

National Metal and Engineering Industry Competency Standards (Training Package Version 4)

3 Assembly			
MEM03001B	Perform manual production assembly	4	
MEM03002B	Perform precision assembly	4	▲
MEM03003B	Perform sheet and plate assembly	4	▲
MEM03004B	Perform electronic/electrical assembly (production)	8	
MEM03005B	Rework and repair (electrical/electronic production)	8	▲
MEM03006B	Set assembly stations	2	▲
4 Casting and Moulding			
MEM04001B	Operate melting furnaces	4	▲
MEM04002B	Perform gravity die casting	2	▲
MEM04003B	Operate pressure die casting machine	4	▲
MEM04004B	Prepare and mix sand for metal moulding	4	
MEM04005C	Produce moulds and cores by hand (jobbing)	16	▲
MEM04006B	Operate sand moulding and core making machines	8	
MEM04007B	Pour molten metal	4	▲
MEM04008B	Fettle and trim metal castings/forgings	4	▲
MEM04010B	Develop and manufacture wood patterns	20	▲
MEM04011B	Produce polymer patterns	8	▲
MEM04012C	Assemble plated patterns	8	▲
MEM04013B	Develop and manufacture polystyrene patterns	2	▲
MEM04014B	Develop and manufacture production patterns	8	▲
MEM04015B	Develop and manufacture vacuum forming moulds and associated equipment	6	▲
MEM04016C	Develop and manufacture precision models	6	▲
MEM04017B	Develop and manufacture gear, conveyor screw and propeller patterns	4	▲
MEM04018B	Perform general woodworking machine operations	4	▲
MEM04019B	Perform refractory installation and repair	4	▲
MEM04020A	◆◆ Supervise individual ferrous melting and casting operation	4	▲
MEM04021A	◆◆ Supervise individual non ferrous melting and casting operation	4	▲
MEM04022A	◆◆ Examine appropriateness of methoding for mould design	4	▲
MEM04023A	◆◆ Undertake prescribed tests on foundry related materials	4	▲
5 Fabrication			
MEM05001B	Perform manual soldering/desoldering -electrical/electronic components	4	
MEM05002B	Perform high reliability soldering and desoldering	4	▲
MEM05003B	Perform soft soldering	2	
MEM05004C	Perform routine oxy acetylene welding	2	
MEM05005B	Carry out mechanical cutting	2	▲
MEM05006B	Perform brazing and/or silver soldering	2	
MEM05007C	Perform manual heating and thermal cutting	2	
MEM05008C	Perform advanced manual thermal cutting, gouging and shaping	2	▲
MEM05009C	Perform automated thermal cutting	2	▲
MEM05010C	Apply fabrication, forming and shaping techniques	8	▲
MEM05011D	Assemble fabricated components	8	▲
MEM05012C	Perform routine manual metal arc welding	2	
MEM05013C	Perform manual production welding	2	
MEM05014C	Monitor quality of production welding/fabrications	2	▲
MEM05015D	Weld using manual metal arc welding process	4	▲
MEM05016C	Weld using powder flame spraying	4	▲
MEM05017D	Weld using gas metal arc welding process	4	▲
MEM05018C	Perform advanced welding using gas metal arc welding process	4	▲
MEM05019D	Weld using gas tungsten arc welding process	4	▲
MEM05020C	Perform advanced welding using gas tungsten arc welding process	4	▲
MEM05022C	Perform advanced welding using oxy acetylene welding process	6	▲
MEM05023C	Weld using submerged arc welding process	4	▲
MEM05024B	■ Perform welding supervision	12	▲

MEM05025C	◆ Perform welding/fabrication inspection	12	▲
MEM05026C	◆◆ Apply welding principles	4	
MEM05036C	Repair/replace/modify fabrications	4	▲
MEM05037C	Perform geometric development	6	▲
MEM05038B	Perform advanced geometric development - cylindrical/rectangular	2	▲
MEM05039B	Perform advanced geometric development - conical	2	▲
MEM05040B	Perform advanced geometric development -transitions	4	▲
MEM05041B	Select heat treatment processes and test finished product	6	▲
MEM05042B	◆◆ Perform welds to code standards using flux core arc welding process	6	▲
MEM05043B	◆◆ Perform welds to code standards using gas metal arc welding process	6	▲
MEM05044B	◆◆ Perform welds to code standards using gas tungsten arc welding process	6	▲
MEM05045B	◆◆ Perform pipe welds to code standards using manual metal arc welding process	6	▲
MEM05046B	◆◆ Perform welds to code standards using manual metal arc welding process	6	▲
MEM05047B	Weld using flux core arc welding process	4	▲
MEM05048B	Perform advanced welding using flux core arc welding process	4	▲
MEM05049B	Perform routine gas tungsten arc welding	2	
MEM05050B	Perform routine gas metal arc welding	2	
MEM05051A	Select welding processes	2	
MEM05052A	Apply safe welding practices	4	
MEM05053A	◆◆ Set and edit computer controlled thermal cutting machines	4	▲
MEM05054A	◆◆ Write basic NC/CNC programs for thermal cutting machines	4	▲
6 Forging			
MEM06001B	Perform hand forging	4	▲
MEM06002B	Perform hammer forging	4	
MEM06003C	Carry out heat treatment	6	
MEM06004B	Select heat treatment processes and test finished product	6	▲
MEM06005B	Perform drop and upset forging	4	▲
MEM06006C	Repair springs	4	▲
MEM06007B	Perform basic incidental heat/quenching, tempering and annealing	2	
MEM06008A	Hammer forge complex shapes	4	▲
MEM06009A	Hand forge complex shapes	4	▲
7 Machine & Process Operations			
MEM07001B	Perform operational maintenance of machines/equipment	2	▲
MEM07002B	Perform precision shaping/planning/slotting operations	4	▲
MEM07003B	Perform machine setting (routine)	4	▲
MEM07004B	Perform machine setting (complex)	8	▲
MEM07005C	Perform general machining	8	▲
MEM07006C	Perform lathe operations	4	▲
MEM07007C	Perform milling operations	4	▲
MEM07008D	Perform grinding operations	4	▲
MEM07009B	Perform precision jig boring operations	4	▲
MEM07010B	Perform tool and cutter grinding operations	4	▲
MEM07011B	Perform complex milling operations	4	▲
MEM07012B	Perform complex grinding operations	4	▲
MEM07013B	Perform machining operations using horizontal and/or vertical boring machines	4	▲
MEM07014B	Perform electro-discharge machining operations (EDM)	4	▲
MEM07015B	Set computer controlled machines/processes	2	▲
MEM07016C	◆◆ Set and edit computer controlled machines/processes	4	▲
MEM07018C	◆◆ Write basic NC/CNC programs	4	▲
MEM07019C	◆◆ Program NC/CNC machining centre	2	▲
MEM07020C	◆◆ Program multiple spindle and/or multiple axis NC/CNC machining centre	2	▲
MEM07021B	Perform complex lathe operations	4	▲

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MEM07022C	♦♦ Program CNC wire cut machines	2	▲
MEM07023C	▣ Program and set up CNC manufacturing cell	6	▲
MEM07024B	Operate and monitor machine/process	4	
MEM07025B	Perform advanced machine/process operation	6	▲
MEM07025B	Perform advanced machine/process operation	6	▲
MEM07026B	Perform advanced plastic processing	6	▲
MEM07027B	Perform advanced press operations	6	▲
MEM07028B	Operate computer controlled machine/processes	2	▲
MEM07029B	Perform routine sharpening/maintenance of production tools and cutters	4	▲
MEM07030C	Perform metal spinning lathe operations (basic)	8	▲
MEM07031C	Perform metal spinning lathe operations (complex)	4	▲
MEM07032B	Use workshop machines for basic operations	2	▲
MEM07033B	Operate and monitor basic boiler	6	
MEM07034A	Operate and monitor intermediate class boiler	4	▲
MEM07039A	▣ Write programs for industrial robots	4	▲
MEM07040A	Set multistage integrated processes	6	▲

8 Surface Finishing

MEM08001B	Perform wire, jig and barrel load/unload work	4	
MEM08002C	Pre-treat work for subsequent surface coating	4	▲
MEM08003C	Perform electroplating operations	6	▲
MEM08004B	Finish work using wet, dry and vapour deposition methods	4	▲
MEM08005B	Prepare and produce specialised coatings	4	▲
MEM08006B	Produce clear and/or coloured and/or sealed anodised films on aluminium	2	▲
MEM08007B	Control surface finish production and finished product quality	4	
MEM08008B	Operate and control surface finishing waste treatment process	3	▲
MEM08009C	Make up solutions	2	▲
MEM08010B	Manually finish/polish materials	6	▲
MEM08011B	Prepare surfaces using solvents and/or mechanical means	2	▲
MEM08012B	Prepare surfaces by abrasive blasting (basic)	4	▲
MEM08013B	Prepare surfaces by abrasive blasting (advanced)	4	▲
MEM08014B	Apply protective coatings (basic)	4	▲
MEM08015B	Apply protective coatings (advanced)	4	▲
MEM08016B	Control blast coating by-products, materials and emissions	1	▲
MEM08018B	Electroplate engineering coatings	6	▲
MEM08019B	Electroplate protective finishes	6	▲
MEM08020B	Electroplate decorative finishes	6	▲

9 Drawing, Drafting & Design

MEM09002B	Interpret technical drawing	4	
MEM09003B	Prepare basic engineering drawing	8	▲
MEM09004B	Perform electrical/electronic detail drafting	8	▲
MEM09005B	Perform basic engineering detail drafting	8	▲
MEM09006B	Perform advanced engineering detail drafting	4	▲
MEM09007B	Perform advanced mechanical detail drafting	4	▲
MEM09008B	▣ Perform advanced structural detail drafting	4	▲
MEM09009C	▣ Create 2D drawings using computer aided design system	8	▲
MEM09010C	▣ Create 3D models using computer aided design system	4	▲
MEM09011B	Apply basic engineering design concepts	6	▲
MEM09021B	Interpret and produce curved 3-dimensional shapes	4	
MEM09022A	Create 2D code file using computer aided manufacturing system	4	▲
MEM09023A	Create 3D code files using computer aided manufacturing system	6	▲
MEM09141A	Represent mechanical engineering designs		▲
MEM09142A	Represent mechatronic engineering designs		▲
MEM09143A	Represent aeronautical engineering designs		▲
MEM09144A	Represent avionic engineering designs		▲
MEM09151A	Apply computer aided modeling and data management techniques to mechanical engineering designs		▲

MEM09152A	Apply computer aided modeling and data management techniques to mechatronic engineering designs		▲
MEM09153A	Apply computer aided modelling and data management techniques to aeronautical engineering designs		▲
MEM09154A	Apply computer aided modeling and data management techniques to avionic engineering designs		▲

10 Installation & Commissioning

MEM10001C	Erect structures	4	▲
MEM10002B	Terminate and connect electrical wiring	3	▲
MEM10003B	Install and test electrical wiring and circuits up to 1000 volts ac and 1500 volts dc	12	▲
MEM10004B	Enter and change programmable controller operational parameters	2	▲
MEM10005B	Commission programmable controller programs	4	▲
MEM10006B	Install machine/plant	4	▲
MEM10007C	Modify control systems	6	▲
MEM10008B	Undertake commissioning procedures for plant and/or equipment	4	▲
MEM10009B	Install refrigeration and air conditioning plant and equipment	4	▲
MEM10010B	Install pipework and pipework assemblies	4	▲
MEM10011B	Terminate and connect specialist cables	3	▲
MEM10012A	Install split air conditioning system	4	▲
MEM10013A	Install split air conditioning systems and associated pipework	6	▲

11 Materials Handling

MEM11001C	Erect/dismantle scaffolding and equipment	4	▲
MEM11002C	Erect/dismantle complex scaffolding and equipment	4	▲
MEM11003B	Coordinate erection/dismantling of complex scaffolding/equipment	4	▲
MEM11004B	Undertake dogging	4	▲
MEM11005B	Pick and process order	4	
MEM11006B	Perform production packaging	2	
MEM11007B	Administer inventory procedures	4	
MEM11008B	Package materials (stores and warehouse)	2	
MEM11009B	Handle/move bulk fluids/gases	4	
MEM11010B	Operate mobile load shifting equipment	4	
MEM11011B	Undertake manual handling	2	
MEM11012B	Purchase materials	6	
MEM11013B	Undertake warehouse receival process	4	▲
MEM11014B	Undertake warehouse dispatch process	4	▲
MEM11015B	Manage warehouse inventory system	6	▲
MEM11016B	Order materials	2	
MEM11017B	Organise and lead stocktakes	4	▲
MEM11018B	Organise and maintain warehouse stock receival and/or dispatch system	6	▲
MEM11019B	Undertake tool store procedures	4	▲
MEM11020B	Perform advanced warehouse computer operations	4	▲
MEM11021B	Perform advanced operation of load shifting equipment	2	▲
MEM11022B	Operate fixed/moveable load shifting equipment	4	▲
MEM11023A	Operate a bridge and gantry crane	4	
MEM11024A	Undertake basic rigging	4	▲
MEM11025A	Operate a non-slewing mobile crane of greater than three tonnes capacity	4	

12 Measurement

MEM12001B	Use comparison and basic measuring devices	2	
MEM12002B	Perform electrical/electronic measurement	2	
MEM12003B	♦♦ Perform precision mechanical measurement	2	▲
MEM12004B	♦♦ Perform precision electrical/electronic measurement	4	
MEM12005B	▣ Calibrate measuring equipment	6	▲
MEM12006C	Mark off/out (general engineering)	4	▲
MEM12007D	Mark off/out structural fabrications and shapes	4	▲

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MEM12019B	Measure components using coordinate measuring machines	4	
MEM12020B	Set and operate coordinate measuring machines	2	
MEM12021B	Program coordinate measuring machines	4	▲
MEM12022B	Program coordinate measuring machines (advanced)	2	▲
MEM12023A	Perform engineering measurements	5	
MEM12024A	Perform computations	3	
MEM12025A	◆ Use graphical techniques and perform simple statistical computations	2	▲

13 Occupational Health & Safety

MEM13001B	Perform emergency first aid	1	
MEM13002B	Undertake occupational health and safety activities in the workplace	3	
MEM13003B	Work safely with industrial chemicals and materials	2	
MEM13004B	Work safely with molten metals/glass	2	
MEM13006B	Collect and evaluate occupational health and safety data for an enterprise or section of an enterprise	4	
MEM13007B	Maintain water treatment systems for cooling towers	2	▲
MEM13010A	◆ Supervise occupational health and safety in an industrial work environment.	4	▲
MEM13013B	Work safely with ionizing radiation	4	
MEM13014A	Apply principles of occupational health and safety in the work environment	0	

14 Planning

MEM14001B	■ Schedule material deliveries	8	
MEM14002B	■ Undertake basic process planning	8	
MEM14003B	■ Undertake basic production scheduling	8	
MEM14004A	Plan to undertake a routine task	0	
MEM14005A	Plan a complete activity	4	
MEM14061A	Plan and design mechanical engineering projects		▲
MEM14062A	Plan and design mechatronic engineering projects		▲
MEM14063A	Plan and design manufacturing engineering projects		▲
MEM14064A	Plan and design maintenance engineering projects		▲
MEM14065A	Plan and design aeronautical engineering projects		▲
MEM14066A	Plan and design avionic engineering projects		▲
MEM14081A	Apply mechanical engineering fundamentals to support design and development of projects		▲
MEM14082A	Apply mechatronics fundamentals to support design and development of engineering projects		▲
MEM14083A	Apply aeronautical fundamentals to support design and development of engineering projects		▲
MEM14084A	Apply avionic fundamentals to support design and development of engineering projects		▲

15 Quality

MEM15001B	Perform basic statistical quality control	2	
MEM15002A	Apply quality systems	2	
MEM15003B	Use improvement processes in team activities	4	▲
MEM15004B	Perform inspection	2	
MEM15005B	Select and control inspection processes and procedures	4	▲
MEM15007B	■ Conduct product and/or process capability studies	6	▲
MEM15008B	■ Perform advanced statistical quality control	2	▲
MEM15010B	■ Perform laboratory procedures	8	
MEM15011B	■ Exercise external quality assurance	6	▲
MEM15012B	■ Maintain/supervise the application of quality procedures	4	▲
MEM15015B	◆ Examine trading practices	5	▲
MEM15016B	Inspect pre-packed articles	8	▲
MEM15017B	■ Use and maintain reference standards	3	▲
MEM15018B	■ Investigate consumer complaints	6	▲
MEM15019B	■ Conduct a field inspection	12	▲
MEM15020C	■ Perform verification/certification or in-service inspection	12	▲
MEM15021C	■ Conduct audits of servicing licensees and public weighbridge licensees	4	▲

MEM15022B	◆ Verify reference standards	8	▲
MEM15024A	Apply quality procedures	0	

16 Communication

MEM16001B	Give formal presentations and take part in meetings	2	
MEM16002C	Conduct formal interviews and negotiations	4	
MEM16003B	Provide advanced customer service	2	
MEM16004B	Perform internal/external customer service	2	
MEM16005A	Operate as a team member to conduct manufacturing, engineering or related activities	2	
MEM16006A	Organise and communicate information	2	
MEM16007A	Work with others in a manufacturing, engineering or related environment	0	
MEM16008A	Interact with computing technology	2	
MEM16009A	■ Research and analyse engineering information	2	▲
MEM16010A	■ Write reports	2	▲
MEM16011A	◆ Communicate with individuals and small groups	2	▲
MEM16012A	■ Interpret technical specifications and manuals	4	
MEM16013A	◆ Operate in a self-directed team	2	▲
MEM16014A	■ Report technical information	2	▲

17 Training

MEM17001B	◆ Assist in development and deliver training in the workplace	2	
MEM17002B	◆ Conduct workplace assessment	2	
MEM17003A	Assist in the provision of on the job training	2	

18 Maintenance & Diagnostics

MEM18001C	Use hand tools	2	
MEM18002B	Use power tools/hand held operations	2	
MEM18003C	Use tools for precision work	4	▲
MEM18004B	Maintain and overhaul mechanical equipment	4	▲
MEM18005B	Perform fault diagnosis, installation and removal of bearings	4	▲
MEM18006C	Repair and fit engineering components	6	▲
MEM18007B	Maintain and repair mechanical drives and mechanical transmission assemblies	4	▲
MEM18008B	Balance equipment	2	▲
MEM18009B	Perform levelling and alignment of machines and engineering components	4	▲
MEM18010C	◆ Perform equipment condition monitoring and recording	4	▲
MEM18011C	◆ Shut down and isolate machines/equipment	2	
MEM18012B	Perform installation and removal of mechanical seals	2	▲
MEM18013B	Perform gland packing	2	▲
MEM18014B	Manufacture press tools and gauges	8	▲
MEM18015B	Maintain tools and dies	4	▲
MEM18016B	■ Analyse plant and equipment condition monitoring results	4	▲
MEM18017C	■ Modify mechanical systems and equipment	8	▲
MEM18018C	Maintain pneumatic system components	4	▲
MEM18019B	◆ Maintain pneumatic systems	4	▲
MEM18020B	Maintain hydraulic system components	4	▲
MEM18021B	◆ Maintain hydraulic systems	4	▲
MEM18022B	◆ Maintain fluid power controls	8	▲
MEM18023B	Modify fluid power system operation	8	▲
MEM18024B	Maintain engine cooling systems	2	▲
MEM18025B	Service combustion engines	2	▲
MEM18026C	Test compression ignition fuel systems	4	▲
MEM18027C	Overhaul engine fuel system components	8	▲
MEM18028B	Maintain engine lubrication systems	2	▲
MEM18029B	Tune diesel engines	4	▲
MEM18030B	Diagnose and rectify low voltage electrical systems	8	▲

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MEM18031B	Diagnose and rectify low voltage starting systems	2	▲
MEM18032B	Maintain induction/exhaust systems	4	▲
MEM18033B	Perform engine bottom-end overhaul	4	▲
MEM18034B	Perform engine top-end overhaul	8	▲
MEM18035B	Diagnose and rectify braking systems	6	▲
MEM18037B	Diagnose and rectify low voltage charging systems	2	▲
MEM18038B	Maintain wheels and tyres	2	▲
MEM18039B	Diagnose and rectify track type undercarriage	4	▲
MEM18040B	Maintain suspension systems	4	▲
MEM18041B	Maintain steering systems	4	▲
MEM18042C	Diagnose and rectify manual transmissions	4	▲
MEM18043C	Diagnose and rectify automatic transmissions	8	▲
MEM18044C	Diagnose and rectify drive line and final drives	4	▲
MEM18045B	Fault find/repair electrical equipment/components up to 250 volts single phase supply	4	▲
MEM18046B	Fault find/repair electrical equipment/components up to 1000 volts ac/1500 volts dc	10	▲
MEM18047B	Diagnose and maintain electronic controlling systems on mobile plant	4	▲
MEM18048B	Fault find and repair/rectify basic electrical circuits	12	▲
MEM18049C	◆◆ Disconnect/reconnect fixed wired equipment up to 1000 volts ac/1500 volts dc	3	▲
MEM18050C	◆◆ Disconnect/reconnect fixed wired equipment over 1000 volts ac/1500 volts dc	3	▲
MEM18051B	Fault find and repair/rectify complex electrical circuits	6	▲
MEM18052B	Maintain fluid power systems for mobile plant	4	▲
MEM18053B	■ Modify fluid power control systems	6	▲
MEM18054B	◆◆ Fault find, test and calibrate instrumentation systems and equipment	8	▲
MEM18055B	Dismantle, replace and assemble engineering components	3	▲
MEM18056B	◆◆ Diagnose and repair analog equipment and components	10	▲
MEM18057B	Maintain/service analog/digital electronic equipment	6	▲
MEM18058C	Modify electronic equipment	4	▲
MEM18059B	■ Modify electronic systems	4	▲
MEM18060B	Maintain, repair control instrumentation -single and multiple loop control systems	8	▲
MEM18061B	■ Maintain/calibrate complex control systems	8	▲
MEM18062B	◆◆ Install, maintain and calibrate instrumentation sensors, transmitters and final control elements	8	▲
MEM18063B	Terminate signal and data cables	4	▲
MEM18064B	Maintain instrumentation system components	6	▲
MEM18065B	◆◆ Diagnose and repair digital equipment and components	10	▲
MEM18066B	◆ Diagnose and repair microprocessor-based equipment	6	▲
MEM18067B	◆ Tune control loops -multi controller or multi element systems	6	▲
MEM18069B	■ Maintain, repair instrumentation process control analysers	6	▲
MEM18070C	■ Modify complex electrical circuits and systems	6	▲
MEM18071B	Connect/disconnect fluid conveying system components	2	▲
MEM18072B	Manufacture fluid conveying conductor assemblies	4	▲
MEM18073A	■ Perform advanced equipment testing and diagnostics on mobile plant and equipment	8	▲
MEM18084A	Commission and decommission split air conditioning systems	4	▲
MEM18085A	Install, service and repair domestic air conditioning and refrigeration appliances	6	▲
MEM18086B	Test, recover, evacuate and charge refrigeration systems	4	▲
MEM18087B	Service and repair domestic and light commercial refrigeration and air conditioning equipment	6	▲
MEM18088B	Maintain and repair commercial air conditioning systems and components	4	▲
MEM18089B	Maintain and repair central air handling systems	6	▲
MEM18090B	Maintain and repair industrial refrigeration systems and components	6	▲
MEM18091B	◆ Maintain and repair multi stage, cascade and/or ultra-cold industrial refrigeration systems	4	▲
MEM18092B	◆◆ Maintain and repair commercial and/or industrial refrigeration and/or air conditioning controls	6	▲
MEM18093B	■ Maintain and repair integrated industrial refrigeration and/or large air handling system controls	8	▲
MEM18094B	Service and repair commercial refrigeration	6	▲

MEM18095A	Maintain and repair cooling towers/evaporative condensers and associated equipment	4	▲
MEM18096A	Maintain, repair/replace and adjust refrigerant flow controls and associated equipment	6	▲
MEM18097A	Manufacture cavity dies	8	▲
MEM18098A	Prepare to perform work associated with fuel system installation and servicing*	2	▲

19 Jewellery & Horological

MEM19001B	Perform jewellery metal casting	6	▲
MEM19002B	Prepare jewellery illustrations	4	▲
MEM19003B	Handle gem materials	2	
MEM19004B	Handle and examine gemstone materials	6	▲
MEM19005B	Produce three-dimensional precision items	8	▲
MEM19006B	Replace watch batteries	1	▲
MEM19007B	Perform gemstone setting	6	▲
MEM19008B	Prepare jewellery designs	6	▲
MEM19009B	Perform investment procedures for lost wax casting process	1	▲
MEM19010B	Produce rubber moulds for lost wax casting process	2	
MEM19011B	Perform wax injection of moulds for lost wax casting process	2	
MEM19012B	Produce jewellery wax model	4	▲
MEM19013B	Produce jewellery metal masters	4	▲
MEM19014B	Perform hand engraving	4	▲
MEM19015B	Perform jewellery enamelling	4	▲
MEM19016B	Construct jewellery components	4	▲
MEM19017B	Fabricate jewellery items	6	▲
MEM19018B	◆ Repair jewellery items	6	▲
MEM19020B	Fault-find and maintain micro-mechanisms	4	▲
MEM19021B	Diagnose and service micro-mechanisms	6	▲
MEM19022B	Perform precision micro-mechanism diagnosis and servicing	6	▲
MEM19023A	Apply drawing and rendering techniques to jewellery or object design	4	▲
MEM19024A	Use CAD to create and display 3D jewellery and object models	4	▲
MEM19025A	Create and present designs for jewellery and other 3D objects	4	▲
MEM19026A	Investigate quality and application of jewellery materials	2	▲
MEM19027A	Produce life drawings for presenting jewellery and object designs		▲
MEM19028A	Select materials and new technologies for jewellery and 3D object design applications	2	▲
MEM19029A	Produce a professional jewellery design and 3D object portfolio		▲
MEM19030A	Research and design sustainable objects		▲
MEM19031A	Produce renderings and technical drawings for jewellery and object design construction	2	▲
MEM19032A	Design and implement mechanisms in jewellery items		▲
MEM19033A	Create silversmithing objects	4	▲
MEM19034A	Apply chain manufacture process	2	▲
MEM19035A	Plan and apply casting techniques for jewellery and object designs	4	▲
MEM19036A	Use specialised techniques to produce jewellery and objects		▲
MEM19037A	Plan and implement chener fabrication process		▲
MEM19038A	Apply traditional techniques to jewellery and 3D object production		▲
MEM19039A	Plan, conduct and supervise a jewellery and object exhibition		
MEM19040A	Create and manufacture jewellery or object design prototypes for the mass market		
MEM19041A	Experiment with jewellery or object designs		
MEM19042A	Render images using computer graphics software		▲
MEM19043A	Oversee jewellery or object design production		

20 Locksmithing

MEM20001A	Produce keys	4	
MEM20002A	Assemble and test lock mechanisms	6	▲
MEM20003A	Install and upgrade locks and hardware	4	▲

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MEM20004A	Gain entry	4	▲
MEM20005A	Install and maintain door control devices/systems	2	▲
MEM20006A	Maintain and service mechanical locking devices	6	▲
MEM20007A	Plan and prepare a masterkey system	4	▲
MEM20008A	◆ Develop and implement a masterkey system	6	▲
MEM20009A	Gain entry and reinstate fire and security containers	4	▲
MEM20010A	Gain entry and reinstate automotive locking systems	4	▲
MEM20011A	◆ Service and repair fire and security containers	6	▲
MEM20012A	◆ Service and repair mechanical automotive locking systems	4	▲
MEM20013A	◆ Service automotive transponder systems	2	▲
MEM20014A	Perform a site security survey	2	

21 Horology

MEM21001A	Replace watch batteries, capacitors and bands	2	
MEM21002A	Perform watch movement exchange	2	▲
MEM21003A	Perform watch case servicing, repair and refurbishment	4	▲
MEM21004A	Clean watch and clock components	2	
MEM21005A	Diagnose faults in quartz watches	2	▲
MEM21006A	Service quartz watches	4	▲
MEM21007A	Service complex quartz watches	4	▲
MEM21008A	Service mechanical watches	4	▲
MEM21009A	Inspect, diagnose, adjust and repair mechanical watches	4	▲
MEM21010A	Service watch power generating systems	2	▲
MEM21011A	Service calendar and other dial indication mechanisms for watches	4	▲
MEM21012A	Service and repair mechanical watch oscillating systems	4	▲
MEM21013A	Service, test and adjust watch escapements	4	▲
MEM21014A	Service mechanical chronograph watches	6	▲
MEM21015A	Perform precision watch timing and adjustment	6	▲
MEM21016A	Install and set up clocks	2	
MEM21017A	Service and repair clock timepieces	6	
MEM21018A	Service clock escapements and oscillating systems	4	▲
MEM21019A	Service and repair clock striking mechanisms	4	▲
MEM21020A	Service and repair clock chiming mechanisms	6	▲
MEM21021A	■ Restore clockwork mechanisms	6	▲
MEM21022A	■ Manufacture watch and clock components	6	▲
MEM21023A	■ Plan, set up and operate horological workshop or service centre	4	

22 Management & Organisation

MEM22001A	Perform engineering activities		▲
MEM22002A	Manage self in the engineering environment		▲
MEM22003A	Manage engineering resources		▲
MEM22004A	Manage engineering projects		▲
MEM22005A	Manage engineering operations		▲
MEM22006A	Source and estimate materials		▲
MEM22007A	Manage environmental effects of engineering activities		▲
MEM22008A	Manage change and technical development		▲
MEM22009A	Manage technical sales and promotion		▲

23 Engineering Science

MEM23001A	Apply advanced mathematical techniques in a manufacturing engineering or related environment		▲
MEM23002A	Apply calculus in engineering situations		▲
MEM23003A	Operate and program computers and/or controllers in engineering situations		▲
MEM23041A	Apply basic scientific principles and techniques in mechanical engineering situations		
MEM23051A	Apply basic electro and control scientific principles and techniques in mechanical and manufacturing engineering situations		
MEM23052A	Apply basic electro and control scientific principles and techniques in aeronautical engineering situations		

MEM23061A	Select and test mechanical engineering materials		
MEM23062A	Select and test mechatronic engineering materials		
MEM23071A	Select and apply mechanical engineering methods, processes and construction techniques		
MEM23072A	Select and apply mechatronic engineering methods, processes and construction techniques		
MEM23073A	Select and apply aeronautical engineering methods, processes and construction techniques		▲
MEM23074A	Select and apply avionic engineering methods, processes and construction techniques		▲
MEM23081A	Apply scientific principles and techniques in mechanical engineering situations		▲
MEM23082A	Apply scientific principles and techniques in mechatronic engineering situations		▲
MEM23083A	Apply industrial engineering principles and techniques in competitive manufacturing engineering situations		▲
MEM23084A	Apply scientific principles and techniques in aeronautical engineering situations		▲
MEM23085A	Apply scientific principles and techniques in avionic engineering situations		▲
MEM23091A	Apply mechanical system design principles and techniques in mechanical engineering situations		▲
MEM23092A	Apply automated systems principles and techniques in engineering situations		▲
MEM23093A	Apply plant and process design principles and techniques in engineering situations		▲
MEM23094A	Apply maintenance systems principles and techniques in engineering situations		▲
MEM23095A	Apply aeronautical system design principles and techniques in aeronautical engineering situations		▲
MEM23096A	Apply avionic system design principles and techniques in avionic engineering situations		▲
MEM23097A	Apply automated systems principles and techniques in aeronautical engineering situations		▲
MEM23098A	Apply automated systems principles and techniques in avionic engineering situations		▲

24 Non Destructive Testing

MEM24001B	Perform basic penetrant testing	2	▲
MEM24002B	◆ Perform penetrant testing	4	▲
MEM24003B	Perform basic magnetic particle testing	2	▲
MEM24004B	◆ Perform magnetic particle testing	4	▲
MEM24005B	Perform basic eddy current testing	2	▲
MEM24006B	◆ Perform eddy current testing	6	▲
MEM24007B	Perform ultrasonic thickness testing	2	▲
MEM24008B	◆ Perform ultrasonic testing	6	▲
MEM24009B	Perform basic radiographic testing	2	▲
MEM24010B	◆ Perform radiographic testing	6	▲
MEM24011B	■ Establish non-destructive tests	12	▲
MEM24012B	◆ Apply metallurgy principles	4	

25 Marine Craft Construction

MEM25001B	Apply fibre-reinforced materials	2	▲
MEM25002B	Form and integrate fibre-reinforced structures	4	▲
MEM25003B	Set up marine vessel structures	4	▲
MEM25004B	Fair and shape surfaces	2	▲
MEM25005B	Construct and assemble marine vessel timber components	8	▲
MEM25006B	Undertake marine sheathing operations	2	▲
MEM25007B	Maintain marine vessel surfaces	4	▲
MEM25008B	Repair marine vessel surfaces and structures	4	▲
MEM25009B	Form timber shapes using hot processes	2	▲
MEM25010B	Perform fitout procedures	4	▲
MEM25011B	Install marine systems	8	▲

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MEM25012B	Install and test operations of marine auxiliary systems	6	▲
MEM25013B	Produce three-dimensional plugs/moulds	12	▲
MEM25014B	Perform marine slipping operations	2	▲
MEM25015A	Assemble and install equipment and accessories/ancillaries	2	▲

30 Engineering Technician

MEM30001A	Use computer aided drafting systems to produce basic engineering drawings		▲
MEM30002A	Produce basic engineering graphics		▲
MEM30003A	Produce detailed engineering drawings		▲
MEM30004A	Use CAD to create and display 3D models		▲
MEM30005A	Calculate force systems within simple beam structures		▲
MEM30006A	Calculate stresses in simple structures		▲
MEM30007A	Select common engineering materials		
MEM30008A	Apply basic economic and ergonomic concepts to evaluate engineering applications		
MEM30009A	Contribute to the design of basic mechanical systems		▲
MEM30010A	Set up basic hydraulic circuits		
MEM30011A	Set up basic pneumatic circuits		
MEM30012A	Apply mathematical techniques in a manufacturing, engineering or related environment		
MEM30013A	Assist in the preparation of a basic workplace layout		
MEM30014A	Apply basic just in time systems to the reduction of waste		
MEM30015A	Develop recommendations for basic set up time improvements		
MEM30016A	Assist in the analysis of a supply chain		
MEM30017A	Use basic preventative maintenance techniques and tools		
MEM30018A	Undertake basic process planning		
MEM30019A	Use resource planning software systems in manufacturing		▲
MEM30020A	Develop and manage a plan for a simple manufacturing related project		
MEM30021A	Prepare a simple production schedule		
MEM30022A	Undertake supervised procurement activities		
MEM30023A	Prepare a simple cost estimate for a manufactured product		
MEM30024A	Participate in quality assurance techniques		▲
MEM30025A	Analyse a simple electrical system circuit		▲
MEM30026A	Select and test components for simple electronic switching and timing circuits		▲
MEM30027A	Prepare basic programs for programmable logic controllers		
MEM30028A	Assist in sales of technical products/systems		

50 Boating Services

MEM50001B	◆◆◆ Classify recreational boating technologies and features		
MEM50002B	Work safely on marine craft	1	
MEM50003B	Follow work procedures to maintain the marine environment	1	
MEM50004B	Maintain quality of environment by following marina codes	1	▲
MEM50005B	◆◆◆ Refuel vessels		▲
MEM50006B	◆◆◆ Check operational capability of marine craft		▲
MEM50007B	◆◆◆ Check operational capability of sails and sail operating equipment		▲
MEM50008B	◆◆◆ Carry out trip preparation and planning		
MEM50009B	◆◆◆ Safely operate a mechanically powered recreational boat	2	
MEM50010B	◆◆◆ Respond to boating emergencies and incidents		

This chart lists the Metal and Engineering units of competency for guidance purposes only. Do not rely on the unit titles alone, as they are not intended to be a full description of the skills covered by the units they refer to, or to their degree of difficulty. Users should examine individual units of competency in detail, together with information in any supporting documents, to ensure that appropriate units are selected to suit work outcomes.

▲ This mark in the end column means that this unit of competency has pre requisite units of competency attached to the unit.

◆ This mark against the unit title means that it has dual status and is to be regarded as both a Specialisation Band A unit and Specialisation Band B unit for progression to C5 (AQF level V).

◆◆ This mark against the unit title means that it has dual status and is to be regarded as both a Specialisation Band A unit and Specialisation Band B unit for progression to C7 (AQF level IV).

◆◆◆ This mark against the unit title means it is a Band E unit intended for use in non-points weighted qualifications such as those in boating services. Use of these units in other qualifications must be in accordance with the Qualification Packaging Rules of the MEM05 Training Package.

■ This mark against the unit title means that it is a Band B unit. All other weighted units are Specialisation Band A units.

Specialisation band identification characters (e.g. Band A, Band B) no longer appear in the unit codes for MEM05. Characters in MEM05 unit codes refer to the unit version, where 'A' signifies the first version. This mark indicates that the unit has pre-requisites.

Note: The use of Field 1 Foundation and Field 2 Core units has been discontinued in the MEM05 version of the competency standards. The standards commence at Field 3 Assembly.

The Metal and Engineering units of competency and other supporting products for the implementation and use of competency standards are available via

www.mskills.com.au