



**Australian Government**

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

# **PMA60108 Advanced Diploma of Process Plant Technology**

**Revision Number: 1**

## **PMA60108 Advanced Diploma of Process Plant Technology**

### **Modification History**

Not applicable.

## Description

The Advanced Diploma of Process Plant Technology has been developed as a technical qualification for use in the Chemical, Hydrocarbons and Refining Training Package (PMA08). This qualification covers the skills and knowledge required to perform advanced technical and para-professional operations within the chemical, hydrocarbons or refining industries

### *Job roles/employment outcomes*

The Advanced Diploma of Process Plant Technology is intended for process plant technologists or para-professionals who may have worked their way up through the chemical, hydrocarbons or refining certificate qualifications or who have entered the industry at this level, either from another industry or trade occupation.

The process plant technologist will analyse performance and failure in equipment and products and will assist in the development on new and modified products.

The Advanced Diploma of in Competitive Manufacturing MCM60104 is available for team leaders and managers at this level where the job requires sophisticated manufacturing practice skills rather than technical skills.

### *Application*

This qualification is typically used to develop employees performing a highly technical role that includes an ability to lead others and conduct technical problem solving according to the needs of the work in the manufactured mineral products industries.

People with this qualification may be expected to work 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.

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 into the qualification*

The Advanced Diploma of Process Plant Technology offers advanced technical training to people who have completed PMA50110 Diploma of Process Plant Technology or other relevant qualifications, or who have significant relevant industry experience without formal qualifications. Credit for this qualification may include units contained within relevant skill sets.

***Pathways from the qualification***

Further training pathways from this qualification include PMA70108 Graduate Certificate in Surface Coatings, MSA60108 Advanced Diploma of Manufacturing Technology, MSA61108 Advanced Diploma of Competitive Manufacturing or other relevant qualifications, including appropriate vocational graduate qualifications.

***Additional qualification advice***

MSA61108 Advanced Diploma of Competitive Manufacturing is available for team leaders and managers at this level who already possess technical skills and who require additional manufacturing practice skills above those available in this qualification.

***Licensing considerations***

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

## **Pathways Information**

Not applicable.

## **Licensing/Regulatory Information**

Not applicable.

## **Entry Requirements**

Not applicable.

## Employability Skills Summary

<b>EMPLOYABILITY SKILLS QUALIFICATION SUMMARY</b>	
<b>Employability Skill</b>	<b>Industry/enterprise requirements for this qualification include:</b>
Communication	<ul style="list-style-type: none"> <li>• verify with appropriate people.</li> <li>• determine modification requirements</li> <li>• liaise with personnel</li> <li>• complete all reports.</li> <li>• communicate with stakeholders</li> <li>• obtain 'sign off' from all relevant persons.</li> <li>• communicate with production personnel</li> <li>• ensure project records are complete</li> </ul>
Teamwork	<ul style="list-style-type: none"> <li>• work autonomously or as part of a team</li> <li>• liaise and cooperate with other team members</li> <li>• identify own role and responsibility within a team</li> <li>• undertake appropriate and effective communication with team members</li> </ul>
Problem-solving	<ul style="list-style-type: none"> <li>• optimise production of new product/use of new or modified process</li> <li>• apply knowledge of materials, product purpose and processes</li> <li>• check performance of equipment/plant and make approved adjustments</li> <li>• make adjustments to remedy faults and non-conformity</li> <li>• clarifying and addressing potential issues</li> <li>• identify problems and make contributions to their solution</li> </ul>
Initiative and enterprise	<ul style="list-style-type: none"> <li>• make adjustments to improve equipment/plant 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>• recognise problems in systems and documentation</li> <li>• critically analyse information</li> <li>• develop continuous improvement strategies</li> <li>• investigate, rectify and report non-conformance</li> <li>• predict consequences and identify improvements</li> <li>• use analytical and decision making skills</li> <li>• recommend corrective and/or optimization actions</li> </ul>
Planning and organising	<ul style="list-style-type: none"> <li>• supervise process/plant trials</li> <li>• ensure process needs for new product have been met.</li> <li>• coordinate trials</li> </ul>

<b>EMPLOYABILITY SKILLS QUALIFICATION SUMMARY</b>	
	<ul style="list-style-type: none"> <li>• plan operation</li> <li>• identify requirements for materials, quality, production and equipment/plant checks</li> <li>• identify most efficient and appropriate equipment/plant</li> <li>• analyse equipment/plant performance</li> </ul>
Self-management	<ul style="list-style-type: none"> <li>• operate within appropriate time constraints and work standards</li> <li>• select and use appropriate equipment, materials, processes and procedures</li> <li>• identify resource requirements, document and monitor</li> <li>• consistent performance should be demonstrated</li> </ul>
Learning	<ul style="list-style-type: none"> <li>• research and evaluate equipment</li> <li>• ask questions to gain information</li> <li>• identify sources of information to expand knowledge and understanding</li> <li>• recognise limits of own professional expertise and consult specialists as necessary</li> <li>• participate in improvement procedures</li> <li>• access manufacturer's manuals/specifications to expand knowledge</li> </ul>
Technology	<ul style="list-style-type: none"> <li>• undertake plant modifications</li> <li>• determine material requirements for product.</li> <li>• determine process requirements for product.</li> <li>• interpret trial results</li> <li>• interpret specifications</li> <li>• monitor initial production and adjust process, conditions and materials</li> <li>• develop a modified process</li> </ul>

## Packaging Rules

### Packaging Rules

To be awarded the Advanced Diploma of Process Plant Technology competency must be achieved in **fifteen (15)** units of competency:

- **four (4)** 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

Code	Title	Prerequisite/s
MSAENV272B	Participate in environmentally sustainable work practices	
MSAPMOHS200A	Work safely	
MSAPMSUP200B	Achieve work outcomes	
MSAPMSUP210A	Process and record information	

### Elective units of competency

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

- A minimum of **one (1)** from Group A
- A minimum of **one (1)** from Group B
- The remainder may be chosen from Groups A, B, C and D (with a maximum of **seven (7)** from Group D) to bring the total number of electives to **eleven (11)**.

Note that **three (3)** elective units can be chosen from other qualifications in this Training Package, other endorsed Training Packages and accredited courses as specified in Groups C and D.

#### Group A

Code	Title	Prerequisite/s
PMAOPS600C	Modify plant	
PMAOPS601A	Debottleneck plant	

#### Group B

Code	Title	Prerequisite/s
MSACMC610A	Manage relationships with non-customer external organisations	
MSACMC611A	Manage people relationships	

<b>Code</b>	<b>Title</b>	<b>Prerequisite/s</b>
MSACMC612A	Manage workplace learning	
MSACMT630A	Optimise cost of product	MSACMT631A
MSACMT640A	Manage 5S system in a manufacturing environment	
MSACMT641A	Implement a continuous improvement system	
MSACMT650A	Determine and improve process capability	MSACMT452A
MSACMT660A	Develop the application of enterprise systems in manufacturing	
MSACMT661A	Determine and establish information collection requirements and processes	
MSACMT670A	Develop and manage sustainable energy practices	
MSACMT671A	Develop and manage sustainable environmental practices	
MSACMT681A	Develop a proactive maintenance strategy	
MSAENV672B	Develop workplace policy and procedures for environmental sustainability	
MSAPMOHS601A	Establish workplace OHS management system	MSAPMOHS503A
MSL936001A	Maintain quality system and continuous improvement processes	



<b>Code</b>	<b>Title</b>	<b>Prerequisite/s</b>
	within work/functional area	
PMAOMIR622B	Build partnerships to improve incident response capacity	
PMAOMIR650B	Manage a crisis	
PMASUP620B	Manage environmental management system	PMASUP520B
PSPMNGT604B	Manage change	
PSPMNGT605B	Manage diversity	

**Group C**

<b>Code</b>	<b>Title</b>	<b>Prerequisite/s</b>
MSAPMOHS503A	Maintain the workplace OHS management system	
MSAPMOHS510A	Manage risk	MSAPMOHS401A
PMAOHS502B	Contribute to safety case	
PMAOHS511A	Manage emergency incidents	PMAOMIR320B
PMAOMIR512B	Establish incident response preparedness and response systems	
PMAOMIR523B	Manage corporate media requirements in a crisis	
PMAOMIR575B	Coordinate welfare support activities in response to an incident	
PMAOPS500A	Optimise production systems	
PMAOPS501A	Provide operational expertise to a project	

<b>Code</b>	<b>Title</b>	<b>Prerequisite/s</b>
	team	
PMAOPS505A	Control the process in abnormal situations	
PMAOPS511B	Determine energy transfer loads	
PMAOPS512B	Determine mass transfer loads	
PMAOPS520C	Manage utilities	
PMAOPS521C	Plan plant shutdown	
PMAOPS522A	Coordinate plant shut down	
PMAOPS550B	Develop a colour formulation	PMAOPS350B PMAOPS450B
PMASUP520B	Review procedures to minimise environmental impact of process	
PMASUP540B	Analyse equipment performance	
Up to <b>one (1)</b> relevant unit may be chosen from this Training Package, other endorsed Training Packages and accredited courses where that unit is available for inclusion at Diploma or above.		

**Group D**

<b>Code</b>	<b>Title</b>	<b>Prerequisite/s</b>
MSACMC411A	Lead a competitive manufacturing team	
MSACMC413A	Lead team culture improvement	
MSACMS401A	Ensure process improvements are sustained	
MSACMT430A	Improve cost factors in work practices	

<b>Code</b>	<b>Title</b>	<b>Prerequisite/s</b>
MSACMT440A	Lead 5S in a manufacturing environment	
MSACMT441A	Facilitate continuous improvement in manufacturing	
MSACMT450A	Undertake process capability improvements	MSACMT452A
MSACMT451A	Mistake proof a production process	
MSACMT452A	Apply statistics to processes in manufacturing	
MSACMT460A	Facilitate the use of planning software systems in manufacturing	MSACMT260A
MSACMT481A	Undertake proactive maintenance analyses	
MSACMT482A	Assist in implementing a proactive maintenance strategy	
MSAENV472B	Implement and monitor environmentally sustainable work practices	
MSAPMOHS400A	Contribute to workplace OHS management system	MSAPMOHS300A
MSAPMOHS401A	Assess risk	
MSAPMOPS400A	Optimise process/plant area	MSAPMSUP390A
MSAPMOPS401A	Trial new process product	
MSAPMOPS404A	Co-ordinate maintenance	
MSAPMOPS405A	Identify problems in fluid power system	
MSAPMOPS406A	Identify problems in electronic control systems	
MSAPMPER400A	Coordinate permit process	
MSAPMSUP400A	Develop and monitor quality systems	

<b>Code</b>	<b>Title</b>	<b>Prerequisite/s</b>
MSL954001A	Obtain representative samples in accordance with a sampling plan	
PMAOHS420B	Develop first aid procedures and manage resources	
PMAOMIR320B	Manage incident response information	
PMAOMIR407B	Audit incident preparedness and established response system	
PMAOMIR418B	Coordinate incident response	
PMAOMIR424B	Develop and maintain community relationships	
PMAOMIR430B	Conduct and assess incident exercises	
PMAOMIR444B	Develop incident containment tactics	
PMAOMIR449B	Monitor legal compliance obligations during incidents	
PMAOPS350B	Match and adjust colour	
PMAOPS402A	Respond to abnormal process situations	MSAPMSUP390A
PMAOPS405A	Operate complex control systems	
PMAOPS410B	Monitor remote production facilities	
PMAOPS411B	Manage plant shutdown and restart	
PMAOPS450B	Solve colour problems	
PMASUP410B	Develop plant documentation	
PMASUP420B	Minimise environmental impact of process	
PMASUP432B	Coordinate pipeline projects	

<b>Code</b>	<b>Title</b>	<b>Prerequisite/s</b>
PMASUP440B	Commission/recommission plant	
PMASUP441B	Decommission plant	
PMASUP445A	Participate in HAZOP studies	PMAOPS280A
TAEASS401A	Plan assessment activities and processes	
TAEASS402A	Assess competence	
TAEASS403A	Participate in assessment validation	
Up to <b>two (2)</b> relevant units may be chosen from this Training Package, other endorsed Training Packages and accredited courses where those units are available for inclusion at Certificate IV or above.		