



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **PMA20108 Certificate II in Process Plant Operations**

**Revision Number: 3**

## PMA20108 Certificate II in Process Plant Operations

### Modification History

Release 3 - MEM elective unit code corrected: MEM11011B

Release 2 - Addition of new elective: PMASUP244A

### Description

The Certificate II in Process Plant Operations has been developed as a technical qualification for use in the Chemical, Hydrocarbons and Refining Training Package (PMA08).

#### Job roles/employment outcomes

The Certificate II in Process Plant Operations is intended for competent operators who operate production equipment or undertake similar roles directly producing products. The operator would apply a breadth and depth of knowledge to a defined range of situations and would be expected to apply this knowledge to solve a defined range of problems by applying known solutions to a limited range of predictable problems.

Other non-technical Certificates II are available for production support employees at this level, such as MSA20107 Certificate II in Process Manufacturing. This certificate should be used where the job requirements do not allow for the development of competency in sufficient technical units of competency. The Certificate II in Competitive Manufacturing MCM20205 is also available for employees at this level where the job requires sophisticated manufacturing practice skills rather than technical skills.

#### Application

This qualification is typically used to prepare new employees or develop existing workers performing an operational role in the chemical, hydrocarbons or refining sectors.

Operators may specialise in one of the following sectors:

- fine chemicals
- heavy chemicals
- petrochemicals
- polymer manufacture
- hydrocarbon extraction
- hydrocarbon transmission
- hydrocarbon processing/refining
- minerals processing/refining
- metals smelting/processing
- other related areas.

Specialisations must be reflected by the selection of units identified for specialised streams. Training programs for this qualification are suitable to be undertaken as part of a formal training contract with an employer under an Australian Traineeship or Apprenticeship arrangement.

### Pathways Information

**Pathways into the qualification**

This qualification may be accessed by direct entry. Credit may be granted towards this qualification by those who have completed MSA10207 Certificate I in Process Manufacturing in the MSA07 Manufacturing Training Package or other relevant qualifications. Credit for this qualification may also include units contained within relevant skill sets.

**Pathways from the qualification**

Further training pathways from this qualification include PMA30110 Certificate III in Process Plant Operation, MSA30107 Certificate III in Process Manufacturing, MSA31108 Certificate III in Competitive Manufacturing, MSA30208 Certificate III in Manufacturing Technology or other relevant qualifications.

**Additional qualification advice**

An industry specialisation should include a range of units (typically production or other units relevant to the specialisation) that focus more on the industry speciality than a generic qualification.

An industry specialisation does not change the title of the qualification although RTOs may choose to record the specialisation.

MSA20107 Certificate II in Process Manufacturing from the MSA07 Manufacturing Training Package is available for production support employees at this level and should be used where the job requirements do not allow for the development of competency in sufficient technical units of competency.

MSA21108 Certificate II in Competitive Manufacturing is available for employees at this level who already possess technical skills and who require additional manufacturing practice skills above those available in this qualification.

**Licensing/Regulatory Information**

There are no specific licences that relate to this qualification. However, in some jurisdictions some units in this qualification may have licensing or regulatory requirements. Local regulations should be checked for details.

**Entry Requirements**

Not applicable.

## Employability Skills Summary

| Employability Skill       | Industry/enterprise requirements for this qualification include:  |
|---------------------------|---|
| Communication             | <ul style="list-style-type: none"> <li>• complete logs and reports</li> <li>• use technical information and manufacturer's information</li> <li>• collect, analyse &amp; organise information</li> <li>• communicate ideas and information</li> <li>• effective use of workplace documentation</li> <li>• maintain workplace records</li> </ul>   |
| Teamwork                  | <ul style="list-style-type: none"> <li>• identify and describe own role and role of other</li> <li>• work within a team</li> <li>• resolve conflicts between team members</li> <li>• teamwork strategies</li> </ul>   |
| Problem-solving           | <ul style="list-style-type: none"> <li>• recognise a problem or a potential problem related to a plant item.</li> <li>• determine problems needing priority action.</li> <li>• refer problems outside area of responsibility to appropriate person, with possible causes.</li> <li>• seek information and assistance as required to solve problems.</li> <li>• solve problems within area of responsibility related to plant items.</li> <li>• follow through items initiated until final resolution has occurred.</li> <li>• identify and isolate faults in equipment</li> <li>• use a range of formal problem solving techniques</li> </ul> |
| Initiative and enterprise | <ul style="list-style-type: none"> <li>• identify the most appropriate equipment/plant item</li> <li>• make adjustments to improve equipment/item performance</li> <li>• anticipate the impact of the process on the product</li> <li>• determine problems needing action</li> <li>• recommend required action</li> <li>• report problems outside area of responsibility</li> <li>• distinguish between causes of faults</li> </ul>   |
| Planning and organising   | <ul style="list-style-type: none"> <li>• plan own work requirements</li> <li>• plan scope of equipment/plant item checks</li> <li>• plan and organise activities</li> <li>• identify tasks to achieve team goals.</li> <li>• organise allocation of tasks.</li> <li>• monitor completion of allocated tasks</li> <li>• organise work according to a production schedule</li> </ul>  |
| Self-management           | <ul style="list-style-type: none"> <li>• plan own work requirements from production requests</li> <li>• operate within appropriate time constraints and work</li> </ul>   |

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|  | <p>standards</p> <ul style="list-style-type: none"><li>• select and use appropriate equipment, materials, processes and procedures</li><li>• plan to ensure effective production</li><li>• apply workplace procedures</li><li>• identify resource requirements, document and monitor</li><li>• recognise limitations and seek timely advice</li></ul> |
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| Learning   | <ul style="list-style-type: none"> <li>ask questions to gain information</li> <li>identify sources of information to expand knowledge and understanding</li> <li>participate in improvement procedures</li> <li>participate in development of continuous improvement strategies</li> </ul>   |
| Technology | <ul style="list-style-type: none"> <li>operation and adjustment of processes</li> <li>start up and shut down equipment/plant items</li> <li>set up equipment/plant items</li> <li>monitor product/process quality</li> <li>function and operating principles of equipment, machine components</li> <li>maintain workplace records</li> </ul> |

## Packaging Rules

To be awarded the Certificate II in Process Plant Operations competency must be achieved in **sixteen (16)** units of competency:

- five (5)** core units of competency
- eleven (11)** elective units of competency chosen as specified below.

### Note

Where prerequisite units apply, these must be considered in the total number of units chosen.

### Core units of competency

| Unit code    | Unit title  |
|--------------|---|
| MSAENV272B   | Participate in environmentally sustainable work practices |
| MSAPMOHS110A | Follow emergency response procedures                      |
| MSAPMOHS200A | Work safely   |
| MSAPMSUP100A | Apply workplace procedures                                |
| MSAPMSUP102A | Communicate in the workplace                              |

## Elective units of competency

Select **eleven (11)** units as specified below:

- A minimum of **four (4)** from Group A
- The remainder may be chosen from Groups A, B and C (with a maximum of **five (5)** from Group C) to bring the total number of electives to **eleven (11)**.

Note that **three (3)** of the Group C units can be chosen from other qualifications in this Training Package, other endorsed Training Packages and accredited courses, where those units are available at Certificate II.

### Group A – Specialist electives

| <i>Unit code</i> | <i>Unit title</i>                                | <i>Prerequisites</i> |
|------------------|--|----------------------|
| FDFPHGMP2B       | Implement Good Manufacturing Practice procedures |                      |
| MSAPMOPS200A     | Operate equipment                                |                      |
| MSAPMOPS212A     | Use enterprise computers or data systems         |                      |
| PMAOPS201B       | Operate fluid flow equipment                     |                      |
| PMAOPS202B       | Operate fluid mixing equipment                   |                      |
| PMAOPS203B       | Handle goods                                     |                      |
| PMAOPS204B       | Use utilities and services                       |                      |
| PMAOPS205B       | Operate heat exchangers                          |                      |
| PMAOPS206B       | Operate separation equipment                     |                      |
| PMAOPS207B       | Operate powered separation equipment             |                      |
| PMAOPS208B       | Operate chemical separation equipment            |                      |
| PMAOPS210B       | Operate particulates handling equipment          |                      |
| PMAOPS211B       | Operate manufacturing extruders                  |                      |
| PMAOPS213B       | Package product/material                         |                      |

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| PMAOPS216B   | Operate local control system                                  |                                 |
| PMAOPS217B   | Operate wet milling equipment                                 |                                 |
| PMAOPS220B   | Monitor chemical reactions in the process                     |                                 |
| PMAOPS221B   | Operate and monitor prime movers                              |                                 |
| PMAOPS222B   | Operate and monitor pumping systems and equipment             | Co-requisite unit<br>PMAOPS221B |
| PMAOPS223B   | Operate and monitor valve systems                             |                                 |
| PMAOPS224B   | Provide fluids for utilities and support                      |                                 |
| PMAOPS230B   | Monitor, operate and maintain pipeline stations and equipment |                                 |
| PMAOPS231B   | Control gas odourisation                                      |                                 |
| PMAOPS232B   | Produce product by filtration                                 |                                 |
| PMAOPS233A   | Monitor wells and gathering systems                           |                                 |
| PMAOPS234A   | Monitor and operate low pressure compressors                  |                                 |
| PMAOPS240B   | Store liquids in bulk   |                                 |
| PMAOPS241A   | Operate Joule-Thomson effect device                           |                                 |
| PMAOPS280B   | Interpret process plant schematics                            |                                 |
| PMAOPS290B   | Operate a biotreater  |                                 |
| PMASMELT260B | Form carbon anodes  |                                 |
| PMASMELT261B | Bake carbon anodes  |                                 |
| PMASMELT262B | Clean and strip anode rods                                    |                                 |
| PMASMELT263B | Spray carbon anodes   |                                 |
| PMASMELT264B | Start up reduction cells                                      |                                 |
| PMASMELT265B | Operate reduction cells                                       |                                 |
| PMASMELT266B | Deliver molten metal  |                                 |



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| PMASMELT267B | Cast aluminium ingots                    |  |
| PMASMELT268B | Vertical direct casting                  |  |
| PMASMELT269A | Operate cell tending equipment           |  |
| PMASMELT270A | Supply product from reduction cells      |  |
| UEPOPS319A   | Operate and Monitor Gas Production Plant |  |

**One (1)** unit may be chosen from Group A in PMA30108 Certificate III in Process Plant Operations

### **Group B**

| <b>Unit code</b> | <b>Unit title</b>  | <b>Prerequisites</b> |
|------------------|--|----------------------|
| MEM05012C        | Perform routine manual metal arc welding   |                      |
| MEM09002B        | Interpret technical drawing  |                      |
| MEM16005A        | Operate as a team member to conduct manufacturing, engineering or related activities |                      |
| MSACMS201A       | Sustain process improvements   |                      |
| MSACMT230A       | Apply cost factors to work practices   |                      |
| MSACMT231A       | Interpret product costs in terms of customer requirements                            |                      |
| MSACMT240A       | Apply 5S procedures in a manufacturing environment                                   |                      |
| MSACMT250A       | Monitor process capability   |                      |
| MSACMT251A       | Apply quality standards  |                      |
| MSACMT260A       | Use planning software systems in manufacturing                                       |                      |
| MSACMT270A       | Use sustainable energy practices   |                      |

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| MSACMT271A   | Use sustainable environmental practices                           |              |
| MSACMT280A   | Undertake root cause analysis                                     |              |
| MSACMT281A   | Contribute to the application of a proactive maintenance strategy |              |
| MSAPMOHS205A | Control minor incidents   |              |
| MSAPMOHS210B | Undertake first response to non-fire incidents                    |              |
| MSAPMOHS212A | Undertake first response to fire incidents                        |              |
| MSAPMOHS216A | Operate breathing apparatus                                       |              |
| MSAPMOHS217A | Gas test atmospheres  |              |
| MSAPMOHS220A | Provide initial first aid response                                |              |
| MSAPMPER200C | Work in accordance with an issued permit                          |              |
| MSAPMPER201A | Monitor and control work permits                                  |              |
| MSAPMPER202A | Observe permit work   | MSAPMPER200C |
| MSAPMPER205C | Enter confined space  | MSAPMPER200C |
| MSAPMSUP200A | Achieve work outcomes   |              |
| MSAPMSUP201A | Receive or despatch goods   |              |
| MSAPMSUP204A | Pack products or materials  |              |
| MSAPMSUP205A | Transfer loads  |              |
| MSAPMSUP210A | Process and record information                                    |              |
| MSAPMSUP240A | Undertake minor maintenance                                       |              |
| MSAPMSUP280A | Manage conflict at work   |              |
| MSAPMSUP291A | Participate in continuous improvement                             |              |
| MSAPMSUP292A | Sample and test materials and product                             |              |
| MSL952001A   | Collect routine site samples                                      |              |
| PMAOHS211B   | Prepare equipment for emergency response                          |              |

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|-------------|---|--|
| PMAOHS213B  | Undertake fire control and emergency rescue                     |  |
| PMAOHS214B  | Undertake helicopter safety and escape                          |  |
| PMAOHS215B  | Apply offshore facility abandonment and sea survival procedures |  |
| PMAOHS221B  | Maintain first aid supplies and records                         |  |
| PMAOMIR210B | Control evacuation to muster point                              |  |
| PMASUP236B  | Operate vehicles in the field                                   |  |
| PMASUP237B  | Undertake crane, dogging and load transfer operations           |  |
| PMASUP241B  | Maintain pipeline easements                                     |  |
| PMASUP242B  | Monitor pipeline civil works                                    |  |
| PMASUP243B  | Monitor and maintain pipeline coatings                          |  |
| PMASUP244A  | Prepare and isolate plant                                       |  |
| RIIOHS204A  | Work safely at heights  |  |
| RIIRIS201A  | Conduct local risk control                                      |  |
| TLID1007C   | Operate a forklift  |  |

### Group C

| Unit code    | Unit title   | Prerequisites |
|--------------|--|---------------|
| FDFPHGMP1A   | Follow work procedures to maintain Good Manufacturing Practice |               |
| MEM11011B    | Undertake manual handling                                      |               |
| MSAPMOHS100A | Follow OHS procedures  |               |
| MSAPMOPS100A | Use equipment  |               |
| MSAPMOPS102A | Perform tasks to support production                            |               |

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| MSAPMSUP101A | Clean workplace or equipment                |  |
| MSAPMSUP106A | Work in a team                              |  |
| MSAPMSUP172A | Identify and minimise environmental hazards |  |
| PMAOPS101C   | Read dials and indicators                   |  |
| PMAOPS105C   | Select and prepare materials                |  |

Up to **three (3)** relevant units may be selected from this Training Package, other endorsed Training Packages and accredited courses where those units are available at Certificate II.