



**Australian Government**

# **PMA40116 Certificate IV in Process Plant Technology**

**Release 5**

# PMA40116 Certificate IV in Process Plant Technology

## Modification History

Release 5. 10 PMASMELT coded units reinstated into the elective group. Equivalent.

Release 4. Update to electives where first aid units are prerequisites.

Release 3. Twenty seven low use units removed from elective bank as determined at December 2020 AISC meeting in response to Skills Ministers' objectives. Equivalent.

Release 2. Elective unit codes and titles updated. Supersedes and is equivalent to PMA40116 Certificate IV in Process Plant Technology (Release 1).

Release 1. Supersedes and is equivalent to PMA40113 Certificate IV in Process Plant Technology.

## Qualification Description

The PMA40116 Certificate IV in Process Plant Technology is a technical qualification for plant technicians and operations technicians who will typically be involved in solving complex problems which require theoretical knowledge, combined with an understanding of the production process and equipment across the plant. This qualification is typically used to develop employees performing a technical role that includes an ability to work independently and conduct technical problem solving according to the needs of the work in the chemical, hydrocarbons and refining industries.

Other non-technical Certificate IV qualifications are available for production support employees at this level, such as MSM40116 Certificate IV in Process Manufacturing.

## Entry Requirements

There are no entry requirements for this qualification.

## Packaging Rules

To be awarded the PMA40116 Certificate IV in Process Plant Technology competency must be achieved in **twenty-six (26)** units of competency:

- **five (5)** core units of competency
- **twenty-one (21)** elective units of competency, chosen as specified below:
- a minimum of **one (1)** unit of competency from Group A
- the remainder may be chosen from Groups A, B and C (with a maximum of **eighteen (18)** from Group C) to bring the total number of electives to **twenty-one (21)**.

**Note:** **Five (5)** elective units can be chosen from other qualifications in this Training Package, other endorsed Training Packages and accredited courses, as specified in Groups B and C.

**Note:** Where prerequisite units are identified they must be counted in the total number of units required for achievement of the qualification.

### Core units of competency

Complete all **five (5)** units from the following list.

Unit code	Unit title	
MSMENV272	Participate in environmentally sustainable work practices	
MSMSUP100	Apply workplace context to own job	
MSMSUP102	Communicate in the workplace	
MSMWHS110	Follow emergency response procedures	
MSMWHS200	Work safely	
<b>ELECTIVE UNITS</b>		
<b>Group A – Technical electives</b>		
Unit code	Unit title	Prerequisites
MSMOPS400	Optimise process/plant area	
MSMOPS401	Trial new process or product	
PMAOPS402	Respond to abnormal process situations	MSMSUP390
PMAOPS405	Operate complex control systems	
PMAOPS410	Operate remote production facilities	
PMAOPS411	Manage plant shutdown and restart	
PMAOPS433	Manage wells and gathering systems	
PMAOPS434	Commission wells and gathering systems	
PMAOPS450	Solve colour problems	
PMAOPS460	Monitor and operate tailings management	

	facilities	
<b>Group B – Support electives</b>		
<b>Unit code</b>	<b>Unit title</b>	<b>Prerequisites</b>
MSMENV472	Implement and monitor environmentally sustainable work practices	
MSL954004	Obtain representative samples in accordance with sampling plan	
MSMPER400	Coordinate permit process	MSMPER300
MSMSUP400	Develop and monitor quality systems	
MSMSUP404	Coordinate maintenance	
MSMSUP405	Identify problems in fluid power system	
MSMSUP406	Identify faults in electronic control	
MSMWHS400	Contribute to WHS management system	
MSMWHS401	Assess risk	
MSS403085	Ensure process improvements are sustained	
MSS403011	Facilitate implementation of competitive systems and practices	
MSS405013	Facilitate holistic culture improvement in an organisation	
MSS403086	Improve cost factors in work practices	
MSS403040	Facilitate and improve implementation of 5S	
MSS403054	Facilitate breakthrough improvements	
MSS403087	Mistake proof an operational process	
MSS404084	Undertake process capability improvements	
MSS404060	Facilitate the use of planning software systems in a work area or team	

MSS404085	Undertake proactive maintenance analyses	
MSS404086	Assist in implementing a proactive maintenance strategy	
MSS405052	Design an experiment	MSS404054
PMAOMIR306	Operate control panel during an emergency	PMAOPS315
PMAOMIR407	Audit incident preparedness and established response systems	
PMAOMIR418	Coordinate incident response	
PMAOMIR424	Develop and maintain community relationships	
PMAOMIR430	Conduct and assess incident exercises	
PMAOMIR444	Develop incident containment tactics	
PMASUP410	Develop plant documentation	
PMASUP420	Minimise environmental impact of process	
PMASUP440	Commission/recommission plant	
PMASUP441	Decommission plant	
PMASUP444	Plan plant preparation and isolation	
PMASUP445	Participate in HAZOP studies	PMAOPS280
TAEASS401	Plan assessment activities and processes	
TAEASS402	Assess competence	
TAEASS403	Participate in assessment validation	
TAEASS502	Design and develop assessment tools	
<p>Up to <b>one</b> (1) relevant unit may be chosen from this Training Package, other endorsed Training Packages and accredited courses, where that unit is packaged in a Certificate IV or Diploma.</p>		
<p><b>Group C – Other electives</b></p>		

<b>Unit code</b>	<b>Unit title</b>	<b>Prerequisites</b>
FBPPHM2001	Follow work procedures to maintain Good Manufacturing Practice requirements	
FBPPHM3001	Apply Good Manufacturing Practice requirements	
HLTAID011	Provide First Aid	
MEM04001B	Operate melting furnaces	MEM13004B
MEM05012C	Perform routine manual metal arc welding	
MEM09002B	Interpret technical drawing	
MEM09003B	Prepare basic engineering drawing	MEM09002B
MEM11011B	Undertake manual handling	
MEM16005A	Operate as a team member to conduct manufacturing, engineering or related activities	
MEM18011C	Shut down and isolate machine/equipment	
MSMBLIC001	Licence to operate a standard boiler	
MSMBLIC002	Licence to operate an advanced boiler	
MSL952001	Collect routine site samples	
MSL973013	Perform basic tests	
MSMENV172	Identify and minimise environmental hazards	
MSMOPS100	Use equipment	
MSMOPS102	Perform tasks to support production	
MSMOPS200	Operate equipment	
MSMOPS212	Use organisation computers or data systems	
MSMPER200	Work in accordance with an issued permit	
MSMPER201	Monitor and control work permits	

MSMPER202	Observe permit work	
MSMPER205	Enter confined space	MSMPER200
MSMPER300	Issue work permits	MSMWHS201
MSMSUP101	Clean workplace or equipment	
MSMSUP106	Work in a team	
MSMSUP200	Achieve work outcomes	
MSMSUP204	Pack products or materials	
MSMSUP205	Transfer loads	
MSMSUP210	Process and record information	
MSMSUP240	Undertake minor maintenance	
MSMSUP273	Handle goods	
MSMSUP280	Manage conflict at work	
MSMSUP291	Participate in continuous improvement	
MSMSUP292	Sample and test materials and product	
MSMSUP300	Identify and apply process improvements	
MSMSUP301	Apply HACCP to the workplace	
MSMSUP303	Identify equipment faults	
MSMSUP309	Maintain and organise workplace records	
MSMSUP310	Contribute to the development of workplace documentation	
MSMSUP330	Develop and adjust a production schedule	
MSMSUP382	Provide coaching/mentoring in the workplace	
MSMSUP383	Facilitate a team	
MSMSUP390	Use structured problem-solving tools	
MSMWHS100	Follow WHS procedures	

MSMWHS201	Conduct hazard analysis	
MSMWHS205	Control minor incidents	
MSMWHS210	Undertake first response to non-fire incidents	
MSMWHS212	Undertake first response to fire incidents	
MSMWHS216	Operate breathing apparatus	
MSMWHS217	Gas test atmospheres	
MSMWHS218	Control the risks of falls	
MSMWHS300	Facilitate the implementation of WHS for a work group	MSMWHS200
MSS402002	Sustain process improvements	
MSS402082	Apply cost factors to work practices	
MSS402031	Interpret product costs in terms of customer requirements	
MSS402040	Apply 5S procedures	
MSS402050	Monitor process capability	
MSS402051	Apply quality standards	
MSS402083	Use planning software systems in operations	
MSS402080	Undertake root cause analysis	
MSS402081	Contribute to the application of a proactive maintenance strategy	
PMAOMIR210	Control evacuation to muster point	
PMAOMIR301	Undertake initial rescue	MSMWHS216 MSMWHS217 HLTAID011
PMAOMIR302	Respond to a helideck incident	
PMAOMIR317	Facilitate search and rescue operations	
PMAOMIR322	Manage incident response information	



PMAOMIR323	Manage communication systems during an incident	
PMAOMIR346	Assess and secure an incident site	
PMAOPS101	Read dials and indicators	
PMAOPS105	Select and prepare materials	
PMAOPS201	Operate fluid flow equipment	
PMAOPS202	Operate fluid mixing equipment	
PMAOPS204	Select and use utilities and services	
PMAOPS205	Operate heat exchangers	
PMAOPS208	Operate chemical separation equipment	
PMAOPS210	Operate solids handling equipment	
PMAOPS213	Package product/material	
PMAOPS216	Operate local control system	
PMAOPS217	Operate wet milling equipment	
PMAOPS220	Monitor chemical reactions in the process	
PMAOPS221	Operate and monitor prime movers	
PMAOPS222	Operate and monitor pumping systems and equipment	PMAOPS221 OR PMAOPS324
PMAOPS223	Operate and monitor valve systems	
PMAOPS224	Provide fluids for utilities and support	
PMAOPS226	Monitor and operate flare systems	
PMAOPS230	Monitor, operate and maintain pipeline stations and equipment	
PMAOPS231	Control gas odourisation	
PMAOPS232	Operate filtration equipment	
PMAOPS233	Monitor wells and gathering systems	

PMAOPS234	Monitor and operate low pressure compressors	
PMAOPS236	Monitor continuous process plant	
PMAOPS240	Store fluids in bulk	
PMAOPS241	Operate Joule-Thomson effect device	
PMAOPS246	Operate separation equipment	
PMAOPS247	Operate powered separation equipment	
PMAOPS260	Conduct screening operations	
PMAOPS261	Operate bulk solids loading equipment	
PMAOPS262	Operate digestion equipment	
PMAOPS264	Operate solvent extraction equipment	
PMAOPS280	Interpret process plant schematics	
PMAOPS306	Operate and troubleshoot production unit	
PMAOPS310	Operate and troubleshoot distillation system	
PMAOPS311	Operate and troubleshoot reactors and reaction equipment	
PMAOPS313	Operate and troubleshoot furnaces to induce reaction	
PMAOPS314	Operate and troubleshoot compressor systems	
PMAOPS315	Operate and troubleshoot process control systems	
PMAOPS343	Transfer bulk fluids into/out of storage facility	
PMAOPS316	Organise storage and logistics of general materials	
PMAOPS309	Operate solids handling/storage facility	
PMAOPS317	Undertake ship transfer operations	
PMAOPS319	Adjust batch	
PMAOPS318	Conduct artificial lift	

PMAOPS322	Undertake well management	
PMAOPS328	Operate and troubleshoot heating furnace	
PMAOPS331	Operate and troubleshoot gas turbine system	
PMAOPS332	Generate electrical power	
PMAOPS334	Operate and troubleshoot gas absorption system	
PMAOPS336	Operate and troubleshoot fixed-bed adsorption system	
PMAOPS337	Operate and troubleshoot liquid extraction system	
PMAOPS338	Communicate and monitor pipeline activities	
PMAOPS339	Operate and troubleshoot wells and gathering systems	
PMAOPS342	Conduct pipeline pigging	
PMAOPS341	Operate and troubleshoot cryogenic processes	
PMAOPS350	Match and adjust colour	
PMAOPS390	Operate a biochemical process	
PMASMELT260	Form carbon anodes	
PMASMELT261	Bake carbon anodes	
PMASMELT262	Clean and strip anode rods	
PMASMELT263	Spray carbon anodes	
PMASMELT264	Start up reduction cells	
PMASMELT265	Operate reduction cells	
PMASMELT266	Deliver molten metal	
PMASMELT267	Cast ingots	
PMASMELT268	Operate vertical direct casting process	
PMASMELT269	Operate cell tending equipment	

PMASMELT270	Supply product from reduction cells	
PMASUP236	Operate vehicles in the field	
PMASUP237	Undertake crane, dogging and load transfer operations	
PMASUP241	Maintain pipeline easements	
PMASUP242	Monitor pipeline civil works	
PMASUP243	Monitor and maintain pipeline coatings	
PMASUP244	Prepare and isolate plant	
PMASUP245	Break and make flanged joints using hand tools	
PMASUP246	Disconnect and reconnect non-flared tube fitting joints	
PMASUP305	Operate Offshore Cranes	
PMASUP311	Operate communications hub	
PMASUP341	Monitor and maintain instrument and control systems	MSMPER300
PMASUP342	Monitor and maintain electrical systems	MSMPER300
PMASUP348	Monitor and maintain cathodic protection systems	
PMASUP349	Monitor and control repairs and modifications on operational pipe	
PMASUP345	Monitor vibration	
PMASUP350	Control corrosion	
PMAWHS211	Prepare equipment for emergency response	
PMAWHS213	Undertake fire control and emergency rescue	
PMAWHS214	Undertake helicopter safety and escape	
PMAWHS215	Apply offshore facility abandonment and sea survival procedures and practices	
PMAWHS310	Investigate incidents	

PMAWHS311	Lead emergency teams	
PMAWHS312	Command the operation of survival craft	
PMAWHS320	Provide advanced first aid response	HLTAID011
MSMPMC302	Operate equipment to blend/mix materials	
MSMPMC303	Operate grinding equipment	
MSMPMC306	Operate crushing equipment	
MSMPMC324	Move materials	
PSPGEN015	Work effectively with diversity	
TAEASS301	Contribute to assessment	
TAEDEL301	Provide work skill instruction	
TLID2010	Operate a forklift	
UEPOPL001	Licence to operate a steam turbine	
UEPOPS319	Operate and monitor gas production plant	
<p>Up to <b>four</b> (4) relevant units may be chosen from this Training Package, other endorsed Training Packages and accredited courses where those units are packaged in a Certificate II, III or IV.</p>		

## Qualification Mapping Information

Release 5. Supersedes and is equivalent to PMA40116 Certificate IV in Process Plant Technology (Release 4). 10 PMASMELT units reinstated into elective group.

Release 4. Supersedes and is equivalent to PMA40116 Certificate IV in Process Plant Technology (Release 3).

Release 3. Supersedes and is equivalent to PMA40116 Certificate IV in Process Plant Technology (Release 2).

Release 2. Supersedes and is equivalent to PMA40116 Certificate IV in Process Plant Technology (Release 1).

Release 1. Supersedes and is equivalent to PMA40113 Certificate IV in Process Plant Technology.

## **Links**

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=9fc2cf53-e570-4e9f-ad6a-b228ffdb6875>