



Australian Government

MSA30208 Certificate III in Manufacturing Technology

Release 4

MSA30208 Certificate III in Manufacturing Technology

Modification History

- Version 4 - MEM elective imported units replaced by current versions. Equivalent.
- Version 3 - MSACM units replaced by MSS units from MSS11v2 Sustainability Training Package.
- Version 2 - Imported unit codes updated.

Description

This qualification is suitable for delivery as part of a one-year Technology Cadetship, or can be undertaken through an Australian Apprenticeship arrangement.

This qualification has seven specialist streams available. These are:

- CAD/drafting
- Manufacturing operations
- Laboratory operations
- Technical officer
- Metallurgy
- Polymer technology
- Structural steel detailing.

Each stream offers an opportunity for significant choice in electives and each stream requires the same core units to be completed.

Note:

- The minimum requirements for the Certificate III in Manufacturing Technology can also be met by holders of the *Certificate III in Engineering - Technician* from the Metal and Engineering Training Package.
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Pathways Information

Not applicable.

Licensing/Regulatory Information

Not applicable.

Entry Requirements

Not applicable.

Employability Skills Summary

EMPLOYABILITY SKILLS QUALIFICATION SUMMARY

MSA30208 Certificate III in Manufacturing Technology

The following table contains a summary of the employability skills as identified by manufacturing technology related industries for this qualification. This table should be interpreted in conjunction with the detailed requirements of each unit of competency packaged in this qualification. The outcomes described here are broad industry requirements that reflect skill requirements for this level.

| Employability skill | Industry/enterprise requirements for this qualification include: |
|---------------------------|---|
| Communication | <ul style="list-style-type: none"> • use communication technologies efficiently • communicate production abnormalities, documentation and test results • demonstrate effective and appropriate communication and interpersonal skills when dealing with people from a range of backgrounds • read, interpret and communicate work related documents • communicate with all team members |
| Teamwork | <ul style="list-style-type: none"> • work cooperatively with people of different ages, gender, race or religion • liaise with and provide support to other team members • work as part of a team • identify team performance required to meet customer needs • provide leadership to others in the team • encourage the sharing of information between team members • plan and support team activities |
| Problem solving | <ul style="list-style-type: none"> • identify and report problems and make contributions to their solution • investigate problem causes • implement changes • examine equipment for damage, missing components or other defects • identify and promptly address problems or issues • assess quality of work according to specifications • determine effective work practices • problem solve machine operational requirements |
| Initiative and enterprise | <ul style="list-style-type: none"> • seek and provide feedback on procedures • gather and analyse information • record information on the quality and other indicators of |

| Employability skill | Industry/enterprise requirements for this qualification include: |
|----------------------------|---|
| | production performance <ul style="list-style-type: none"> • identify and implement simple process improvements • coordinate work activities and manufacturing processes • use analytical and decision making skills |
| Planning and organising | <ul style="list-style-type: none"> • identify hazards and implement appropriate hazard control measures • organise self and others to meet production schedules • sequence work to maximise safety and productivity • select and use appropriate tools and equipment • apply time management skills to ensure work flow |
| Self management | <ul style="list-style-type: none"> • plan own work requirements from production requests • operate within appropriate time constraints and work standards • select and use appropriate equipment, materials, processes and procedures • plan to ensure effective production • apply workplace procedures • identify resource requirements, document and monitor • recognise limitations and seek timely advice |
| Learning | <ul style="list-style-type: none"> • ask questions to gain information • identify sources of information to expand knowledge and understanding • participate in improvement procedures • participate in development of continuous improvement strategies |
| Technology | <ul style="list-style-type: none"> • operate and adjust processes • start up and shut down equipment • set up equipment • monitor product/process quality • function and operating principles of equipment, machine components • maintain computer based workplace records |

Packaging Rules

Packaging Rules

To be awarded a Certificate III in Manufacturing Technology, competency must be achieved in **eleven (11)** units of competency:

- **three (3)** core units of competency
- **eight (8)** elective units of competency chosen as described below.

Core units

The following **three (3)** units must be chosen.

| Unit code | Unit title |
|------------|--|
| MEM30012A | Apply mathematical techniques in a manufacturing, engineering or related environment |
| MSS402051A | Apply quality standards |
| MSAENV272B | Participate in environmentally sustainable work practices |

Prerequisites

Note that elective units marked with an asterisk have one or more prerequisite requirements. The prerequisites for these units are to be counted in the total number of units required in the elective group. Please refer to the individual units for details.

Elective units

Group A - specialist streams

Choose **eight (8)** elective units as specified for a specialist stream.

Note:

- All units from each specialist stream are available in Group B as General Electives.
- A maximum of two general elective units may also be chosen from other qualifications in this Training Package, other endorsed Training Packages and accredited courses.

CAD/drafting specialist stream

Select **eight (8)** elective units:

- a minimum of **six (6)** from the list below
- the balance may be chosen from Group B General Electives

| Unit code | Unit title | Prerequisites |
|------------|------------------------------------|---------------|
| AUM4003A | Interpret customer requirements | |
| LMTGN4002A | Participate in product engineering | |

| Unit code | Unit title | Prerequisites |
|-----------|--|---------------|
| MEM12024A | Perform computations | |
| MEM16006A | Organise and communicate information | |
| MEM16008A | Interact with computing technology | |
| MEM30031A | Operate computer-aided design (CAD) systems to produce basic drawing elements | |
| MEM30032A | Produce basic engineering drawings | |
| MEM30033A | Use computer-aided design (CAD) to create and display 3-D 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 | |
| MEM30010A | Set up basic hydraulic circuits | |
| MEM30011A | Set up basic pneumatic circuits | |
| MEM30013A | Assist in the preparation of a basic workplace layout | |
| MEM30025A | Analyse a simple electrical system circuit | * |

Manufacturing operations specialist stream

Select **eight (8)** elective units as follows:

- a minimum of **six (6)** from the list below
- the balance may be chosen from Group B General Electives

| Unit code | Unit title | Prerequisites |
|-----------|---|---------------|
| FDFO2005A | Work in a socially diverse environment | |
| MEM15001B | Perform basic statistical quality control | |

| Unit code | Unit title | Prerequisites |
|------------|--|---------------|
| MEM16006A | Organise and communicate information | |
| MEM16008A | Interact with computing technology | |
| 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 | |
| MEM30023A | Prepare a simple cost estimate for a manufactured product | |
| MEM30024A | Participate in quality assurance techniques | * |
| MSS402001A | Apply competitive systems and practices | |
| MSS402002A | Sustain process improvements | |
| MSS402020A | Apply quick changeover procedures | |
| MSS402030A | Apply cost factors to work practices | |
| MSS402031A | Interpret product costs in terms of customer requirements | |
| MSS402050A | Monitor process capability | |
| MSS402060A | Use planning software systems in operations | |
| MSS402061A | Use SCADA systems in operations | |

| Unit code | Unit title | Prerequisites |
|------------|---|---------------|
| MSS402080A | Undertake root cause analysis | |
| MSS403002A | Ensure process improvements are sustained | |
| MSS403030A | Improve cost factors in work practices | |

Laboratory operations specialist stream

Select **eight (8)** elective units:

- a minimum of **six (6)** from the list below
- the balance may be chosen from Group B General Electives

| Unit code | Unit title | Prerequisites |
|------------|---|---------------|
| LMTGN4016A | Contribute to the development of products or processes | |
| MEM15001B | Perform basic statistical quality control | |
| MEM16006A | Organise and communicate information | |
| MEM16008A | Interact with computing technology | |
| MEM30024A | Participate in quality assurance techniques | * |
| MSL913001A | Communicate with other people | |
| MSL913002A | Plan and conduct laboratory/field work | |
| MSL922001A | Record and present data | |
| MSL933001A | Maintain the laboratory/field workplace fit for purpose | |
| MSL933002A | Contribute to the achievement of quality objectives | |
| MSL933003A | Apply critical control point requirements | |
| MSL934002A | Apply quality system and continuous improvement processes | |
| MSL943001A | Work safely with instruments that emit ionising | |

| Unit code | Unit title | Prerequisites |
|------------|--|---------------|
| | radiation | |
| MSL943002A | Participate in laboratory/field workplace safety | |
| MSL952001A | Collect routine site samples | |
| MSL952002A | Handle and transport samples or equipment | |
| MSL953001A | Receive and prepare samples for testing | |
| MSL954001A | Obtain representative samples in accordance with sampling plan | |
| MSL963001A | Operate basic handblowing equipment | |
| MSL963002A | Repair glass apparatus using simple glassblowing equipment | |
| MSL973001A | Perform basic tests | |
| MSL973002A | Prepare working solutions | |
| MSL973003A | Prepare culture media | |
| MSL973004A | Perform aseptic techniques | |
| MSL973005A | Assist with fieldwork | |
| MSL973006A | Prepare trial batches for evaluation | |
| MSL973007A | Perform microscopic examination | |

Technical officer specialist stream

Select **eight (8)** elective units:

- a minimum of **six (6)** from the list below
- the balance may be chosen from Group B General Electives

| Unit code | Unit title | Prerequisites |
|------------|--|---------------|
| LMTGN4016A | Contribute to the development of products or processes | |

| Unit code | Unit title | Prerequisites |
|------------------|---|----------------------|
| MEM15001B | Perform basic statistical quality control | |
| MEM16006A | Organise and communicate information | |
| MEM16008A | Interact with computing technology | |
| MEM30007A | Select common engineering materials | |
| MEM30008A | Apply basic economic and ergonomic concepts to engineering designs and applications | |
| MEM30009A | Contribute to the design of basic mechanical systems | * |
| MEM30010A | Set up basic hydraulic circuits | |
| MEM30011A | Set up basic pneumatic circuits | |
| MEM30013A | Assist in the design of basic workplace layout | |
| 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 | |
| MEM30022A | Undertake supervised procurement activities | |
| MEM30023A | Prepare a simple cost estimate for a manufactured product | |
| MEM30024A | Participate in quality assurance techniques | |
| MSS402031A | Interpret product costs in terms of customer requirements | |
| MSS402060A | Use planning software systems in operations | |
| MSS402061A | Use SCADA systems | |

| Unit code | Unit title | Prerequisites |
|------------|-----------------------------------|---------------|
| MSS402080A | Undertake root cause analysis | |
| MSS403032A | Analyse manual handling processes | |

Metallurgy specialist stream

Select **eight (8)** elective units:

- a minimum of **five (5)** from the two groups below
- the balance may be chosen from Group B General Electives
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Metallurgy group 1

Choose at least three (3) units from this list.

| Unit code | Unit title | Prerequisites |
|------------|---|---------------|
| MSATCM301A | Test the mechanical properties of materials | |
| MSATCM302A | Monitor basic ferrous melting and casting processes | |
| MSATCM303A | Monitor basic non-ferrous melting and casting processes | |
| MSATCM304A | Interpret basic binary phase diagrams | |
| MSATCM305A | Demonstrate basic knowledge of casting operations | |

Metallurgy group 2

Choose at least two (2) units from this list.

| Unit code | Unit title | Prerequisites |
|-----------|---------------------------------------|---------------|
| MEM09002B | Interpret technical drawing | |
| MEM13003B | Work safely with industrial chemicals | |
| MEM13004B | Work safely with molten metals/glass | |
| MEM16008A | Interact with computing technology | |

| Unit code | Unit title | Prerequisites |
|-----------|-------------------------------------|---------------|
| MEM30007A | Select common engineering materials | * |

Polymer technology specialist stream

Select **eight (8)** elective units:

- a minimum of **six (6)** from the list below
- the balance may be chosen from Group B General Electives

Note that either PMBPREP301C or PMBPREP303C may be chosen, but not both.

| Unit code | Unit title | Prerequisites |
|--------------|---|---------------|
| MSAPMSUP303A | Identify equipment faults | |
| PMAOPS350B | Match and adjust colour | |
| PMBPREP206C | Prepare materials to formulae | |
| PMBPREP301C | Set up and prepare for production | |
| PMBPREP303C | Set up equipment for continuous production | |
| PMBPREP304C | Set a die | |
| PMBPROD235C | Use materials and process knowledge to complete work operations | |
| PMBTECH301B | Use material and process knowledge to solve problems | * |
| PMBTECH302A | Modify existing compounds | |
| PMBTECH303A | Make minor modifications to products | |
| MSL973001A | Perform basic tests | |
| | Up to two (2) relevant units may be chosen from the production units available at Certificate III in the Plastics, Rubber & Cablemaking Training Package (PMB07), or its endorsed replacement. | |

Structural steel detailing specialist stream

Select **eight (8)** elective units:

- a minimum of **six (6)** from the list below
- the balance may be chosen from Group B General Electives

| Unit code | Unit title | Prerequisites |
|------------|--|---------------|
| MSATCS301A | Interpret architectural and engineering design specifications for structural steel detailing | * |
| MSATCS302A | Detail bolts and welds for structural steelwork connections | * |
| MEM05051A | Select welding processes | |
| MEM09002B | Interpret technical drawing | |
| MEM16006A | Organise and communicate information | |
| MEM16008A | Interact with computing technology | |
| MEM30031A | Operate computer-aided design (CAD) system to produce basic engineering elements | |
| MEM30032A | Produce basic engineering drawings | |
| MEM30033A | Use computer-aided design (CAD) to create and display 3-D models | * |

Group B - General electives

The balance of units for each specialist stream may be chosen from this list as specified below:

| | |
|---------------------------|-----------------|
| CAD/drafting: | Up to two units |
| Manufacturing operations: | Up to two units |
| Laboratory operations: | Up to two units |
| Technical officer: | Up to two units |

| | |
|-----------------------------|-------------------|
| CAD/drafting: | Up to two units |
| Metallurgy: | Up to three units |
| Polymer technology: | Up to two units |
| Structural steel detailing: | Up to two units |

| Unit code | Unit title | Prerequisites |
|------------|---|---------------|
| AUM4003A | Interpret customer requirements | |
| FDFOP2005A | Work in a socially diverse environment | |
| LMTGN4002A | Participate in product engineering | |
| LMTGN4016A | Contribute to the development of products or processes | |
| MEM05051A | Select welding processes | |
| MEM09002B | Interpret technical drawing | |
| MEM12024A | Perform computations | |
| MEM13003B | Work safely with industrial chemicals | |
| MEM13004B | Work safely with molten metals/glass | |
| MEM15001B | Perform basic statistical quality control | |
| MEM16006A | Organise and communicate information | |
| MEM16008A | Interact with computing technology | |
| MEM30031A | Use computer-aided design (CAD) systems to produce basic drawing elements | |
| MEM30032A | Produce basic engineering drawings | |
| MEM30033A | Use computer-aided design (CAD) to create and display 3-D models | * |
| MEM30005A | Calculate force systems within simple beam structures | * |
| MEM30006A | Calculate stresses in simple structures | * |

| Unit code | Unit title | Prerequisites |
|------------------|---|----------------------|
| MEM30007A | Select common engineering materials | |
| MEM30008A | Apply basic economic and ergonomic concepts to engineering designs and 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 design of 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 | * |

| Unit code | Unit title | Prerequisites |
|------------------|--|----------------------|
| MSS402001A | Apply competitive systems and practices | |
| MSS402002A | Sustain process improvements | |
| MSS402020A | Apply quick changeover procedures | |
| MSS402030A | Apply cost factors to work practices | |
| MSS402031A | Interpret product costs in terms of customer requirements | |
| MSS402050A | Monitor process capability | |
| MSS402060A | Use planning software systems in operations | |
| MSS402061A | Use SCADA systems in operations | |
| MSS402080A | Undertake root cause analysis | |
| MSS403002A | Ensure process improvements are sustained | |
| MSS403030A | Improve cost factors in work practices | |
| MSS403032A | Analyse manual handling processes | |
| MSAPMSUP303A | Identify equipment faults | |
| MSATCM301A | Test the mechanical properties of materials | |
| MSATCM302A | Monitor basic ferrous melting and casting processes | |
| MSATCM303A | Monitor basic non-ferrous melting and casting processes | |
| MSATCM304A | Interpret basic binary phase diagrams | |
| MSATCM305A | Demonstrate basic knowledge of casting operations | |
| MSATCS301A | Interpret architectural and engineering design specifications for structural steel detailing | * |
| MSATCS302A | Detail bolts and welds for structural steelwork connections | * |
| MSL913001A | Communicate with other people | |

| Unit code | Unit title | Prerequisites |
|------------------|--|----------------------|
| MSL913002A | Plan and conduct laboratory/field work | |
| MSL922001A | Record and present data | |
| MSL933001A | Maintain the laboratory/field workplace fit for purpose | |
| MSL933002A | Contribute to the achievement of quality objectives | |
| MSL933003A | Apply critical control point requirements | |
| MSL934002A | Apply quality system and continuous improvement processes | |
| MSL943001A | Work safely with instruments that emit ionising radiation | |
| MSL943002A | Participate in laboratory/field workplace safety | |
| MSL952001A | Collect routine site samples | |
| MSL952002A | Handle and transport samples or equipment | |
| MSL953001A | Receive and prepare samples for testing | |
| MSL954001A | Obtain representative samples in accordance with sampling plan | |
| MSL963001A | Operate basic handblowing equipment | |
| MSL963002A | Repair glass apparatus using simple glassblowing equipment | |
| MSL973001A | Perform basic tests | |
| MSL973002A | Prepare working solutions | |
| MSL973003A | Prepare culture media | |
| MSL973004A | Perform aseptic techniques | |
| MSL973005A | Assist with fieldwork | |
| MSL973006A | Prepare trial batches for evaluation | |
| MSL973007A | Perform microscopic examination | |

| Unit code | Unit title | Prerequisites |
|-------------|---|---------------|
| PMAOPS350B | Match and adjust colour | |
| PMBPREP206C | Prepare materials to formulae | |
| PMBPREP301C | Set up and prepare for production | |
| PMBPREP303C | Set up equipment for continuous production | |
| PMBPREP304C | Set a die | |
| PMBPROD235C | Use materials and process knowledge to complete work operations | |
| PMBTECH301B | Use material and process knowledge to solve problems | * |
| PMBTECH302A | Modify existing compounds | |
| PMBTECH303A | Make minor modifications to products | |
| | A maximum of two (2) general electives may be imported from other qualifications in this Training Package, other endorsed Training Packages and accredited courses where those units are available at Certificate III. | |