

Australian Government

PMA40116 Certificate IV in Process Plant Technology

Release: 6

PMA40116 Certificate IV in Process Plant Technology

Modification History

Release	Comments
6	Elective units updated.
5	10 PMASMELT coded units reinstated into the elective group. Equivalent.
4	Update to electives where first aid units are prerequisites.
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.
2	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.
1	This qualification was first released in PMA Chemical, Hydrocarbons and Refining Release 1.0.

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

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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.

Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this qualification at the time of publication.

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

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MSMSUP102	Communicate in the workplace
MSMWHS110	Follow emergency response procedures
MSMWHS200	Work safely

ELECTIVE UNITS

Group A – Technical electives

Unit code	**Unit title**	**Prerequisites**
MSMOPS400	Optimise process/plant area	
MSMOPS401	Trial new process or product	
PMAOPS402	Respond to abnormal process situations	^
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	

Group B – Support electives

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Unit code	**Unit title**	**Prerequisites**
MSL954007	Obtain representative samples in accordance with sampling plan	
MSMENV472	Implement and monitor environmentally sustainable work practices	
MSMPER400	Coordinate permit process	*
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	
MSS403014	Facilitate team engagement with competitive systems and practices	
MSS403045	Facilitate and improve 5S	
MSS403058	Facilitate breakthrough improvements	
MSS403081	Ensure process improvements are sustained	
MSS403082	Improve cost factors in work practices	
MSS404051	Mistake proof a process	

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MSS404062	Facilitate the use of planning software systems in a work area or team	
MSS404080	Undertake process capability improvements	
MSS404088	Undertake proactive maintenance analyses	
MSS404089	Assist in implementing a proactive maintenance strategy	
MSS405027	Facilitate a competitive systems and practice culture in an organisation	
MSS405057	Design an experiment	*
PMAOMIR306	Operate control panel during an emergency	*
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	

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PMASUP441	Decommission plant	
PMASUP444	Plan plant preparation and isolation	
PMASUP445	Participate in HAZOP studies	*
TAEASS412	Assess competence	
TAEASS413	Participate in assessment validation	
TAEASS512	Design and develop assessment tools	

Up to **one** (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.

Group C – Other electives

Unit code	**Unit title**	**Prerequisites**
FBPPHM2001	Follow work procedures to maintain Good Manufacturing Practice requirements	
FBPPHM3020	Apply Good Manufacturing Practice requirements	
HLTAID011	Provide First Aid	
MEM04001	Operate melting furnaces	*
MEM05012	Perform routine manual metal arc welding	*
MEM09002	Interpret technical drawing	*

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MEM09003	Prepare basic engineering drawing	*
MEM11011	Undertake manual handling	*
MEM16005	Operate as a team member to conduct manufacturing, engineering or related activities	*
MEM18011	Shut down and isolate machines/equipment	*
MSL952003	Collect routine site samples	
MSL973025	Perform basic tests	
MSMBLIC001	Licence to operate a standard boiler	
MSMBLIC002	Licence to operate an advanced boiler	
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	*
MSMPER300	Issue work permits	*

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MSMPMC302	Operate equipment to blend/mix materials	
MSMPMC303	Operate grinding equipment	
MSMPMC324	Move materials	
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	

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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	*
MSS402004	Sustain process improvements	
MSS402032	Interpret product costs in terms of customer requirements	
MSS402042	Apply 5S procedures	
MSS402054	Monitor process capability	
MSS402055	Apply quality standards	

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MSS402084	Undertake root cause analysis	
MSS402085	Contribute to the application of a proactive maintenance strategy	
MSS402086	Use planning software systems in operations	
MSS402087	Apply cost factors to work practices	
PMAOMIR210	Control evacuation to muster point	
PMAOMIR301	Undertake initial rescue	*
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	

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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	*
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	

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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	
PMAOPS309	Operate solids handling/storage facility	
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	

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PMAOPS315	Operate and troubleshoot process control systems	
PMAOPS316	Organise storage and logistics of general materials	
PMAOPS317	Undertake ship transfer operations	
PMAOPS318	Conduct artificial lift	
PMAOPS319	Adjust batch	
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	
PMAOPS341	Operate and troubleshoot cryogenic processes	
PMAOPS342	Conduct pipeline pigging	
PMAOPS343	Transfer bulk fluids into/out of storage facility	

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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	

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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	*
PMASUP342	Monitor and maintain electrical systems	*
PMASUP345	Monitor vibration	
PMASUP348	Monitor and maintain cathodic protection systems	
PMASUP349	Monitor and control repairs and modifications on operational pipe	
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	

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PMAWHS312	Command the operation of survival craft	
PMAWHS320	Provide advanced first aid response	*
PSPGEN114	Work effectively with diversity and inclusion	
TAEASS311	Contribute to assessment	
TAEDEL311	Provide work skill instruction	
TLID0016	Operate a forklift	
UEPOPL004	Licence to operate a steam turbine	
UEPOPS098	Operate and monitor gas production plant	
Up to **four** (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.		

Pre-requisite Requirements

Unit of competency	Prerequisite requirement
MEM04001 Operate melting furnaces	MEM11011 Undertake manual handling MEM13004 Work safely with molten metals/glass MEM13015 Work safely and effectively in manufacturing and engineering MEM16006 Organise and communicate information
MEM05012 Perform routine manual metal arc welding	MEM11011 Undertake manual handling MEM13015 Work safely and effectively in manufacturing and engineering

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	MEM16006 Organise and communicate information
MEM09002 Interpret technical drawing	MEM12023 Perform engineering measurements MEM12024 Perform computations MEM13015 Work safely and effectively in manufacturing and engineering MEM16006 Organise and communicate information
MEM09003 Prepare basic engineering drawing	MEM09002 Interpret technical drawing MEM12023 Perform engineering measurements MEM12024 Perform computations MEM13015 Work safely and effectively in manufacturing and engineering MEM16006 Organise and communicate information
MEM11011 Undertake manual handling	MEM13015 Work safely and effectively in manufacturing and engineering MEM16006 Organise and communicate information
MEM16005 Operate as a team member to conduct manufacturing, engineering or related activities	MEM11011 Undertake manual handling MEM13015 Work safely and effectively in manufacturing and engineering MEM16006 Organise and communicate information
MEM18011 Shut down and isolate machines/equipment	MEM11011 Undertake manual handling MEM13015 Work safely and effectively in manufacturing and engineering MEM16006 Organise and communicate information

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MSMPER205 Enter confined space	MSMPER200 Work in accordance with an issued permit
MSMPER300 Issue work permits	MSMWHS201 Conduct hazard analysis
MSMPER400 Coordinate permit process	MSMPER300 Issue work permits
MSMWHS300 Facilitate the implementation of WHS for a work group	MSMWHS200 Work safely
MSS405057 Design an experiment	MSS404056 Apply statistics to operational processes
PMAOMIR301 Undertake initial rescue	HLTAID011 Provide First Aid MSMWHS216 Operate breathing apparatus MSMWHS217 Gas test atmospheres
PMAOMIR306 Operate control panel during an emergency	PMAOPS315 Operate and troubleshoot process control systems
PMAOPS222 Operate and monitor pumping systems and equipment	PMAOPS221 Operate and monitor prime movers PMAOPS324 Operate a gas turbine
PMAOPS402 Respond to abnormal process situations	MSMSUP390 Use structured problem-solving tools
PMASUP341 Monitor and maintain instrument and control systems	MSMPER300 Issue work permits
PMASUP342 Monitor and maintain electrical systems	MSMPER300 Issue work permits
PMASUP445 Participate in HAZOP studies	PMAOPS280 Interpret process plant schematics
PMAWHS320 Provide advanced first aid response	HLTAID011 Provide First Aid

Qualification Mapping Information

Current Code and Title	Previous Code and Title	Comments	Equivalence

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PMA40116 Certificate IV in Process Plant Technology	PMA40113 Certificate IV in Process Plant Technology	Release 1. Supersedes and is equivalent to PMA40113 Certificate IV in Process Plant Technology	Equivalent

Links

Companion volumes, including implementation guides, are found on the national training register - https://training.gov.au/training/details/PMA.

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