Australian Government

MEM30319 Certificate III in Engineering - Fabrication Trade

Release 1

MEM30319 Certificate III in Engineering - Fabrication Trade

Modification History

Release 1. Supersedes and is equivalent to MEM30305 Certificate III in Engineering - Fabrication Trade

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. The qualification packaging has been developed on an assumption that competency will be developed through an integrated combination of on and off-the-job learning strategies such as those delivered through a formal apprenticeship. The qualification may also be achieved through formal skills 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. Skills development should be undertaken through an Australian Apprenticeship arrangement where the mix of on and off-the-job training would be specified in the Training Plan associated with the Contract of Training between the employer and apprentice.

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 MEM30319 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 MEM30319 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 MEM30319 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 MEM30319 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 6 points.

To be awarded the MEM30319 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 MEM30319 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 MEM30319 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 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	

Unit code	Unit title	P	Pre req
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 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	P	Pre req
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	*
MEM05008	Perform advanced manual thermal cutting, gouging and shaping	2	*
MEM05009	Perform automated thermal cutting	2	*
MEM05010	Apply fabrication, forming and shaping techniques	8	*
MEM05011	Assemble fabricated components	8	*
MEM05012	Perform routine manual metal arc welding	2	*

Unit code	Unit title	P	Pre req
MEM05014	Monitor quality of production welding/fabrications	2	*
MEM05015	Weld using manual metal arc welding process	4	*
MEM05016	Perform advanced welding using manual metal arc welding process	4	*
MEM05017	Weld using gas metal arc welding process	4	*
MEM05018	Perform advanced welding using gas metal arc welding process	4	*
MEM05019	Weld using gas tungsten arc welding process	4	*
MEM05020	Perform advanced welding using gas tungsten arc welding process	4	*
MEM05022	Perform advanced welding using oxy acetylene welding process	6	*
MEM05023	Weld using submerged arc welding process	4	*
MEM05036	Repair, replace and/or modify fabrications	4	*
MEM05037	Perform geometric development	6	*
MEM05041	Weld using flame powder spraying	4	*
MEM05047	Weld using flux core arc welding process	4	*
MEM05048	Perform advanced welding using flux core arc welding process	4	*
MEM05049	Perform routine gas tungsten arc welding	2	*
MEM05050	Perform routine gas metal arc welding	2	*
MEM05051	Select welding processes	2	*
MEM05052	Apply safe welding practices	4	*
MEM05053	Set and edit computer controlled thermal cutting machines	4	*
MEM05055	Weld using oxy fuel gas welding process	4	*
MEM05056	Perform routine flux core arc welding	2	*
MEM05057	Perform routine submerged arc welding	2	*
MEM08010	Manually finish/polish materials	6	*

Unit code	Unit title	P	Pre req
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	P	Pre req
MEM05004	Perform routine oxy fuel gas welding	2	*
MEM05005	Carry out mechanical cutting	2	*
MEM05007	Perform manual heating and thermal cutting	2	*
MEM05008	Perform advanced manual thermal cutting, gouging and shaping	2	*
MEM05009	Perform automated thermal cutting	2	*
MEM05010	Apply fabrication, forming and shaping techniques	8	*
MEM05011	Assemble fabricated components	8	*
MEM05012	Perform routine manual metal arc welding	2	*
MEM05015	Weld using manual metal arc welding process	4	*
MEM05017	Weld using gas metal arc welding process	4	*
MEM05019	Weld using gas tungsten arc welding process	4	*
MEM05023	Weld using submerged arc welding process	4	*
MEM05036	Repair, replace and/or modify fabrications	4	*
MEM05037	Perform geometric development	6	*
MEM05047	Weld using flux core arc welding process	4	*
MEM05049	Perform routine gas tungsten arc welding	2	*
MEM05050	Perform routine gas metal arc welding	2	*

Unit code	Unit title	P	Pre req
MEM05051	Select welding processes	2	*
MEM05052	Apply safe welding practices	4	*
MEM05055	Weld using oxy fuel gas welding process	4	*
MEM05056	Perform routine flux core arc welding	2	*
MEM05057	Perform routine submerged arc welding	2	*
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	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	*
MEM05011	Assemble fabricated components	8	*
MEM05012	Perform routine manual metal arc welding	2	*
MEM05014	Monitor quality of production welding/fabrications	2	*
MEM05015	Weld using manual metal arc welding process	4	*
MEM05016	Perform advanced welding using manual metal arc welding process	4	*
MEM05017	Weld using gas metal arc welding process	4	*
MEM05018	Perform advanced welding using gas metal arc welding process	4	*
MEM05019	Weld using gas tungsten arc welding process	4	*

Unit code	Unit title	P	Pre req
MEM05020	Perform advanced welding using gas tungsten arc welding process	4	*
MEM05022	Perform advanced welding using oxy acetylene welding process	6	*
MEM05023	Weld using submerged arc welding process	4	*
MEM05041	Weld using flame powder spraying	4	*
MEM05047	Weld using flux core arc welding process	4	*
MEM05048	Perform advanced welding using flux core arc welding process	4	*
MEM05049	Perform routine gas tungsten arc welding	2	*
MEM05050	Perform routine gas metal arc welding	2	*
MEM05051	Select welding processes	2	*
MEM05052	Apply safe welding practices	4	*
MEM05055	Weld using oxy fuel gas welding process	4	*
MEM05056	Perform routine flux core arc welding	2	*
MEM05057	Perform routine submerged arc welding	2	*

Group D – Boilermaking/Welding Trade specialisation electives

Unit code	Unit title	P	Pre req
MEM05004	Perform routine oxy fuel gas welding	2	*
MEM05005	Carry out mechanical cutting	2	*
MEM05007	Perform manual heating and thermal cutting	2	*
MEM05008	Perform advanced manual thermal cutting, gouging and shaping	2	*
MEM05009	Perform automated thermal cutting	2	*
MEM05010	Apply fabrication, forming and shaping techniques	8	*
MEM05011	Assemble fabricated components	8	*

Unit code	Unit title	P	Pre req
MEM05012	Perform routine manual metal arc welding	2	*
MEM05015	Weld using manual metal arc welding process	4	*
MEM05016	Perform advanced welding using manual metal arc welding process	4	*
MEM05017	Weld using gas metal arc welding process	4	*
MEM05018	Perform advanced welding using gas metal arc welding process	4	*
MEM05019	Weld using gas tungsten arc welding process	4	*
MEM05020	Perform advanced welding using gas tungsten arc welding process	4	*
MEM05022	Perform advanced welding using oxy acetylene welding process	6	*
MEM05023	Weld using submerged arc welding process	4	*
MEM05036	Repair, replace and/or modify fabrications	4	*
MEM05037	Perform geometric development	6	*
MEM05041	Weld using flame powder spraying	4	*
MEM05047	Weld using flux core arc welding process	4	*
MEM05048	Perform advanced welding using flux core arc welding process	4	*
MEM05049	Perform routine gas tungsten arc welding	2	*
MEM05050	Perform routine gas metal arc welding	2	*
MEM05051	Select welding processes	2	*
MEM05052	Apply safe welding practices	4	*
MEM05055	Weld using oxy fuel gas welding process	4	*
MEM05056	Perform routine flux core arc welding	2	*
MEM05057	Perform routine submerged arc welding	2	*
MEM09011	Apply basic engineering design concepts	6	*
MEM12007	Mark off/out structural fabrications and shapes	4	*

Unit code	Unit title	P	Pre req
MEM18055	Dismantle, replace and assemble engineering components	3	*

Group E – Sheetmetal working Trade specialisation electives

Unit code	Unit title	P	Pre req
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	*
MEM05011	Assemble fabricated components	8	*
MEM05012	Perform routine manual metal arc welding	2	*
MEM05015	Weld using manual metal arc welding process	4	*
MEM05017	Weld using gas metal arc welding process	4	*
MEM05019	Weld using gas tungsten arc welding process	4	*
MEM05037	Perform geometric development	6	*
MEM05049	Perform routine gas tungsten arc welding	2	*
MEM05050	Perform routine gas metal arc welding	2	*
MEM05051	Select welding processes	2	*
MEM05052	Apply safe welding practices	4	*
MEM05055	Weld using oxy fuel gas welding process	4	*
MEM05056	Perform routine flux core arc welding	2	*
MEM05057	Perform routine submerged arc welding	2	*

Unit code	Unit title	P	Pre req
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	P	Pre req
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	P	Pre-req
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	P	Pre req
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	*
MEM05008	Perform advanced manual thermal cutting, gouging and shaping	2	*
MEM05009	Perform automated thermal cutting	2	*
MEM05010	Apply fabrication, forming and shaping techniques	8	*
MEM05011	Assemble fabricated components	8	*
MEM05012	Perform routine manual metal arc welding	2	*
MEM05014	Monitor quality of production welding/fabrications	2	*
MEM05015	Weld using manual metal arc welding process	4	*
MEM05016	Perform advanced welding using manual metal arc welding process	4	*
MEM05017	Weld using gas metal arc welding process	4	*
MEM05018	Perform advanced welding using gas metal arc welding process	4	*
MEM05019	Weld using gas tungsten arc welding process	4	*
MEM05020	Perform advanced welding using gas tungsten arc welding process	4	*
MEM05022	Perform advanced welding using oxy acetylene welding process	6	*
MEM05023	Weld using submerged arc welding process	4	*
MEM05027	Perform aluminothermic welding	2	*

Unit code	Unit title	P	Pre req
MEM05036	Repair, replace and/or modify fabrications	4	*
MEM05037	Perform geometric development	6	*
MEM05041	Weld using flame powder spraying	4	*
MEM05047	Weld using flux core arc welding process	4	*
MEM05048	Perform advanced welding using flux core arc welding process	4	*
MEM05049	Perform routine gas tungsten arc welding	2	*
MEM05050	Perform routine gas metal arc welding	2	*
MEM05051	Select welding processes	2	*
MEM05052	Apply safe welding practices	4	*
MEM05053	Set and edit computer controlled thermal cutting machines	4	*
MEM05055	Weld using oxy fuel gas welding process	4	*
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	*
MEM07001	Perform operational maintenance of machines/equipment	2	*

Unit code	Unit title	P	Pre req
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	*
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	*

Unit code	Unit title	P	Pre req
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	*
MEM10001	Erect structures	4	*
MEM10010	Install pipework and pipework assemblies	4	*
MEM11001	Erect/dismantle scaffolding and equipment	4	*
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	*
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	*
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	*

Unit code	Unit title	P	Pre req
MEM18011	Shut down and isolate machines/equipment	2	*
MEM18055	Dismantle, replace and assemble engineering components	3	*
MEM24001B	Perform basic penetrant testing	2	*
MEM24003B	Perform basic magnetic particle testing	2	*
MEM24007B	Perform ultrasonic thickness testing	2	*
MSMENV472	Implement and monitor environmentally sustainable work practices	4	
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 1. Supersedes and is equivalent to MEM30305 Certificate III in Engineering - Fabrication Trade

Links

Companion Volume implementation guides are found in VETNet - https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2