VICTORIAN PURCHASING GUIDE

MEM MANUFACTURING AND ENGINEERING TRAINING PACKAGE RELEASE 4.1

AUGUST 2023

VICTORIA State Government | Jobs, Skills, Industry and Regions

Disclaimer

In compiling the information contained in and accessed through this resource, the Department of Jobs, Skills, Industry and Regions (DJSIR), has used its best endeavours to ensure that the information is correct and current at the time of publication but takes no responsibility for any error, omission, or defect therein.

To the extent permitted by law, DJSIR, its employees, agents and consultants exclude all liability for any loss or damage (including indirect, special or consequential loss or damage) arising from the use of, or reliance on the information contained herein, whether caused or not by any negligent act or omission. If any law prohibits the exclusion of such liability, DJSIR limits its liability to the extent permitted by law, for the resupply of the information.

Third party sites

This resource may contain links to third party websites and resources. DJSIR is not responsible for the condition or content of these sites or resources as they are not under its control.

Third party material linked from this resource is subject to the copyright conditions of the third party. Users will need to consult the copyright notice of the third-party sites for conditions of usage.

VICTORIAN PURCHASING GUIDE – RELEASE HISTORY

Note: RTOs should refer to the National Register for the detail of changes in each Release.

Training Package Release	Date VPG Approved	Comments
Release 4.1	18 August 2023	This VPG reflects an approved change to the Maximum Payable Hours for the MEM31922 Certificate III in Engineering - Fabrication Trade
Release 4.0	21 April 2023	Summary of Release 4.0 changes: • 6 new qualifications • 28 new Units of Competency (UoCs).
Release 3.0	20 February 2023	Summary of Release 3.0 changes: • 1 new qualification • 16 revised qualifications with a code change including one qualification previously in the LMT training package • 27 new Units of Competency (UoCs) • 323 revised UoCs with a code change including 222 UoCs from MEM05 Metal and Engineering Training Package and 35 UoCs previously in the MSA07 Manufacturing Training Package
Release 2.0	13 August 2019	Summary of Release 2.0 changes: • 4 new qualifications • 13 transitioned/reviewed qualifications • 1 updated qualification - MEM31219 • replacement out-of-date imported units in MEM31219 Certificate in III in Engineering - Industrial Electrician • 19 new units of competence • 446 transitioned units of competence
Release 1.0	22 June 2015	Initial Release of the MEM Manufacturing and Engineering Training Package

TABLE OF CONTENTS

INTRODUCTION

What is a Victorian Purchasing Guide?

The Victorian Purchasing Guide provides information for use by Registered Training Organisations (RTOs) in the provision of Victorian government subsidised training.

Specifically, the Victorian Purchasing Guide provides the following information related to the delivery of nationally endorsed Training Packages in Victoria:

- The maximum and minimum payable hours available for each qualification.

- Nominal hours for each unit of competency within the Training Package.

Registration

RTOs must be registered by either the Victorian Registration and Qualifications Authority (VRQA) or the Australian Skills Qualification Authority (ASQA) regulatory body to be eligible to issue qualifications and Statements of Attainment under the Australian Qualifications Framework (AQF).

The VRQA is the regulatory authority in Victoria responsible for the registration of Vocational Education and Training (VET) providers who offer courses to domestic students in Victoria only.

ASQA is the regulatory authority responsible for the registration of VET providers who offer training in Victoria, nationally and / or internationally.

Transition

The relationship between new units and any superseded or replaced units from the previous version of MEM Manufacturing and Engineering Training Package Release 4.0 is provided in the Training Package Companion Volume Implementation Guide. (See VETnet.gov.au for more information).

Information regarding transition arrangements can be obtained from the state or national VET Regulatory Authority (see Contacts and Links section).

RTOs must ensure that all training and assessment leading to issuance of qualifications or Statements of Attainment from the MEM Manufacturing and Engineering Training Package Release 4.0 is conducted against the Training Package units of competency and complies with the assessment requirements.

QUALIFICATIONS

Code	Title	Minimum Payable Hours	Maximum Payable Hours
MEM10119	Certificate I in Engineering	190	200
MEM10222	Certificate I in Boating Services	238	250
MEM20219	Certificate II in Engineering - Production Technology	665	700
MEM20322	Certificate II in Boating Services	323	340
MEM20422	Certificate II in Engineering Pathways	399	420
MEM30119	Certificate III in Engineering - Production Systems	950	1000
MEM30219	Certificate III in Engineering - Mechanical Trade	950	1000
MEM30422	Certificate III in Engineering - Electronic Trade	912	960
MEM30522	Certificate III in Engineering - Technical	409	430
MEM30619	Certificate III in Jewellery Manufacture	950	1000
MEM30719	Certificate III in Marine Craft Construction	950	1000
MEM30819	Certificate III in Locksmithing	950	1000
MEM30919	Certificate III in Boating Services	608	640
MEM31019	Certificate III in Watch and Clock Service and Repair	950	1000
MEM31119	Certificate III in Engineering - Composites Trade	950	1000
MEM31219	Certificate III in Engineering - Industrial Electrician	1045	1100
MEM31322	Certificate III in Refrigeration and Air Conditioning	950	1000
MEM31419	Certificate III in Engineering - Fixed and Mobile Plant Mechanic	950	1000
MEM31519	Certificate III in Engineering - Toolmaking Trade	1064	1120
MEM31622	Certificate III in Engineering - Patternmaking Trade	1074	1130
MEM31719	Certificate III in Engineering - Casting and Moulding Trade	950	1000
MEM31822	Certificate III in Engineering - Textile Mechanic	912	960
MEM31922	Certificate III in Engineering - Fabrication Trade	1017	1070
MEM40119	Certificate IV in Engineering	1292	1360
MEM40222	Certificate IV in Boating Services	846	890
MEM40322	Certificate IV in Advanced Jewellery Manufacture	1292	1360
MEM40422	Certificate IV in Engineering Drafting	713	750
MEM50119	Diploma of Engineering - Advanced Trade	1539	1620
MEM50222	Diploma of Engineering - Technical	1235	1300
MEM50322	Diploma of Jewellery and Object Design	969	1020
MEM50422	Diploma of Engineering - Non-Destructive Testing	1235	1300
MEM50522	Diploma of Engineering - Materials	1406	1480
MEM50622	Diploma of Engineering - Prototyping	1340	1410

Code	Title	Minimum Payable Hours	Maximum Payable Hours
MEM50722	Diploma of Engineering - Planning	1321	1390
MEM50822	Diploma of Applied Technologies	1150	1210
MEM60122	Advanced Diploma of Engineering	1805	1900
MEM60222	Advanced Diploma of Jewellery and Object Design	1596	1680
MEM60322	Advanced Diploma of Engineering - Planning	1815	1910
MEM80122	Graduate Diploma of Engineering	599	630

UNITS OF COMPETENCY AND NOMINAL HOURS

Unit Code	Unit Title	Nominal Hours
MEM03001	Perform manual production assembly	40
MEM03002	Perform precision assembly	40
MEM03003	Perform sheet and plate assembly	40
MEM03004	Perform electronic/electrical assembly (production)	80
MEM03005	Rework and repair (electrical/electronic production)	80
MEM03006	Set assembly stations	20
MEM04001	Operate melting furnaces	40
MEM04002	Perform gravity die casting	20
MEM04003	Operate pressure die casting machine	20
MEM04004	Prepare and mix sand for metal moulding	40
MEM04006	Operate sand moulding and core making machines	80
MEM04007	Pour molten metal	40
MEM04008	Fettle and trim metal castings/forgings	40
MEM04018	Perform general woodworking machine operations	40
MEM04019	Perform refractory installation and repair	40
MEM04020	Supervise individual ferrous melting and casting operation	40
MEM04021	Supervise individual non-ferrous melting and casting operation	40
MEM04022	Examine appropriateness of methoding for mould design	40
MEM04023	Undertake prescribed tests on foundry-related materials	40
MEM04024	Produce moulds and cores by hand	40
MEM04025	Produce moulds and cores by hand (advanced)	120
MEM04026	Develop and manufacture spur gear patterns	20
MEM04027	Develop and manufacture bevel gear patterns	20
MEM04028	Develop and manufacture chain gear and sprocket patterns	20
MEM04029	Develop and manufacture conveyor screw patterns	20
MEM04030	Develop and manufacture propeller patterns	30
MEM04031	Develop and manufacture flat back wood patterns	40
MEM04032	Develop and manufacture irregular joint wood patterns	40
MEM04033	Develop and manufacture turned wood patterns	40
MEM04034	Develop and manufacture wooden wheel patterns	40
MEM04035	Develop and manufacture pipe patterns	40
MEM04036	Maintain patterns	40
MEM04037	Develop and manufacture split patterns	20
MEM04038	Produce polymer patterns	80
MEM04039	Assemble plated patterns	80

Unit Code	Unit Title	Nominal Hours
MEM04040	Develop and manufacture polystyrene patterns	20
MEM04041	Develop and manufacture production patterns	80
MEM04042	Develop and manufacture vacuum forming moulds and associated equipment	60
MEM04043	Develop and manufacture precision models	60
MEM05001	Perform manual soldering/desoldering - electrical/electronic components	40
MEM05002	Perform high reliability soldering and desoldering	40
MEM05003	Perform soft soldering	20
MEM05004	Perform routine oxy fuel gas welding	20
MEM05005	Carry out mechanical cutting	20
MEM05006	Perform brazing and/or silver soldering	20
MEM05007	Perform manual heating and thermal cutting	20
MEM05009	Perform automated thermal cutting	20
MEM05010	Apply fabrication, forming and shaping techniques	80
MEM05012	Perform routine manual metal arc welding	20
MEM05013	Perform manual production welding	20
MEM05014	Monitor quality of production welding/fabrications	20
MEM05027	Perform aluminothermic welding	20
MEM05037	Perform geometric development	60
MEM05038	Perform advanced geometric development - cylindrical/rectangular	20
MEM05039	Perform advanced geometric development - conical	20
MEM05040	Perform advanced geometric development - transitions	40
MEM05049	Perform routine gas tungsten arc welding	20
MEM05050	Perform routine gas metal arc welding	20
MEM05052	Apply safe welding practices	40
MEM05056	Perform routine flux core arc welding	20
MEM05057	Perform routine submerged arc welding	20
MEM05059	Perform advanced welding using submerged arc welding	40
MEM05060	Perform welds to code standards using submerged arc welding process	40
MEM05061	Apply basic metallurgy principles to welding applications	60
MEM05062	Apply welding and welding related codes and standards	20
MEM05063	Write and proof robotic welding system programs	60
MEM05064	Establish and maintain a weld record management system	20
MEM05065	Maintain weld records	20
MEM05066	Develop and maintain welding procedures	60

Unit Code	Unit Title	Nominal Hours
MEM05067	Establish and maintain a welding procedure management system	40
MEM05068	Apply welding procedure specifications	60
MEM05069	Undertake advanced weld repair and maintenance	60
MEM05070	Write and proof programs for NC/CNC thermal cutting machines	60
MEM05071	Perform advanced manual thermal cutting, gouging and shaping	20
MEM05072	Perform advanced welding using manual metal arc welding process	60
MEM05073	Perform advanced welding using gas metal arc welding process	60
MEM05074	Perform advanced welding using gas tungsten arc welding process	60
MEM05075	Perform advanced welding using oxy acetylene welding process	60
MEM05076	Perform welding supervision	80
MEM05077	Perform welding inspection	120
MEM05078	Apply welding principles	40
MEM05079	Perform welds to code standards using flux core arc welding process	60
MEM05080	Perform welds to code standards using gas metal arc welding process	60
MEM05081	Perform welds to code standards using gas tungsten arc welding process	60
MEM05082	Perform pipe welds to code standards using manual metal arc welding process	60
MEM05083	Perform welds to code standards using manual metal arc welding process	60
MEM05084	Perform advanced welding using flux core arc welding process	40
MEM05085	Select welding processes	20
MEM05086	Set and edit computer controlled thermal cutting machines	40
MEM05087	Write basic NC/CNC programs for thermal cutting machines	40
MEM05088	Perform welds to code standards using oxy fuel gas welding process	60
MEM05089	Assemble fabricated components	80
MEM05090	Weld using manual metal arc welding process	40
MEM05091	Weld using gas metal arc welding process	40
MEM05092	Weld using gas tungsten arc welding process	40
MEM05093	Weld using submerged arc welding process	40
MEM05094	Repair, replace and/or modify fabrications	40
MEM05095	Weld using flame powder spraying	40
MEM05096	Weld using flux core arc welding process	40
MEM05097	Weld using oxy fuel gas welding process	40

Unit Code	Unit Title	Nominal Hours
MEM06001	Perform hand forging	40
MEM06002	Perform hammer forging	40
MEM06003	Carry out heat treatment	60
MEM06004	Select heat treatment processes and test finished product	60
MEM06005	Perform drop and upset forging	40
MEM06006	Repair springs	40
MEM06007	Perform basic incidental heat/quenching, tempering and annealing	20
MEM06008	Hammer forge complex shapes	40
MEM06009	Hand forge complex shapes	40
MEM07001	Perform operational maintenance of machines/equipment	20
MEM07002	Perform precision shaping/planing/slotting operations	40
MEM07003	Perform routine machine setting	40
MEM07004	Perform complex machine setting	80
MEM07005	Perform general machining	80
MEM07006	Perform lathe operations	40
MEM07007	Perform milling operations	40
MEM07008	Perform grinding operations	40
MEM07009	Perform precision jig boring operations	40
MEM07010	Perform tool and cutter grinding operations	40
MEM07011	Perform complex milling operations	40
MEM07012	Perform complex grinding operations	40
MEM07013	Perform machining operations using horizontal and vertical boring machines	40
MEM07014	Perform electro-discharge machining (EDM) operations	40
MEM07015	Set computer controlled machines and processes	20
MEM07016	Set and edit computer controlled machines and processes	40
MEM07018	Write basic NC and CNC programs	40
MEM07019	Program NC and CNC machining centre	20
MEM07020	Program multiple spindle and multiple axis NC and CNC machining centre	20
MEM07021	Perform complex lathe operations	40
MEM07022	Program CNC wire cut machines	20
MEM07023	Program and set up CNC manufacturing cell	60
MEM07024	Operate and monitor machine and process	40
MEM07025	Perform advanced machine and process operation	60
MEM07026	Perform advanced plastic processing	60

Unit Code	Unit Title	Nominal Hours
MEM07027	Perform advanced press operations	60
MEM07028	Operate computer controlled machines and processes	20
MEM07029	Perform routine sharpening and maintenance of production tools and cutters	40
MEM07030	Perform basic metal spinning lathe operations	80
MEM07031	Perform complex metal spinning lathe operations	40
MEM07032	Use workshop machines for basic operations	20
MEM07033	Operate and monitor basic boiler	60
MEM07039	Write programs for industrial robots	40
MEM07040	Set multistage integrated processes	40
MEM07041	Perform production machining	80
MEM07042	Undertake corrections and basic maintenance to aluminium extrusion dies and die support systems	40
MEM07043	Identify causes of faulty aluminium extrusions	60
MEM07044	Test a new aluminium extrusion die	40
MEM08001	Perform wire, jig and barrel load/unload work	40
MEM08002	Pre-treat work for subsequent surface coating	40
MEM08003	Perform electroplating operations	60
MEM08004	Finish work using wet, dry and vapour deposition methods	40
MEM08005	Prepare and produce specialised coatings	40
MEM08006	Produce clear and/or coloured and/or sealed anodised films on aluminium	20
MEM08007	Control surface finish production and finished product quality	40
MEM08008	Operate and control surface finishing waste treatment process	30
MEM08009	Make up solutions	20
MEM08010	Manually finish/polish materials	60
MEM08011	Prepare surfaces using solvents and/or mechanical means	20
MEM08012	Prepare surfaces by abrasive blasting (basic)	40
MEM08013	Prepare surfaces by abrasive blasting (advanced)	40
MEM08014	Apply protective coatings (basic)	40
MEM08015	Apply protective coatings (advanced)	40
MEM08016	Control blast coating by-products, materials and emissions	10
MEM08018	Electroplate engineering coatings	60
MEM08019	Electroplate protective finishes	60
MEM08020	Electroplate decorative finishes	60
MEM09002	Interpret technical drawing	40
MEM09003	Prepare basic engineering drawing	80

Unit Code	Unit Title	Nominal Hours
MEM09004	Perform electrical or electronic detail drafting	80
MEM09005	Perform basic engineering detail drafting	80
MEM09006	Perform advanced engineering detail drafting	40
MEM09007	Perform advanced mechanical detail drafting	40
MEM09008	Perform advanced structural detail drafting	40
MEM09009	Create 2-D drawings using computer-aided design system	80
MEM09010	Create 3-D models using computer-aided design system	40
MEM09011	Apply basic engineering design concepts	60
MEM09021	Interpret and produce drawings of curved 3-D shapes	40
MEM09022	Create 2-D code files using computer-aided manufacturing system	40
MEM09023	Create 3-D code files using computer-aided manufacturing system	60
MEM09155	Prepare mechanical models for computer-aided engineering (CAE)	60
MEM09156	Prepare mechatronic models for computer-aided engineering (CAE)	60
MEM09157	Perform mechanical engineering design drafting	80
MEM09158	Perform mechatronics engineering design drafting	80
MEM09201	Work effectively in an engineering drafting workplace	20
MEM09202	Produce freehand sketches	40
MEM09203	Measure and sketch site information	40
MEM09204	Produce basic engineering detail drawings	80
MEM09205	Produce electrical schematic drawings	80
MEM09206	Produce drawings for mechanical services	60
MEM09207	Produce drawings for reticulated services	60
MEM09208	Detail fasteners and locking devices in mechanical drawings	40
MEM09209	Detail bearings, seals and other componentry in mechanical drawings	40
MEM09210	Create 3D solid models using computer-aided design (CAD) system	80
MEM09211	Produce drawings or models for industrial piping	60
MEM09212	Produce detailed drawings of steel to non-steel connections	60
MEM09213	Produce schematic drawings for hydraulic and pneumatic fluid power systems	60
MEM09214	Perform advanced engineering detail drafting	80
MEM09215	Supervise detail drafting projects	40
MEM09216	Interpret and produce curved 3D shapes and patterns	40
MEM09217	Prepare plans for pipe and duct fabrication	40

Unit Code	Unit Title	Nominal Hours
MEM09218	Participate in drafting projects for building services	40
MEM09219	Prepare drawings for fabricated sheet metal products	40
MEM09220	Apply surface modelling techniques to 3D drawings	80
MEM09221	Create 3D model assemblies using computer-aided design (CAD) system	80
MEM09222	Interpret and maintain or restore original drawings	20
MEM09223	Interpret design specifications for structural steel detailing	40
MEM09224	Detail bolts and welds for structural steelwork connections	20
MEM09225	Detail standardised structural connections	60
MEM09226	Detail structural steel members	80
MEM09227	Establish structural steel detailing project arrangements	60
MEM09228	Detail ancillary steelwork	40
MEM09229	Read and interpret technical engineering drawings	40
MEM10002	Terminate and connect electrical wiring	30
MEM10003	Install and test electrical wiring and circuits up to 1000 volts a.c. and 1500 volts d.c.	120
MEM10004	Enter and change programmable controller operational parameters	20
MEM10005	Commission programmable controller programs	40
MEM10006	Install machine/plant	40
MEM10007	Modify control systems	60
MEM10008	Undertake commissioning procedures for plant and/or equipment	40
MEM10009	Install refrigeration and air conditioning plant and equipment	40
MEM10010	Install pipework and pipework assemblies	40
MEM10011	Terminate and connect specialist cables	30
MEM10012	Erect structures	40
MEM10013	Install split air conditioning systems and associated pipework	60
MEM10016	Terminate and test electrical wiring and accessories	40
MEM10018	Select cable types and sizes to suit loads and electrical installation environment	40
MEM10019	Select circuit protection devices by type and rating, fit to switchboards and install earthing	40
MEM10020	Install low voltage cabling and fit-off accessories, appliances and equipment	40
MEM10021	Inspect, test and verify electrical installations	40
MEM10022	Commission and decommission high and low voltage equipment or installations	40
MEM10023	Design and connect control switching of circuits for building services and industrial equipment	40

Unit Code	Unit Title	Nominal Hours
MEM10024	Install and troubleshoot luminaires and ancillary equipment	40
MEM10025	Undertake a capstone assessment	10
MEM11001	Erect/dismantle scaffolding and equipment	40
MEM11002	Erect/dismantle intermediate scaffolding and equipment	40
MEM11003	Coordinate erection/dismantling of complex scaffolding/equipment	40
MEM11004	Undertake dogging	40
MEM11005	Pick and process order	40
MEM11006	Perform production packaging	20
MEM11007	Administer inventory procedures	40
MEM11008	Package materials (stores and warehouse)	20
MEM11009	Handle/move bulk fluids/gases	40
MEM11010	Operate mobile load shifting equipment	40
MEM11011	Undertake manual handling	20
MEM11012	Purchase materials	60
MEM11013	Undertake warehouse receival process	40
MEM11014	Undertake warehouse dispatch process	40
MEM11015	Manage warehouse inventory system	40
MEM11016	Order materials	20
MEM11017	Organise and lead stocktakes	40
MEM11018	Organise and maintain warehouse stock receival and dispatch system	60
MEM11019	Undertake tool store procedures	40
MEM11020	Perform advanced warehouse computer operations	40
MEM11021	Perform advanced operation of load shifting equipment	20
MEM11022	Operate fixed/moveable load shifting equipment	40
MEM11023	Operate a bridge and gantry crane	10
MEM11024	Undertake basic rigging	10
MEM11025	Operate a non-slewing mobile crane of greater than three tonnes capacity	10
MEM12001	Use comparison and basic measuring devices	20
MEM12002	Perform electrical/electronic measurement	20
MEM12003	Perform precision mechanical measurement	20
MEM12004	Perform precision electrical/electronic measurement	40
MEM12005	Calibrate measuring equipment	60
MEM12006	Mark off/out (general engineering)	40
MEM12007	Mark off/out structural fabrications and shapes	40

Unit Code	Unit Title	Nominal Hours
MEM12019	Measure components using coordinate measuring machines	40
MEM12020	Set and operate coordinate measuring machines	20
MEM12021	Program coordinate measuring machines	40
MEM12022	Program coordinate measuring machines (advanced)	20
MEM12023	Perform engineering measurements	30
MEM12024	Perform computations	30
MEM12025	Use graphical techniques and perform simple statistical computations	20
MEM12026	Perform advanced trade calculations in a manufacturing, engineering or related environment	40
MEM13001	Perform emergency first aid	10
MEM13003	Work safely with industrial chemicals and materials	20
MEM13004	Work safely with molten metals/glass	20
MEM13006	Collect and evaluate work health and safety data for an enterprise or section of an enterprise	40
MEM13007	Maintain water treatment systems for cooling towers	20
MEM13015	Work safely and effectively in manufacturing and engineering	40
MEM13016	Work in hazardous areas	20
MEM13017	Apply safety practices, procedures and compliance standards associated with licensed electrical work	20
MEM13018	Work safely with ionizing radiation	40
MEM13019	Undertake work health and safety activities in the workplace	30
MEM13020	Supervise work health and safety in an industrial work environment	40
MEM14001	Schedule material deliveries	80
MEM14002	Undertake basic process planning	80
MEM14003	Undertake production scheduling	80
MEM14006	Plan work activities	40
MEM14085	Apply mechanical engineering analysis techniques	60
MEM14086	Apply mechatronic engineering analysis techniques	60
MEM14087	Apply manufactured product design techniques	60
MEM14088	Apply maintenance engineering techniques to equipment and component repairs and modifications	80
MEM14089	Integrate mechanical fundamentals into an engineering task	60
MEM14090	Integrate mechatronic fundamentals into an engineering task	60
MEM14091	Integrate manufacturing fundamentals into an engineering task	60
MEM14092	Integrate maintenance fundamentals into an engineering task	60
MEM15001	Perform basic statistical quality control	20
MEM15003	Use improvement processes in team activities	40

Unit Code	Unit Title	Nominal Hours
MEM15004	Perform inspection	20
MEM15005	Select and control inspection processes and procedures	40
MEM15007	Conduct product and/or process capability studies	60
MEM15008	Perform advanced statistical quality control	20
MEM15010	Perform laboratory procedures	80
MEM15011	Exercise external quality assurance	60
MEM15012	Maintain/supervise the application of quality procedures	40
MEM15015	Examine trading practices	50
MEM15016	Inspect pre-packed articles	80
MEM15017	Use and maintain reference standards	30
MEM15018	Investigate consumer complaints	60
MEM15019	Conduct a field inspection	120
MEM15020	Perform inspection of measuring instruments	120
MEM15021	Conduct audits of servicing licensees and public weighbridge licensees	40
MEM15022	Verify reference standards	80
MEM16001	Give formal presentations and take part in meetings	20
MEM16002	Conduct formal interviews and negotiations	40
MEM16003	Provide advanced customer service	20
MEM16004	Perform internal/external customer service	20
MEM16005	Operate as a team member to conduct manufacturing, engineering or related activities	20
MEM16006	Organise and communicate information	20
MEM16008	Interact with computing technology	20
MEM16009	Research and analyse engineering information	20
MEM16010	Write reports	20
MEM16011	Communicate with individuals and small groups	20
MEM16012	Interpret technical specifications and manuals	40
MEM16013	Operate in a self-directed team	20
MEM16014	Report technical information	20
MEM17001	Assist in development and deliver training in the workplace	20
MEM17002	Conduct workplace assessment	20
MEM17003	Assist in the provision of on-the-job training	20
MEM18001	Use hand tools	20
MEM18002	Use power tools/hand held operations	20
MEM18003	Use tools for precision work	40
MEM18004	Maintain and overhaul mechanical equipment	40

Unit Code	Unit Title	Nominal Hours
MEM18005	Perform fault diagnosis, installation and removal of bearings	40
MEM18006	Perform precision fitting of engineering components	60
MEM18007	Maintain and repair mechanical drives and mechanical transmission assemblies	40
MEM18008	Balance equipment	20
MEM18009	Perform precision levelling and alignment of machines and engineering components	40
MEM18010	Perform equipment condition monitoring and recording	40
MEM18011	Shut down and isolate machines/equipment	20
MEM18012	Perform installation and removal of mechanical seals	20
MEM18013	Perform gland packing	20
MEM18014	Manufacture press tools and gauges	80
MEM18015	Maintain tools and dies	40
MEM18016	Analyse plant and equipment condition monitoring results	40
MEM18017	Modify mechanical systems and equipment	80
MEM18018	Maintain pneumatic system components	40
MEM18019	Maintain pneumatic systems	40
MEM18020	Maintain hydraulic system components	40
MEM18021	Maintain hydraulic systems	40
MEM18022	Maintain fluid power controls	80
MEM18023	Modify fluid power system operation	80
MEM18045	Fault find and repair electrical equipment/components up to 250 volts single phase supply	40
MEM18046	Fault find and repair electrical equipment/components up to 1000 volts a.c./1500 volts d.c.	100
MEM18048	Fault find and repair/rectify basic electrical circuits	120
MEM18049	Disconnect/reconnect fixed wired equipment up to 1000 volts a.c./1500 volts d.c.	30
MEM18050	Disconnect/reconnect fixed wired equipment over 1000 volts a.c./1500 volts d.c.	30
MEM18051	Fault find and repair/rectify complex electrical circuits	60
MEM18053	Modify fluid power control systems	60
MEM18054	Fault find, test and calibrate instrumentation systems and equipment	80
MEM18055	Dismantle, replace and assemble engineering components	30
MEM18056	Diagnose and repair analog equipment and components	100
MEM18057	Maintain/service analog/digital electronic equipment	60
MEM18058	Modify electronic equipment	40
MEM18059	Modify electronic systems	40

Unit Code	Unit Title	Nominal Hours
MEM18060	Maintain, repair control instrumentation - single and multiple loop control systems	80
MEM18061	Maintain/calibrate complex control systems	80
MEM18062	Install, maintain and calibrate instrumentation sensors, transmitters and final control elements	80
MEM18063	Terminate signal and data cables	40
MEM18064	Maintain instrumentation system components	60
MEM18065	Diagnose and repair digital equipment and components	100
MEM18066	Diagnose and repair microprocessor-based equipment	60
MEM18067	Tune control loops - multi controller or multi element systems	60
MEM18069	Maintain, repair instrumentation process control analysers	60
MEM18070	Modify complex electrical circuits and systems	60
MEM18071	Connect and disconnect fluid conveying system components	20
MEM18072	Manufacture fluid conveying conductor assemblies	40
MEM18083	Handle fluorocarbon refrigerants according to regulations	20
MEM18084	Commission and decommission split air conditioning systems	40
MEM18085	Install, service and repair domestic air conditioning and refrigeration appliances	60
MEM18086	Test, recover, evacuate and charge refrigeration systems	40
MEM18087	Service and repair domestic and light commercial refrigeration and air conditioning equipment	60
MEM18088	Maintain and repair commercial air conditioning systems and components	40
MEM18089	Maintain and repair central air handling systems	60
MEM18090	Maintain and repair industrial refrigeration systems and components	60
MEM18091	Maintain and repair multistage, cascade and/or ultra-cold industrial refrigeration systems	40
MEM18092	Maintain and repair commercial and/or industrial refrigeration and/or air conditioning controls	60
MEM18093	Maintain and repair integrated industrial refrigeration and/or large air handling system controls	80
MEM18094	Service and repair commercial refrigeration	60
MEM18095	Maintain and repair cooling towers/evaporative condensers and associated equipment	40
MEM18096	Maintain, repair/replace and adjust refrigerant flow controls and associated equipment	60
MEM18097	Manufacture cavity dies	80
MEM18098	Prepare to perform work associated with fuel system installation and servicing	20
MEM18100	Fault-find, test and rectify AC machines and circuits	40

Unit Code	Unit Title	Nominal Hours
MEM18102	Fault-find, test and rectify single and three-phase transformers	40
MEM18103	Fault-find, test and rectify electrical circuits and equipment	40
MEM18104	Dismantle, replace and assemble electrical components and equipment	40
MEM18105	Disconnect and reconnect high voltage fixed wired equipment	40
MEM18106	Terminate communication and data cables	40
MEM18108	Troubleshoot analog and digital electronic equipment	40
MEM18109	Troubleshoot instrumentation systems and equipment	40
MEM19001	Perform jewellery metal casting	60
MEM19002	Prepare jewellery illustrations	40
MEM19003	Handle gem materials	20
MEM19004	Handle and examine gemstone materials	60
MEM19005	Produce three-dimensional precision items	80
MEM19006	Replace watch batteries	10
MEM19007	Perform gemstone setting	60
MEM19008	Prepare jewellery designs	60
MEM19009	Perform investment procedures for lost wax casting process	10
MEM19010	Produce rubber moulds for lost wax casting process	20
MEM19011	Perform wax injection of moulds for lost wax casting process	20
MEM19012	Produce jewellery wax model	40
MEM19013	Produce jewellery metal masters	40
MEM19014	Perform hand engraving	40
MEM19015	Perform jewellery enamelling	40
MEM19016	Construct jewellery components	40
MEM19017	Fabricate jewellery items	60
MEM19018	Repair jewellery items	60
MEM19020	Fault find and maintain micro-mechanisms	40
MEM19021	Diagnose and service micro-mechanisms	60
MEM19022	Perform precision micro-mechanism diagnosis and servicing	60
MEM19023	Apply drawing and rendering techniques to jewellery or object design	40
MEM19024	Use computer-aided design (CAD) to create and display 3D jewellery or object models	40
MEM19025	Create and present designs for jewellery or other 3D objects	40
MEM19026	Investigate quality and application of jewellery materials	20
MEM19027	Produce life drawings for presenting jewellery or object designs	60
MEM19028	Select materials and new technologies for jewellery or 3D object design applications	40

Unit Code	Unit Title	Nominal Hours
MEM19029	Produce a professional jewellery design or 3D object portfolio	60
MEM19030	Research and recommend sustainable design improvements	40
MEM19031	Produce renderings and technical drawings for jewellery or object design construction	40
MEM19032	Design and implement mechanisms in jewellery items	60
MEM19033	Create silversmithing objects	60
MEM19034	Apply chain manufacture process	40
MEM19035	Plan and apply casting techniques for jewellery or object designs	40
MEM19036	Use specialised techniques to produce jewellery or objects	80
MEM19037	Plan and implement chenier fabrication process	20
MEM19038	Apply traditional techniques to jewellery or 3D object production	60
MEM19039	Plan, conduct and supervise a jewellery or object exhibition or program	60
MEM19040	Create and manufacture jewellery or object design prototypes for the mass market	60
MEM19041	Experiment with jewellery or object designs	60
MEM19042	Render images using computer graphics software	60
MEM19043	Oversee jewellery or object design production	80
MEM19044	Repair and restore antique jewellery	40
MEM19045	Set gems in channel style settings	40
MEM19046	Apply grain setting techniques	40
MEM19047	Set gems in claw and bezel style settings	40
MEM19048	Develop and apply complex borders and decorations for hand engraving	60
MEM19049	Develop and apply heraldic designs for hand engraving	60
MEM19050	Hand carve engraving work	60
MEM19051	Construct multiple stone settings	40
MEM19052	Produce complex objects using silversmithing techniques	60
MEM19053	Create complex findings and mechanisms for jewellery items	60
MEM19054	Fabricate platinum jewellery items	40
MEM19057	Research the gemstone market and complete pre-cutting processes	30
MEM19058	Cut and polish solid gemstones	80
MEM19059	Complete pre-cutting processes for gemstone assemblies	30
MEM19060	Cut and polish a gemstone assembly	80
MEM19061	Carve and polish gemstones	80
MEM19062	Production cut and polish gemstones	40
MEM19063	Use a faceting machine	40

Unit Code	Unit Title	Nominal Hours
MEM19064	Cut gemstone spheres and beads	30
MEM19065	Obtain rough and polished gemstones	10
MEM19066	Identify the requirements for establishing a gemstone-cutting workshop	20
MEM19067	Apply advanced pre-cutting processes to complex gemstones	40
MEM20015	Produce hand cut keys	20
MEM20016	Produce keys by cutting to code	20
MEM20017	Produce keys by duplication	20
MEM20018	Identify and program transponder keys	20
MEM20019	Service automotive transponder systems using diagnostic equipment	20
MEM20020	Use EEPROM programmers to service automotive transponder systems	20
MEM20021	Perform a building security inspection	30
MEM20022	Modify and repair security equipment and systems	30
MEM20023	Assemble and test lock mechanisms	60
MEM20024	Install and upgrade locks and hardware	40
MEM20025	Gain entry	40
MEM20026	Install and maintain door control devices and systems	20
MEM20027	Maintain and service mechanical locking devices	60
MEM20028	Plan and prepare a master key system	60
MEM20029	Develop and implement a master key system	40
MEM20030	Gain entry and reinstate fire and security containers	40
MEM20031	Gain entry and reinstate automotive locking systems	40
MEM20032	Service and repair fire and security containers	60
MEM20033	Service and repair mechanical automotive locking systems	60
MEM20035	Perform a site security survey	20
MEM21001	Replace watch batteries, capacitors and bands	20
MEM21002	Perform watch movement exchange	20
MEM21003	Perform watch case servicing, repair and refurbishment	40
MEM21004	Clean watch and clock components	20
MEM21005	Diagnose faults in quartz watches	20
MEM21006	Service quartz watches	40
MEM21007	Service complex quartz watches	40
MEM21008	Service mechanical watches	40
MEM21009	Inspect, diagnose, adjust and repair mechanical watches	40
MEM21010	Service watch power generating systems	20

Unit Code	Unit Title	Nominal Hours
MEM21011	Service calendar and other dial indication mechanisms for watches	40
MEM21012	Service and repair mechanical watch oscillating systems	40
MEM21013	Service, test and adjust watch escapements	40
MEM21014	Service mechanical chronograph watches	60
MEM21015	Perform precision watch timing and adjustment	60
MEM21016	Install and set up clocks	20
MEM21017	Service and repair clock timepieces	60
MEM21018	Service clock escapements and oscillating systems	40
MEM21019	Service and repair clock striking mechanisms	40
MEM21020	Service and repair clock chiming mechanisms	60
MEM21021	Restore clockwork mechanisms	60
MEM21022	Manufacture watch and clock components	60
MEM21023	Plan, set up and operate horological workshop or service centre	40
MEM22001	Perform engineering activities	60
MEM22002	Manage self in the engineering environment	40
MEM22007	Manage environmental effects of engineering activities	60
MEM22012	Coordinate resources for an engineering project or operation	60
MEM22013	Coordinate engineering projects	60
MEM22014	Coordinate engineering-related manufacturing operations	60
MEM22015	Source and estimate engineering materials requirements	40
MEM22017	Coordinate continuous improvement and technical development	40
MEM22018	Coordinate sales and promotion of engineering-related products or services	60
MEM23003	Operate and program computers and/or controllers in engineering situations	80
MEM23004	Apply technical mathematics	80
MEM23005	Apply statistics and probability techniques to engineering tasks	40
MEM23006	Apply fluid and thermodynamics principles in engineering	80
MEM23007	Apply calculus to engineering tasks	80
MEM23008	Apply advanced algebra and numerical methods to engineering tasks	120
MEM23052	Apply basic electro and control scientific principles and techniques in aeronautical engineering	60
MEM23063	Select and organise mechanical engineering material tests	60
MEM23064	Select and organise mechatronic engineering material tests	60
MEM23086	Apply scientific principles and techniques in avionic engineering situations	60
MEM23109	Apply engineering mechanics principles	60

Unit Code	Unit Title	Nominal Hours
MEM23111	Select electrical equipment and components for engineering applications	60
MEM23112	Investigate electrical and electronic controllers in engineering applications	40
MEM23113	Evaluate hydrodynamic systems and system components	60
MEM23114	Evaluate thermodynamic systems and components	60
MEM23115	Evaluate fluid power systems	60
MEM23116	Evaluate programmable logic controller and related control system component applications	60
MEM23117	Evaluate microcontroller applications	60
MEM23118	Apply production and service control techniques	80
MEM23119	Evaluate continuous improvement processes	80
MEM23120	Select mechanical machine and equipment components	80
MEM23121	Analyse loads on frames and mechanisms	80
MEM23122	Evaluate computer integrated manufacturing systems	80
MEM23123	Evaluate manufacturing processes	60
MEM23124	Measure and analyse noise and vibration	60
MEM23125	Evaluate maintenance systems	60
MEM23126	Evaluate industrial robotic applications	60
MEM23129	Evaluate thermal loads for heating, ventilation, air conditioning and refrigeration	80
MEM23130	Coordinate servicing and fault-finding of HVACR control systems	60
MEM23131	Evaluate rapid prototyping applications	60
MEM23132	Evaluate rapid manufacturing processes	60
MEM23133	Evaluate rapid tooling applications	60
MEM23134	Evaluate jigs and fixtures	40
MEM23135	Evaluate moulding tools and processes	40
MEM23136	Evaluate stamping and forging tools	40
MEM23137	Evaluate rolling tools and processes	40
MEM23138	Evaluate suitability of materials for engineering-related applications	40
MEM23139	Design a basic single zone duct distribution system	40
MEM23140	Determine operational parameters for building HVAC hydronic systems	40
MEM23141	Complete a building thermal performance survey	80
MEM23142	Determine psychrometric processes and system performance	60
MEM23143	Apply energy management principles	80
MEM23144	Contribute to the design of a commercial refrigeration system	100
MEM23145	Apply codes and regulations to air conditioning designs	80

Unit Code	Unit Title	Nominal Hours
MEM23146	Contribute to the design of industrial refrigeration systems	80
MEM23147	Contribute to the design of hydronic systems	40
MEM23148	Develop energy management solutions	40
MEM23149	Contribute to the design of commercial and industrial exhaust systems	40
MEM23150	Contribute to the design of heating systems	40
MEM23151	Commission and optimise performance of HVACR systems	40
MEM23152	Apply principles of refrigeration food storage technology	40
MEM23153	Contribute to the design of heat exchanger systems	40
MEM23154	Analyse and service HVACR systems	80
MEM234001	Plan and manage engineering-related projects or operations	40
MEM234002	Integrate engineering technologies	40
MEM234003	Design machines and ancillary equipment	60
MEM234004	Design for engineering-related noise and vibration mitigation	60
MEM234005	Design hydrodynamic pumping systems	60
MEM234006	Evaluate and select thermodynamic systems or subsystems	40
MEM234007	Design fluid power systems	40
MEM234008	Design plant using computer simulations	40
MEM234009	Design computer-integrated manufacturing systems	60
MEM234010	Design microcontroller applications	40
MEM234011	Design programmable logic controller applications	60
MEM234012	Design integrated maintenance management systems	60
MEM234013	Plan and design engineering-related manufacturing processes	60
MEM234014	Design a robotic system	40
MEM234015	Design hydronic heat exchanger systems	40
MEM234016	Design refrigeration systems	40
MEM234017	Design exhaust, ventilation and dust collection systems	40
MEM234018	Design heating, ventilation, air conditioning and refrigeration control systems	60
MEM234019	Apply finite element analysis in engineering design	40
MEM234020	Coordinate small lot manufacture using rapid manufacture processes	40
MEM234021	Apply statistics to technology problems	40
MEM234022	Apply advanced calculus to technology problems	40
MEM234023	Apply differential equations to technology problems	40
MEM234024	Apply advanced mathematics to technology problems	40
MEM234025	Apply numerical methods to technology problems	40

Unit Code	Unit Title	Nominal Hours
MEM234026	Develop and coordinate engineering-related contingency plans	40
MEM234027	Plan and manage materials supply for an engineering project or manufacturing operation	40
MEM234028	Produce and manage technical documentation	40
MEM234029	Produce and manage technical publications	40
MEM234030	Provide specialised technical and engineering guidance to other technical employees	40
MEM234031	Manage installation, commissioning or modification of machines and equipment	60
MEM234032	Manage fluid power-related technologies in an organisation	40
MEM234033	Lead engineering-related quality operations in an organisation	40
MEM234034	Manage heating, ventilation, air conditioning and refrigeration systems or projects	40
MEM234035	Maintain and apply technical and engineering skills	40
MEM234036	Apply configuration management procedures in engineering project management	80
MEM234037	Perform maintenance-related integrated logistic support management activities	80
MEM234038	Apply systems engineering procedures to engineering design project management	80
MEM234039	Provide technical support for prototyping in large engineering and fabrication projects	40
MEM234040	Plan space allocation for large steel based fabrication and construction projects	40
MEM234041	Manage steel supply for major fabrication projects	40
MEM24001	Perform basic penetrant testing	20
MEM24002	Perform penetrant testing	40
MEM24003	Perform basic magnetic particle testing	20
MEM24004	Perform magnetic particle testing	40
MEM24005	Perform basic eddy current testing	20
MEM24006	Perform eddy current testing	60
MEM24007	Perform ultrasonic thickness testing	20
MEM24008	Perform ultrasonic testing	60
MEM24009	Perform basic radiographic testing	20
MEM24010	Perform radiographic testing	60
MEM24011	Establish non-destructive tests	120
MEM24012	Apply metallurgical principles	40
MEM24014	Perform thermography tests	100
MEM24015	Perform digital and computed radiography	60
MEM24016	Perform eddy current array tests	60

Victorian Purchasing Guide

MEM Manufacturing and Engineering Release 4.1

VICTORIA State Government | Jobs, Skills, Industry and Regions

Unit Code	Unit Title	Nominal Hours
MEM24017	Perform visual testing to non-destructive testing standards	100
MEM24018	Perform advanced ultrasonic testing	80
MEM24019	Apply codes and standards to non-destructive testing	20
MEM24020	Apply materials technology principles to non-destructive tests	60
MEM25001	Apply fibre-reinforced materials	20
MEM25002	Form and integrate fibre-reinforced structures	40
MEM25003	Set up marine vessel structures	40
MEM25004	Fair and shape surfaces	20
MEM25005	Construct and assemble marine vessel timber components	80
MEM25006	Undertake marine sheathing operations	20
MEM25007	Maintain marine vessel surfaces	40
MEM25008	Repair marine vessel surfaces and structures	40
MEM25009	Form timber shapes using hot processes	20
MEM25010	Perform fitout procedures	40
MEM25011	Install marine systems	80
MEM25012	Install and test operations of marine auxiliary systems	60
MEM25013	Produce three-dimensional plugs/moulds	120
MEM25014	Perform marine slipping operations	20
MEM25015	Assemble and install equipment and accessories/ancillaries	20
MEM26001	Lay up composites using open moulding techniques	60
MEM26002	Lay up composites using vacuum closed moulding techniques	60
MEM26003	Lay up composites using pressure closed moulding techniques	80
MEM26004	Make basic plugs for composites fabrication	30
MEM26005	Make basic moulds for composites fabrication	30
MEM26006	Mark and cut out sheets for composite use	40
MEM26007	Select and use reinforcing appropriate for product	40
MEM26008	Select and use resin systems appropriate for product	40
MEM26009	Select and use cores and fillers appropriate for product	20
MEM26010	Store and handle composite materials	20
MEM26011	Determine materials and techniques for a composite component or product	60
MEM26012	Record and trial work processes for one-off composite products	40
MEM26013	Select and use composite processes or systems appropriate for product	40
MEM26014	Adjust resin chemicals for current conditions	40
MEM26015	Select and apply repair techniques	60
MEM26016	Select and use joining techniques	60

VICTORIA State Government | Jobs, Skills, Industry and Regions

Unit Code	Unit Title	Nominal Hours
MEM26017	Prepare composite or other substrate surfaces	40
MEM26018	Organise composite trials	40
MEM26019	Finish a composite product	40
MEM26020	Identify and interpret required standards for composites	20
MEM27001	Maintain and repair stationary and mobile plant engine cooling systems	40
MEM27002	Test and repair compression ignition systems	40
MEM27003	Overhaul engine fuel system components	40
MEM27004	Maintain and repair engine lubrication systems	20
MEM27005	Tune diesel engines	40
MEM27006	Diagnose and rectify batteries, low voltage sensors and circuits	40
MEM27007	Diagnose and rectify low voltage starting systems	20
MEM27008	Maintain induction, exhaust and emission control systems	30
MEM27009	Diagnose and rectify braking systems	40
MEM27010	Diagnose and rectify low voltage charging systems	20
MEM27011	Maintain track type undercarriage on mobile plant	20
MEM27012	Maintain mobile plant suspension systems	40
MEM27013	Maintain steering systems	20
MEM27014	Diagnose and rectify automatic transmissions	20
MEM27015	Diagnose and rectify drive line and final drives	40
MEM27016	Diagnose and maintain electronic controlling systems on mobile and stationary plant	30
MEM27017	Maintain, fault find and rectify hydraulic systems for mobile plant	60
MEM27018	Test, diagnose and rectify mobile and stationary plant external monitoring and control systems	40
MEM27019	Diagnose, repair and replace diesel engines in stationary and mobile plant	50
MEM27020	Apply knowledge of large combustion engine operations to service and maintenance tasks	20
MEM27021	Maintain, fault find and repair stationary plant gas turbine engines	60
MEM27022	Maintain, fault find and repair traction drive mechanics	40
MEM27023	Diagnose and rectify fieldbus circuits in mobile and stationary plant and equipment	40
MEM27024	Diagnose and rectify mobile plant hydrostatic systems	40
MEM27025	Maintain, diagnose and rectify fluid power controls in mobile equipment	60
MEM27026	Service and repair mobile plant air conditioning systems	40
MEM27027	Install or modify mobile plant air conditioning systems	40
MEM27028	Diagnose and rectify manual transmissions	60

Jobs, Skills, Industry and Regions

Unit Code	Unit Title	Nominal Hours
MEM27029	Maintain wheels and tyres	40
MEM27030	Perform engine bottom-end overhaul	40
MEM27031	Perform engine top-end overhaul	80
MEM27032	Service combustion engines	20
MEM27033	Perform advanced equipment testing and diagnostics on mobile plant and equipment	80
MEM29001	Work in Industry 4.0	40
MEM29002	Commission a cyber-physical system	80
MEM29003	Apply CAD and CAM technologies in an Industry 4.0 workplace	80
MEM29004	Analyse and problem solve a PLC based industrial control system	100
MEM29005	Diagnose faults in digital control systems	80
MEM29006	Use a SCADA system to assist Industry 4.0 operations in manufacturing and engineering	100
MEM29007	Apply networking technology principles for manufacturing and engineering applications	90
MEM29008	Analyse and manage data in cloud-based systems	80
MEM29009	Prepare, configure and test collaborative robots for industrial operations	80
MEM29010	Plan and implement preventative maintenance procedures in an Industry 4.0 manufacturing workplace	80
MEM29011	Develop a business case for Industry 4.0 implementation in a workplace	60
MEM29012	Access and use a digital twin for operational purposes	50
MEM29013	Integrate sensors into digital manufacturing processes	50
MEM30005	Calculate force systems within simple beam structures	40
MEM30006	Calculate stresses in simple structures	40
MEM30007	Select common engineering materials	40
MEM30008	Apply basic economic and ergonomic concepts to evaluate engineering applications	40
MEM30009	Contribute to the design of basic mechanical systems	40
MEM30010	Set up basic hydraulic circuits	40
MEM30011	Set up basic pneumatic circuits	40
MEM30012	Apply mathematical techniques in a manufacturing engineering or related environment	40
MEM30013	Assist in the preparation of a basic workplace layout	20
MEM30014	Apply basic just in time systems to the reduction of waste	40
MEM30015	Develop recommendations for basic set up time improvements	20
MEM30016	Assist in the analysis of a supply chain	20
MEM30017	Use basic preventative maintenance techniques and tools	40

Unit Code	Unit Title	Nominal Hours
MEM30018	Undertake basic process planning	20
MEM30019	Use resource planning software systems in manufacturing	40
MEM30020	Develop and manage a plan for a simple manufacturing related project	30
MEM30021	Prepare a simple production schedule	20
MEM30022	Undertake supervised procurement activities	20
MEM30023	Prepare a simple cost estimate for a manufactured product	20
MEM30024	Participate in quality assurance techniques	30
MEM30025	Analyse a simple electrical system circuit	40
MEM30026	Select and test components for simple electronic switching and timing circuits	20
MEM30027	Prepare basic programs for programmable logic controllers	20
MEM30028	Assist in sales of technical products	20
MEM30029	Use workshop equipment and processes to complete an engineering project	60
MEM30031	Operate computer-aided design (CAD) system to produce basic drawing elements	40
MEM30032	Produce basic engineering drawings	80
MEM30033	Use computer-aided design (CAD) to create and display 3D models	40
MEM48001	Test the mechanical properties of materials	30
MEM48002	Monitor ferrous melting and casting processes	30
MEM48003	Monitor nonferrous melting and casting processes	30
MEM48004	Interpret basic binary phase diagrams	20
MEM48005	Apply basic knowledge of casting operations	30
MEM48006	Prepare and examine metallographic samples	40
MEM48007	Monitor and test sands, cores and moulds	40
MEM48008	Evaluate mould design and gating	40
MEM48009	Undertake and interpret results of chemical analysis on metal samples	50
MEM48010	Determine and supervise heat treatment of metal	40
MEM48011	Apply basic chemical principles to metallurgy	60
MEM48012	Calculate and predict chemical outcomes in metallurgical situations	40
MEM48013	Identify and select equipment for mineral and chemical processing plants	40
MEM48014	Recommend a refractory for an application	40
MEM48015	Select metal forming process	50
MEM48016	Select metal joining process	50

Unit Code	Unit Title	Nominal Hours
MEM48017	Monitor blast furnace operations	50
MEM48018	Monitor primary steel making process	50
MEM48019	Monitor secondary steel making operations	50
MEM48020	Recommend ferrous and nonferrous metals or alloys for an application	50
MEM48021	Apply metallurgical principles and techniques in welding and other thermal processes	60
MEM48022	Apply metallurgical principles and practice to determine metal forming and shaping processes	60
MEM48023	Apply metallurgical principles and practice to optimise furnace operation	60
MEM48024	Plan and complete metallurgical projects	40
MEM48025	Select surface treatment methods for metallic components or products	40
MEM48026	Analyse metallurgical failures of components and recommend preventative measures	60
MEM48027	Select non-metallic materials for engineering applications	60
MEM48028	Determine corrosion prevention strategies for metal and alloys	60
MEM48029	Interpret and produce complex binary phase diagrams	40
MEM48030	Apply materials selection analysis techniques	120
MEM48031	Select ceramic and glass materials for engineering and manufacturing applications	40
MEM48032	Select composite materials for engineering and manufacturing applications	80
MEM48033	Apply chemistry principles to materials used in manufacturing and engineering processes	80
MEM48034	Apply efficient materials management techniques to composite manufacturing operations	60
MEM50001	Classify recreational boating technologies and features	20
MEM50002	Work safely on marine craft	10
MEM50003	Follow work procedures to maintain the marine environment	10
MEM50004	Maintain quality of environment by following marina codes	10
MEM50005	Refuel vessels	40
MEM50006	Check operational capability of marine craft	40
MEM50007	Check operational capability of sails and sail operating equipment	20
MEM50008	Carry out trip preparation and planning	40
MEM50009	Safely operate a mechanically powered recreational boat	20
MEM50010	Respond to boating emergencies and incidents	40
MEMPE001	Use engineering workshop machines	60
MEMPE002	Use electric welding machines	40

Unit Code	Unit Title	Nominal Hours
MEMPE003	Use oxy-acetylene and soldering equipment	40
MEMPE004	Use fabrication equipment	40
MEMPE005	Develop a career plan for the engineering and manufacturing industries	20
MEMPE006	Undertake a basic engineering project	80
MEMPE007	Pull apart and re-assemble engineering mechanisms	30

CONTACTS AND LINKS

Curriculum Maintenance Manager (CMM) Service

Engineering Industries

The CMM Service is provided on behalf of Higher Education and Skills.

CMM Service Executive Officers can assist with questions on payable and nominal hours.

Steve Bryant
Box Hill Institute
465 Elgar Rd Box Hill, Vic. 3127
Phone: (03) 9286 9934 or 0479 184 251
Email: cmmei@boxhill.edu.au or steven.bryant@boxhill.edu.au

Manufacturing Jobs and Skills Council (JSC) – IBSA

The Manufacturing Jobs and Skills Council supports industry and training providers in manufacturing and engineering, light manufacturing including pharmaceuticals, print, food and advanced manufacturing, and emerging industries including space and defence technologies. IBSA Manufacturing is responsible for developing the MEM Manufacturing and Engineering Training Package and can be contacted for further information.

Address: Level 5, 534 Church Street, Cremorne, VIC 3121
Phone: 03 9815 7000
Email: manufacturing@ibsa.org.au
Website: www.ibsa.org.au

National Register of VET in Australia - Training.gov.au (TGA)

TGA is the Australian government's official National Register of information on Training Packages, qualifications, courses, units of competency and RTOs. See training.gov.au for more information.

Australian Government - Department of Employment and Workplace Relations (DEWR)

The Commonwealth Department is responsible for national policies and programmes that help Australians access quality vocational education and training. See Skills and Training - DEWR for more information.

State Government - Department of Jobs, Skills, Industry and Regions (DJSIR)

DJSIR (formerly Department of Education and Training) is the State Training Authority responsible for supporting implementation of Vocational Education and Training (VET) in Victoria. See djsir.vic.gov.au for more information. (03) 9637 2000

National VET Regulatory Authority - Australian Skills Quality Authority (ASQA)

ASQA is the national regulator for Australia's VET sector. Info line: 1300 701 801 See asqa.gov.au for more information.

State VET Regulatory Authority - Victorian Registration and Qualifications Authority (VRQA)

The VRQA is a statutory authority responsible for the registration and regulation of Victorian RTOs and for the regulation of apprenticeships and traineeships in Victoria. (03) 9637 2806 See vrqa.vic.gov.au

INDUSTRY REGULATORY BODIES

Energy Safe Victoria

The industry Regulatory body can provide advice on licensing, legislative or regulatory requirements which may impact on the delivery of training or the issuance of qualifications in this Training Package.

(03) 9203 9700
info@esv.vic.gov.au
See esv.vic.gov.au for further information.

Australian Refrigeration Council Ltd (ARC)

The industry Regulatory body can provide advice on licensing, legislative or regulatory requirements which may impact on the delivery of training or the issuance of qualifications in this Training Package.

Level 1
818 Whitehorse Road
Box Hill VIC 3128
1300 88 44 83
enquire@arctick.org
See arctick.org for further information

WorkSafe Victoria

The industry Regulatory body can provide advice on licensing, legislative or regulatory requirements which may impact on the delivery of training or the issuance of qualifications in this Training Package.

WorkSafe needs to provide written verification before high risk work units can be added to an RTO's scope of registration. info@worksafe.vic.gov.au See worksafe.vic.gov.au for further information.

222 Exhibition Street,
Melbourne 3000
(03) 9641 1444 or
1800 136 089 (toll free)

GLOSSARY

Code	Nationally endorsed Training Package qualification code.
Title	Nationally endorsed Training Package qualification title.
Unit Code	Nationally endorsed Training Package unit code.
Unit Title	Nationally endorsed Training Package unit title.
Maximum Payable Hours	The maximum number of hours the Victorian Government will subsidise under Skills First funding for the achievement of the minimum realistic vocational outcome of the qualification, as determined by the qualification packaging rules. The Maximum Payable Hours do not cover every possible combination of core and elective units available for a specific qualification. Minimum payable hours reflect a calculated minimum number of hours that could deliver a minimum realistic vocational outcome, based on efficiencies of contextualisation and integration.
Scope of Registration	Scope of registration specifies the AQF qualifications and/or units of competency the training organisation is registered to issue and the industry training and/or assessment services it is registered to provide.
Nominal Hours	Nominal hours reflect the anticipated time taken to deliver and assess the outcomes of a unit of competency excluding unsupervised delivery or the time taken for repeated practical application of skills. Nominal hours are determined by the Victorian State Training Authority (DJSIR) and are primarily developed for funding purposes in Victoria.