arc welding	2	*
MEM05037	Perform geometric development	6	*
MEM05049	Perform routine gas tungsten arc welding	2	*
MEM05050	Perform routine gas metal arc welding	2	*
MEM05052	Apply safe welding practices	4	*
MEM05056	Perform routine flux core arc welding	2	*
MEM05057	Perform routine submerged arc welding	2	*
MEM05071	Perform advanced manual thermal cutting, gouging and shaping	2	*
MEM05085	Select welding processes	2	*
MEM05089	Assemble fabricated components	8	*

MEM05090	Weld using manual metal arc welding process	4	*
MEM05091	Weld using gas metal arc welding process	4	*
MEM05092	Weld using gas tungsten arc welding process	4	*
MEM05093	Weld using submerged arc welding process	4	*
MEM05094	Repair, replace and/or modify fabrications	4	*
MEM05096	Weld using flux core arc welding process	4	*
MEM05097	Weld using oxy fuel gas welding process	4	*
MEM09011	Apply basic engineering design concepts	6	*
MEM12007	Mark off/out structural fabrications and shapes	4	*
MEM18055	Dismantle, replace and assemble engineering components	3	*

Group C – Welding Trade specialisation electives

Unit code	Unit title	Points	Prerequisites
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	*
MEM05014	Monitor quality of production welding/fabrications	2	*
MEM05049	Perform routine gas tungsten arc welding	2	*
MEM05050	Perform routine gas metal arc welding	2	*
MEM05052	Apply safe welding practices	4	*
MEM05056	Perform routine flux core arc welding	2	*
MEM05057	Perform routine submerged arc welding	2	*
MEM05059	Perform advanced welding using submerged arc welding	4	*

	process		
MEM05065	Maintain weld records	4	*
MEM05071	Perform advanced manual thermal cutting, gouging and shaping	2	*
MEM05072	Perform advanced welding using manual metal arc welding process	4	*
MEM05073	Perform advanced welding using gas metal arc welding process	4	*
MEM05074	Perform advanced welding using gas tungsten arc welding process	4	*
MEM05075	Perform advanced welding using oxy acetylene welding process	4	*
MEM05084	Perform advanced welding using flux core arc welding process	4	*
MEM05085	Select welding processes	2	*
MEM05086	Set and edit computer controlled thermal cutting machines	4	*
MEM05089	Assemble fabricated components	8	*
MEM05090	Weld using manual metal arc welding process	4	*
MEM05091	Weld using gas metal arc welding process	4	*
MEM05092	Weld using gas tungsten arc welding process	4	*
MEM05093	Weld using submerged arc welding process	4	*
MEM05095	Weld using flame powder spraying	4	*
MEM05096	Weld using flux core arc welding process	4	*
MEM05097	Weld using oxy fuel gas welding process	4	*

Group D – Boliermaking/Welding Trade specialisation electives

Unit code	Unit title	Points	Prerequisites
MEM05004	Perform routine oxy fuel gas welding	2	*

MEM05005	Carry out mechanical cutting	2	*
MEM05007	Perform manual heating and thermal cutting	2	*
MEM05009	Perform automated thermal cutting	2	*
MEM05010	Apply fabrication, forming and shaping techniques	8	*
MEM05012	Perform routine manual metal arc welding	2	*
MEM05037	Perform geometric development	6	*
MEM05049	Perform routine gas tungsten arc welding	2	*
MEM05050	Perform routine gas metal arc welding	2	*
MEM05052	Apply safe welding practices	4	*
MEM05056	Perform routine flux core arc welding	2	*
MEM05057	Perform routine submerged arc welding	2	*
MEM05059	Perform advanced welding using submerged arc welding process	4	*
MEM05065	Maintain weld records	4	*
MEM05071	Perform advanced manual thermal cutting, gouging and shaping	2	*
MEM05072	Perform advanced welding using manual metal arc welding process	4	*
MEM05073	Perform advanced welding using gas metal arc welding process	4	*
MEM05074	Perform advanced welding using gas tungsten arc welding process	4	*
MEM05075	Perform advanced welding using oxy acetylene welding process	4	*
MEM05084	Perform advanced welding using flux core arc welding process	4	*
MEM05085	Select welding processes	2	*
MEM05086	Set and edit computer controlled thermal cutting machines	4	*

MEM05089	Assemble fabricated components	8	*
MEM05090	Weld using manual metal arc welding process	4	*
MEM05091	Weld using gas metal arc welding process	4	*
MEM05092	Weld using gas tungsten arc welding process	4	*
MEM05093	Weld using submerged arc welding process	4	*
MEM05094	Repair, replace and/or modify fabrications	4	*
MEM05095	Weld using flame powder spraying	4	*
MEM05096	Weld using flux core arc welding process	4	*
MEM05097	Weld using oxy fuel gas welding process	4	*
MEM09011	Apply basic engineering design concepts	6	*
MEM12007	Mark off/out structural fabrications and shapes	4	*
MEM18055	Dismantle, replace and assemble engineering components	3	*

Group E – Sheetmetal Working Trade specialisation electives

Unit code	Unit title	Points	Prerequisites
MEM05003	Perform soft soldering	2	*
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	*
MEM05010	Apply fabrication, forming and shaping techniques	8	*
MEM05012	Perform routine manual metal arc welding	2	*
MEM05037	Perform geometric development	6	*
MEM05049	Perform routine gas tungsten arc welding	2	*
MEM05050	Perform routine gas metal arc welding	2	*

MEM05052	Apply safe welding practices	4	*
MEM05056	Perform routine flux core arc welding	2	*
MEM05057	Perform routine submerged arc welding	2	*
MEM05085	Select welding processes-	2	*
MEM05089	Assemble fabricated components	8	*
MEM05090	Weld using manual metal arc welding process	4	*
MEM05091	Weld using gas metal arc welding process	4	*
MEM05092	Weld using gas tungsten arc welding process	4	*
MEM05097	Weld using oxy fuel gas welding process	4	*
MEM09011	Apply basic engineering design concepts	6	*
MEM12007	Mark off/out structural fabrications and shapes	4	*
MEM18055	Dismantle, replace and assemble engineering components	3	*

Group F – Blacksmithing Trade specialisation electives

Unit code	Unit title	Points	Prerequisites
MEM05005	Carry out mechanical cutting	2	*
MEM05007	Perform manual heating and thermal cutting	2	*
MEM05012	Perform routine manual metal arc welding	2	*
MEM05049	Perform routine gas tungsten arc welding	2	*
MEM05050	Perform routine gas metal arc welding	2	*
MEM05056	Perform routine flux core arc welding	2	*
MEM05057	Perform routine submerged arc welding	2	*
MEM06001	Perform hand forging	4	*
MEM06002	Perform hammer forging	4	*
MEM06003	Carry out heat treatment	6	*

MEM06004	Select heat treatment processes and test finished product	6	*
MEM06005	Perform drop and upset forging	4	*
MEM06006	Repair springs	4	*
MEM06007	Perform basic incidental heat/quenching, tempering and annealing	2	*
MEM06008	Hammer forge complex shapes	4	*
MEM06009	Hand forge complex shapes	4	*

Group G – Surface Finishing Trade specialisation electives

Unit code	Unit title	Points	Prerequisites
MEM08001	Perform wire, jig and barrel load/unload work	4	*
MEM08002	Pre-treat work for subsequent surface coating	4	*
MEM08003	Perform electroplating operations	6	*
MEM08004	Finish work using wet, dry and vapour deposition methods	4	*
MEM08005	Prepare and produce specialised coatings	4	*
MEM08006	Produce clear and/or coloured and/or sealed anodised films on aluminium	2	*
MEM08007	Control surface finish production and finished product quality	4	*
MEM08008	Operate and control surface finishing waste treatment process	3	*
MEM08009	Make up solutions	2	*
MEM08010	Manually finish/polish materials	6	*
MEM08011	Prepare surfaces using solvents and/or mechanical means	2	*
MEM08012	Prepare surfaces by abrasive blasting (basic)	4	*
MEM08013	Prepare surfaces by abrasive blasting (advanced)	4	*
MEM08014	Apply protective coatings (basic)	4	*

MEM08015	Apply protective coatings (advanced)	4	*
MEM08016	Control blast coating by-products, materials and emissions	1	*
MEM08018	Electroplate engineering coatings	6	*
MEM08019	Electroplate protective finishes	6	*
MEM08020	Electroplate decorative finishes	6	*
MEM11009	Handle/move bulk fluids/gases	4	*

Group H – General electives

Unit code	Unit title	Points	Prerequisites
MEM05001	Perform manual soldering/desoldering – electrical/electronic components	4	*
MEM05002	Perform high reliability soldering and desoldering	4	*
MEM05003	Perform soft soldering	2	*
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	*
MEM05009	Perform automated thermal cutting	2	*
MEM05010	Apply fabrication, forming and shaping techniques	8	*
MEM05012	Perform routine manual metal arc welding	2	*
MEM05014	Monitor quality of production welding/fabrications	2	*
MEM05027	Perform aluminothermic welding	2	*
MEM05037	Perform geometric development	6	*
MEM05049	Perform routine gas tungsten arc welding	2	*
MEM05050	Perform routine gas metal arc welding	2	*

Unit code	Unit title	Points	Prerequisites
MEM05052	Apply safe welding practices	4	*
MEM05056	Perform routine flux core arc welding	2	*
MEM05057	Perform routine submerged arc welding	2	*
MEM05059	Perform advanced welding using submerged arc welding process	4	*
MEM05065	Maintain weld records	4	*
MEM05071	Perform advanced manual thermal cutting, gouging and shaping	2	*
MEM05072	Perform advanced welding using manual metal arc welding process	4	*
MEM05073	Perform advanced welding using gas metal arc welding process	4	*
MEM05074	Perform advanced welding using gas tungsten arc welding process	4	*
MEM05075	Perform advanced welding using oxy acetylene welding process	4	*
MEM05084	Perform advanced welding using flux core arc welding process	4	*
MEM05085	Select welding processes	2	*
MEM05086	Set and edit computer controlled thermal cutting machines	4	*
MEM05089	Assemble fabricated components	8	*
MEM05090	Weld using manual metal arc welding process	4	*
MEM05091	Weld using gas metal arc welding process	4	*
MEM05092	Weld using gas tungsten arc welding process	4	*
MEM05093	Weld using submerged arc welding process	4	*
MEM05094	Repair, replace and/or modify fabrications	4	*
MEM05095	Weld using flame powder spraying	4	*

Unit code	Unit title	Points	Prerequisites
MEM05096	Weld using flux core arc welding process	4	*
MEM05097	Weld using oxy fuel gas welding process	4	*
MEM06001	Perform hand forging	4	*
MEM06002	Perform hammer forging	4	*
MEM06003	Carry out heat treatment	6	*
MEM06004	Select heat treatment processes and test finished product	6	*
MEM06005	Perform drop and upset forging	4	*
MEM06006	Repair springs	4	*
MEM06007	Perform basic incidental heat/quenching, tempering and annealing	2	*
MEM06008	Hammer forge complex shapes	4	*
MEM06009	Hand forge complex shapes	4	*
MEM07001	Perform operational maintenance of machines/equipment	2	*
MEM07015	Set computer controlled machines and processes	2	*
MEM07016	Set and edit computer controlled machines and processes	4	*
MEM07024	Operate and monitor machine and process	4	*
MEM07028	Operate computer controlled machines and processes	2	*
MEM07030	Perform basic metal spinning lathe operations	8	*
MEM07031	Perform complex metal spinning lathe operations	4	*
MEM07032	Use workshop machines for basic operations	2	*
MEM08001	Perform wire, jig and barrel load/unload work	4	*
MEM08002	Pre-treat work for subsequent surface coating	4	*
MEM08003	Perform electroplating operations	6	*

Unit code	Unit title	Points	Prerequisites
MEM08004	Finish work using wet, dry and vapour deposition methods	4	*
MEM08005	Prepare and produce specialised coatings	4	*
MEM08006	Produce clear and/or coloured and/or sealed anodised films on aluminium	2	*
MEM08007	Control surface finish production and finished product quality	4	*
MEM08008	Operate and control surface finishing waste treatment process	3	*
MEM08009	Make up solutions	2	*
MEM08010	Manually finish/polish materials	6	*
MEM08011	Prepare surfaces using solvents and/or mechanical means	2	*
MEM08012	Prepare surfaces by abrasive blasting (basic)	4	*
MEM08013	Prepare surfaces by abrasive blasting (advanced)	4	*
MEM08014	Apply protective coatings (basic)	4	*
MEM08015	Apply protective coatings (advanced)	4	*
MEM08016	Control blast coating by-products, materials and emissions	1	*
MEM08018	Electroplate engineering coatings	6	*
MEM08019	Electroplate protective finishes	6	*
MEM08020	Electroplate decorative finishes	6	*
MEM09003	Prepare basic engineering drawing	8	*
MEM09011	Apply basic engineering design concepts	6	*
MEM10010	Install pipework and pipework assemblies	4	*
MEM10012	Erect structures	4	*
MEM11001	Erect/dismantle scaffolding and equipment	4	*

Unit code	Unit title	Points	Prerequisites
MEM11009	Handle/move bulk fluids/gases	4	*
MEM11010	Operate mobile load shifting equipment	4	*
MEM11016	Order materials	2	*
MEM11022	Operate fixed/moveable load shifting equipment	4	*
MEM12007	Mark off/out structural fabrications and shapes	4	*
MEM12025	Use graphical techniques and perform simple statistical computations	2	*
MEM13001	Perform emergency first aid	1	*
MEM13003	Work safely with industrial chemicals and materials	2	*
MEM13019	Undertake work health and safety activities in the workplace	3	
MEM15001	Perform basic statistical quality control	2	*
MEM15003	Use improvement processes in team activities	4	*
MEM15004	Perform inspection	2	*
MEM16004	Perform internal/external customer service	2	*
MEM16005	Operate as a team member to conduct manufacturing, engineering or related activities	2	*
MEM18003	Use tools for precision work	4	*
MEM18011	Shut down and isolate machines/equipment	2	*
MEM18055	Dismantle, replace and assemble engineering components	3	*
MEM24001	Perform basic penetrant testing	2	*
MEM24003	Perform basic magnetic particle testing	2	*
MEM24007	Perform ultrasonic thickness testing	2	*
MSMENV472	Implement and monitor environmentally sustainable work practices	4	

Unit code	Unit title	Points	Prerequisites
TLILIC0003	Licence to operate a forklift truck	0	
TLILIC0024	Licence to operate a vehicle loading crane (capacity 10 metre tonnes and above)	1	

Qualification Mapping Information

Release 1. Supersedes and is equivalent to MEM30319 Certificate III in Engineering - Fabrication Trade (Release 2).

Links

Companion Volume Implementation Guides are found on VETNet -

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