Manufacturing and Engineering Training Package Release 2

Case for Endorsement

November 2017

www.ibsa.org.au

manufacturing@ibsa.org.au

(03) 9815 7099

Level 11, 176 Wellington Parade
East Melbourne, Victoria, 3002

Prepared on behalf of the Manufacturing and Engineering IRC for the Australian Industry and Skills Committee (AISC)

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Required information

A. Administrative details of the Case for Endorsement

IBSA Manufacturing, a Skills Service Organisation (SSO) is submitting this Case for Endorsement on behalf of the Manufacturing and Engineering Industry Reference Committee (IRC).

The MEM Manufacturing and Engineering Training Package Release 2.0 incorporates eighteen (18) qualifications and four hundred and forty-nine (449) units of competency which are detailed in Appendix A.

The reference number for this Case for Endorsement is IBSA/AA/2017-18/002.

B. Description of work and request for approval

This submission covers new and revised qualifications for the MEM trade and production qualifications. The qualifications and associated units of competency were transitioned to the new Standards for Training Packages 2012 and updated to meet industry skills needs.

The MEM Manufacturing and Engineering Training Package was developed as a parallel Training Package to MEM05 Metal and Engineering Training Package. It will ultimately fully replace MEM05 when the revision of the MEM technical qualifications is finalised.

The Manufacturing and Engineering IRC is requesting the Australian Industry Skills Committee (AISC) to approve this Case for Endorsement for implementation.

The following components are submitted for endorsement:

- Eighteen (18) qualifications
- Four hundred and forty-nine (449) units of competency

Please refer to Appendix A for a complete list and mapping of the endorsed components. Credit arrangements and modification history are detailed in the Companion Volume Implementation Guide. The final draft qualifications and units of competency have been transferred to the Training Package Content Management System.

C. Evidence of Industry support

Consultations were undertaken during the development and revision of units of competency and qualifications from December 2013 until February 2017 with the following stakeholders:

- Technical industry experts
- Relevant industry associations and their members
- Unions
- Representatives of public and private Registered Training Organisations (RTOs) who offer the current units of competency and qualifications already and/or are intending to deliver the new units of competency
- Major industry stakeholders
- State Training Authorities
- MSA Board Sub-Committee/Manufacturing and Engineering Industry Reference Committee.

Consultation was through a combination of face-to-face forums, online web-based contact and webinars, with expert input sought and obtained for the specific needs of the project.

The consultations resulted in a variety of feedback, most of which focused on the suggestions of skills not documented. Many of these were contained within existing units and the people providing the feedback were informed as to where they could find the relevant material. One new unit, MEM12026 Perform advanced trade calculations in a manufacturing, engineering or related environment, was developed as a draft and was already available while other areas, because the research and development was outside the parameters of the transition project, were documented for future work. There was also comment specifically around the separation of the specialisations from the generic qualifications.

Refer to Appendix B for a list of the participants and Appendix C for a list of the locations.

The Case for Endorsement was approved by the Manufacturing and Engineering IRC on August 9, 2017. Minutes of this meeting can be found in Appendix E.

Consultations with State and Territory Training Authorities (STAs) were undertaken in August 2017 and the Case for Endorsement was made available on VETNet for two weeks.

The following STA personnel were provided with drafts of the Case for Endorsement, Companion Volume Implementation Guide and training package components:

STA Personnel

Given Name	Family Name	Organisation	State
Jodie	Kafer	ACT Chief Minister, Treasury and Economic Development Directorate	ACT
Nelson	Brown	Department of Business	NT
Howard	Lai	Department of Business	NT
Lee	Carter	Department of Education and Training	VIC
Marina	Borrello	Department of State Development	SA
Lisa	Barron	Department of Training and Workforce Development	WA
Marilyn	Ng	NSW Department of Industry	NSW
Guy	Valentine	Strategic Engagement Skills Investment and Market Strategy Department of Education and Training	QLD
Stuart	Hollingsworth	Skills Tasmania	TAS

This Case for Endorsement is supported by the following STAs:

- Northern Territory
- Queensland
- New South Wales
- South Australia
- Victoria.

No comments have been received from either the ACT or Tasmanian STAs at the time of the development of this document.

The Western Australia STA supports the Case for Endorsement, except for MEM20105 Certificate II in Engineering and MEM20205 Certificate II in Engineering - Production Technology. This exception is based on the inclusion of a statement that prevents the use of these qualifications for pre-employment

or pre-apprenticeship programs as these qualifications are not designed nor intended as pre-work qualifications.

D. Industry expectations about training delivery

Industry expectations about training delivery include:

All qualifications are competency based and can be achieved through a formal skills recognition process where substantial industry experience is evident. Where formal training is required, competence will be realised through a combination of on and off the job skills and knowledge development. The trade and production qualifications included in MEM Manufacturing and Engineering Training Package Release 2 are all required to be undertaken through either a formal Training Contract associated with an Australian Trade Apprenticeship or Traineeship or through formal skills recognition.

The MEM10117 Certificate I in Engineering qualification is suitable for pre-employment or pre-apprenticeship training and skills development.

The following qualifications must be undertaken through a Training Contract associated with an Australian Traineeship or through a formal skills and knowledge recognition process:

- MEM20117 Certificate II in Engineering
- MEM20217 Certificate II in Engineering – Production Technology
- MEM30117 Certificate III in Engineering – Production Systems
- MEM30917 Certificate III in Boating Services

The Certificate II and III Production qualifications are designed to meet the needs of skilled workers employed in sophisticated manufacturing environments. It is inappropriate to use these qualifications as pre-employment or pre-apprenticeship programs and this is reflected in statements in the qualifications.

The following qualifications must be undertaken through a Training Contract associated with an Australian Apprenticeship or through a formal skills and knowledge recognition process:

- MEM Certificate III Trade qualifications
- MEM30217 Certificate III in Engineering – Mechanical Trade
- MEM30317 Certificate III in Engineering – Fabrication Trade
- MEM30617 Certificate III in Jewellery Manufacture
- MEM30717 Certificate III in Marine Craft Construction
- MEM30817 Certificate III in Locksmithing
- MEM31017 Certificate III in Watch and Clock Service and Repair
- MEM31117 Certificate III in Engineering – Composites Trade
- MEM31317 Certificate III in Refrigeration and Air Conditioning
- MEM31417 Certificate III in Engineering – Fixed and Mobile Plant Mechanic
- MEM31517 Certificate III in Engineering – Toolmaking Trade
- MEM31717 Certificate III in Engineering – Casting and Moulding Trade
- MEM40117 Certificate IV in Engineering
- MEM50117 Diploma of Engineering – Advanced Trade.

The nominal duration for these qualifications is outlined in the Manufacturing and Associated Industries and Occupations Award 2010.

The statements in the qualifications contain critical information about the intended purpose of the qualification and are necessary to ensure that the occupational outcome associated with the

qualifications meets the industry definitions for the respective trades/vocations as contained in the Award, and that the qualifications are used for their intended purpose.

The use of Certificate III level Trade qualifications as either VET in Schools programs of fully institutional programs is inappropriate and it is the clear intention of industry that these qualifications not be used outside an apprenticeship or formal trade recognition process.

Consigning the statements to a non-endorsed Companion Volume would frustrate the legitimate objectives of industry and potentially diminish the integrity of the qualifications themselves.

E. Implementation of the new training package

There is not expected to be any significant issues with the implementation of this release of the training package.

The following potential implementation issues were raised by STAs during consultation:

- the impact of the increase in prerequisites and the reduction in the completion requirements for the Certificate I in Engineering was raised in New South Wales
- the increased prerequisites may impact on the upskilling of workers and the 4 new qualifications will impact RTOs in South Australia, and
- In Victoria is was noted that there may be implementation issues brought about by:
    - units that are no longer available in some qualifications, and
    - the increased prerequisites whilst acknowledging that this will not present any barrier to entry.

It is yet to be tested whether any of these of issues will emerge.

It became evident during the consideration of prerequisites that there were anomalies in the structures that needed to be addressed. As an example, ensuring new entrants, within a relatively short time after commencement, were competent to safely and accurately carry out routine operational activities with an understanding that manufacturing involves working cooperatively with others as an industry imperative. Unit *MEM13015 Work safely and effectively in manufacturing and engineering* addresses these and other entry level skills and can be considered as an induction. It does not cover every possible requirement that will be encountered industrially but it is the foundation to be built on when developing the specifics of other units.

In some cases, certain units of competency and qualifications contain content that, whilst capable of being interpreted as inconsistent with the Standards for Training Packages, is necessary given the importance of the direct association between competency and skills related pay structures contained in key industrial instruments including Awards and Certified Agreements. The content in question is designed to give unambiguous and enforceable direction to users of the Training Package about how the unit or qualification is intended to be applied in order to ensure that duplication is minimised, skills pathways are not compromised and that unit selection is appropriate from an industrial outcome perspective.

For example, some of the units and qualifications contain directions in relation to the application of the units and/or qualifications that are required to ensure that they are applied as intended and in a manner, that is consistent with longstanding industrial arrangements. The nature of the direction takes a number of forms.

1. Directions that limit the scope of a unit and make clear what the unit does or does not cover:

For example, unit MEM05011 Assemble fabricated components contains a statement in the application:

> "Where skills for the assembly of fabricated engineering components are required unit MEM18006 Perform precision fitting of engineering components should also be selected"

This statement is required to ensure that proper consideration is given to the selection of critical additional units in the selection of the primary unit under consideration. The statement gives coherence to the application of the principal unit by indicating that the:

> 'skills for the assembly of fabricated engineering components' are not covered by the unit.

2. Directions that prevent inappropriate selections or duplication of units

Alternatively, some units contain statements with the reverse effect, which is to advise that certain units should not be selected together as they effectively duplicate much of their content but from the perspective of different vocational fields, i.e. Production Machining units should not be selected with Trade Level Machining units as they are designed for specifically different applications.

For example, The Application of Unit MEM03001 Perform manual production assembly contains directions that:

> "This unit of competency defines the skills and knowledge required by production workers to assemble components and/or sub-assemblies in a production environment, and applies to assembly operations that are manual in nature and do not require complex adjustments.
>
> This unit should not be selected when unit MEM18055 Dismantle, replace and assemble engineering components has already been selected."

This direction is necessary where experience indicates that users often inadvertently package inappropriate units together or fail to select critical units required to reflect the totality of the skills required where the unit in question is not specifically designated as a prerequisite. This can occur when the user assumes that certain contingent applications are covered by a unit when in fact they are not and require the selection of additional units.

This information has been included in previous iterations of the training package and provides crucial practical information to the many non-training provider users who rely on the training package, including employers, workers and industry regulators who are used to dealing with information like this. Experience shows that these users are unlikely to access the Companion Volume for information of this type.

Not including this information in the training package could have significant flow-on effects for industry, with the wrong unit of competency being chosen for the circumstances, a critical unit of competency not being included when it should be included, or additional units being undertaken unnecessarily. This has significant pay and classification implications for both workers and employers and clear direction is required to mitigate that risk.

3. Directions in relation to licencing to ensure that users are aware that licencing requirements vary from jurisdiction to jurisdiction and that elective unit choice can affect licencing arrangements.

Regulatory requirements associated with some qualifications are contingent on either the nature of the work being performed or elective unit choices in some circumstances.

For example, in New South Wales certain metal fabrication work is subject to regulatory requirements but not in other jurisdictions. There are qualification requirements associated with the issue of a licence however not all work associated with the qualification is licenced.

This means that two people holding the same qualification could be subject to different regulatory impact due simply to the elective unit choice and the nature of the work they perform.

It is for this reason that additional advice in relation to regulatory requirements is contained at both the unit of competency level and the qualification level.

Occupational and licensing requirements are outlined in the qualifications and in individual units where they are appropriate.

The addition of four trade qualifications in response to industry needs will mean that state/territory jurisdictions will need to adjust their apprenticeship documentation to reflect these changes. RTOs will need to add these to their Scope if they are to deliver them. There will be minimal changes to funding arrangements as the specialisations were previously available.

Industry requested the creation of these additional qualifications because there were no clear and distinct pathways to these skills shortage job titles. While contained in generic qualifications it was possible a person could be trained in some relevant units but not sufficient to be considered a tradesperson in that field. Using refrigeration and air conditioning as an example, a person could be fully trained in refrigeration and air conditioning units but be issued a *Certificate III in Engineering Mechanical Trade* qualification with no indication of the specialisation. The reverse is also true that, within the MEM05 packaging rules, a person could be issued a *Certificate III in Engineering – Mechanical Trade (Refrigeration and Air Conditioning)* without having achieved competence in a single unit related to either refrigeration or air conditioning.

F. Quality assurance reports

This Case for Endorsement meets the following quality requirements:

- An Independent Quality Assurance Report is attached.
- A declaration by IBSA Manufacturing that the proposed training package components meet the requirements of the Standards for Training Packages 2012, Training Package Products Policy and Training Package Development and Endorsement Process Policy can be found on page 10 of this document.
- Confirmation that the Companion Volume Implementation Guide is available and quality assured can be found in the Quality Assurance report.
- Statement of evidence against Training Package Quality Principles can be found in the Quality Assurance report.

Compliance with the Standards for Training Packages 2012

The links between MEM Manufacturing and Engineering Training Package and the industrial Award are unique and complex and, although it has been challenging to meet both industry standards and the requirements of the Standards for Training Package 2012 simultaneously, IBSA Manufacturing has made every effort to meet compliance requirements. The following table addresses a range of issues by with respect to the Standards for Training Package 2012 and provides background and context to enable an informed advice to be provided to the AISC.

Issue raised	Summary of concern	Response
Conditional prerequisites	Units may also provide alternative pathways of prerequisites based on the skill path being chosen.	The skills and knowledge defined in a unit with a choice of prerequisite pathways are the same regardless of the prerequisite pathway chosen. In this way, they can be distinguished from conditional prerequisites which were not supported previously by the AISC.
Equivalence	Are units with new prerequisites equivalent.	There is no change to the job outcome from the addition of prerequisites and the units can be deemed equivalent.
Performance Criteria and Performance Evidence	Information repeated in the Performance Criteria and Performance Evidence.	Including the same information in both sections is compliant with the Standards as the information is consistent.
Additional information in the *Qualification Description*	Additional information in the 'Qualification Description' of qualifications, is advice and therefore non-compliant.	Many critical qualifications associated with key trades and vocations contain directions in the Application that reflect the proper application of the qualification, as the following examples indicate: Example 1 *This qualification must be undertaken through a Training Contract associated with an Australian Trade Apprenticeship or through formal trade recognition.* Example 2 *This qualification must not be used as a pre-employment or pre-apprenticeship program. It is specifically designed to cover the skills and knowledge required of workers employed as Engineering/Manufacturing Employees - Level IV as defined in the Manufacturing and Associated*

Issue raised	Summary of concern	Response
		Industries and Occupation Award. It must not be undertaken by school students unless they are formally engaged in a Training Contract associated with an Australian Traineeship. " These statements contain critical instructions about the purpose of the qualification and are necessary to ensure that the occupational outcome associated with the qualifications meets the industry definitions for the respective trades/vocations as contained in the Manufacturing and Associated Industries and Occupations Award 2010, and that the qualifications must be used for their intended purpose. Consigning that statement to a non-endorsed Companion Volume Implementation Guide would frustrate the legitimate objectives of industry and potentially diminish the integrity of the qualifications themselves.
Information in *Unit Application*	Additional information in the *Application* section of units is advice and therefore non-compliant.	The content in question is designed to give clear and enforceable direction to users of the Training Package about how the unit is intended to be applied to ensure that duplication is minimised, skills pathways are not compromised and that unit selection is appropriate from an industrial outcome perspective. Units contain: a. Directions that limit the scope of a unit and make clear what the unit does or does not cover b. Directions that prevent inappropriate selections or duplication of units. This direction is necessary where experience indicates that users often inadvertently package inappropriate units together or fail to select critical units required to reflect the totality of the skills required where the unit in question is not specifically designated as a prerequisite.
VET delivered to secondary students' advice	Advice about VET delivered to secondary students' in Qualification Description should be removed.	In line with the earlier example, statements in the *Qualification Description* contain critical instruction about the purpose of the qualification and are necessary to ensure that the occupational outcome associated with the qualifications meets the industry definitions for the respective trades/vocations as contained in the Award, and that the qualifications are used for their intended purpose. This statement provides is clear direction on how the qualifications are achieved.
Advice about specialisations in the packaging rules	Rules that address specialisations belong in the qualification, but advice belongs in the Companion Volume.	The MEM30217 Certificate III in Engineering – Fabrication Trade and MEM30317 Certificate III in Engineering – Mechanical Trade qualifications are packaged to have trade specialisations. The selection of units appropriate for each specialisation is clearly documented in the packaging rules of each qualification.

Issue raised	Summary of concern	Response
Licensing advice in *Qualification Description*	The *Qualification Description* should only include information relevant to the qualification. The information about unit-related regulatory requirements should already be included in the units.	Directions in relation to licensing are provided to ensure that users are aware that licensing requirements vary between jurisdictions and that elective unit choice can affect licensing arrangements. Regulatory requirements associated with some qualifications are contingent on either the nature of the work being performed or elective unit choices in some circumstances.

Declaration

IBSA Manufacturing, the SSO for the Manufacturing and Engineering IRC, declares that the proposed training package components meet the requirements of the *Standards for Training Packages 2012, Training Package Products Policy* and *Training Package Development and Endorsement Process Policy*, apart from those instances where there is a perceived or real variation from those requirements as outlined previously.

Furthermore, IBSA Manufacturing, the SSO for the Manufacturing and Engineering IRC, declares that the Companion Volume Implementation Guide is available and has been quality assured.

G. Implementation of the COAG Australian Industry Skills Committee (AISC) reforms to training packages

COAG AISC reforms which have been addressed as part of this development work include:

- Rationalisation of AQF level 1 units resulting in five (5) units being replaced with (1) new unit.
- Information about industry's expectations of training delivery in Qualification *Descriptions* and unit *Application*s.
- Support for individuals to move between related occupations through shared units in elective banks across all qualification levels and common core units in the Certificate III, IV and Diploma trade qualifications.
- Relationship and comparison with International Standards.

Removal of obsolete and superfluous qualifications

In the transition to MEM Manufacturing and Engineering Training Package Release 2 all qualifications and units of competency were reviewed to consider elimination of obsolete, superfluous and/or duplicative qualifications or units.

There were no obsolete, superfluous and/or duplicative qualifications identified. However, five (5) units were considered obsolete and replaced with one (1) revised unit clearly reflecting industry requirements.

Although some inroads have been made in addressing COAG AISC reforms, there are some areas where this has been challenging. In particular, MEM Manufacturing and Engineering Training Package Release 2 focused on meeting industry needs in the creation of 4 new qualifications which has impacted on the ability to address the full intent of the COAG AISC reforms to rationalise the number of qualifications in training packages.

The following four (4) new qualifications have been added to the MEM Manufacturing and Engineering Training Package Release 2:

- MEM31317 Certificate III in Refrigeration and Air Conditioning (HVAC)
- MEM31417 Certificate III in Engineering – Fixed and Mobile Plant Mechanic,
- MEM31517 Certificate III in Engineering – Toolmaking Trade
- MEM31717 Certificate III in Engineering – Casting and Moulding Trade.

Industry is seeking a clear distinction in the job roles previously embedded as specialisations in the Certificate III in Engineering - Mechanical Trade and the Certificate III in Engineering – Fabrication Trade. The new qualifications clearly describe the industry requirements for each job role. The new qualifications also support the promotion of these career pathways in the industry.

Information on industry's expectations of training delivery

Where training delivery is required, industry expects a combination of institutional and operational workplace development of skills and knowledge. Where access to an operational workplace is not possible because there are personal safety or possible environmental damage limiting factors, skills and

knowledge development must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.

Many critical qualifications associated with key trades and vocations contain directions within the *Application* containing critical information about the intended purpose of the qualifications and are necessary to ensure that the occupational outcome associated with the qualifications meets the industry definitions for the respective trades/vocations as contained in the Award, and that the qualifications are used for their intended purpose.

This information also clearly communicates industry's intention that Certificate III level Trade qualifications and Certificate II and III Production qualifications, designed to meet the needs of skilled workers employed in sophisticated manufacturing environments, should not be used outside an apprenticeship or formal trade recognition process. (The use of as either VET in Schools programs of fully institutional programs is inappropriate).

Support for individuals to move easily between related occupations
All qualifications in the MEM Manufacturing and Engineering Training Package Release 2 are designed with a significant consideration for upskilling, cross-skilling and skills transfer into related occupations. Every MEM Manufacturing and Engineering Training Package Release 2 qualification articulates into higher AQF level qualifications and they contain units that are also in the other qualifications. Individuals can readily transfer between related occupations, cross-skill between related occupations and upskill to higher AQF level qualifications.

All MEM Manufacturing and Engineering Training Package units of competency are developed for use more broadly than the manufacturing and engineering industries and can be accessed by any industry sector.

Recognition of skills already developed to industry standards is encouraged throughout the training package. There are industrial opportunities available to enable this to happen, not only in learning institutions but also in workplaces through gathering evidence of workplace based assessment of skill levels.

Relationship and comparison with similar International Standards
Where units address skills outlined in International Standards, there was a comparison of the skills and knowledge detailed in the MEM units to Australian and International Standards. The main consideration was to ensure there was no conflict with the relevant Australian Standards and where appropriate, reference has been made to related International Standards. Using welding as an example, there are a number of Australian and International Standards related to the workplace skills and knowledge detailed in MEM welding units of competency. However, many International jurisdictions maintain their own independent Standards and there are significant differences in requirements. For example, the Australian Standard, AS1796 Certification of welders and welding supervisors, requires the person to not only be able to weld to a Standard but also take on a welding supervisory/responsibility role. One of the American Standards dealing with the same skills, ASME Boiler and Pressure Vessel Code, Section IX: Welding and Brazing Qualifications, only requires the welding skills, the supervision and responsibility is that of a degree qualified Welding Engineer.

H. A copy of the full content of the proposed training package component(s)

A copy of the developed training package components to be approved under the Case for Endorsement are attached.

Appendix A: Draft components for Endorsement

MEM Release 2 Qualifications – mapped to MEM05 Qualifications

Code	MEM Release 2 Title			Equivalence
MEM10117	Certificate I in Engineering	MEM10105	Certificate I in Engineering	Release 1. Not equivalent.
MEM20117	Certificate II in Engineering	MEM20105	Certificate II in Engineering	Release 1. Equivalent.
MEM20217	Certificate II in Engineering - Production Technology	MEM20205	Certificate II in Engineering - Production Technology	Release 1. Equivalent.
MEM30117	Certificate III in Engineering - Production Systems	MEM30105	Certificate III in Engineering - Production Systems	Release 1. Equivalent.
MEM30217	Certificate III in Engineering - Mechanical Trade	MEM30205	Certificate III in Engineering - Mechanical Trade	Release 1. Equivalent.
MEM30317	Certificate III in Engineering - Fabrication Trade	MEM30305	Certificate III in Engineering - Fabrication Trade	Release 1. Equivalent.
MEM30617	Certificate III in Jewellery Manufacture	MEM30605	Certificate III in Jewellery Manufacture	Release 1. Equivalent.
MEM30717	Certificate III in Marine Craft Construction	MEM30705	Certificate III in Marine Craft Construction	Release 1. Equivalent.
MEM30817	Certificate III in Locksmithing	MEM30805	Certificate III in Locksmithing	Release 1. Equivalent.
MEM30917	Certificate III in Boating Services	MEM30905	Certificate III in Boating Services	Release 1. Equivalent.
MEM31017	Certificate III in Watch and Clock Service and Repair	MEM31010	Certificate III in Watch and Clock Service and Repair	Release 1. Equivalent.
MEM31117	Certificate III in Engineering - Composites Trade	MEM31112	Certificate III in Engineering - Composites Trade	Release 1. Equivalent.
MEM31317	Certificate III in Refrigeration and Air conditioning (HVAC)	Release 1. No equivalent qualification		Release 1.

Code	MEM Release 2 Title			Equivalence
MEM31417	Certificate III in Engineering – Fixed and Mobile Plant Mechanic	Release 1. No equivalent qualification		Release 1.
MEM31517	Certificate III in Engineering – Toolmaking Trade	Release 1. No equivalent qualification		Release 1.
MEM31717	Certificate III in Engineering – Casting and Moulding Trade	Release 1. No equivalent qualification		Release 1.
MEM40117	Certificate IV in Engineering	MEM40105	Certificate IV in Engineering	Release 1. Equivalent.
MEM50117	Diploma of Engineering - Advanced Trade	MEM50105	Diploma of Engineering - Advanced Trade	Release 1. Equivalent.

MEM Release 2 Units of Competency – mapped to MEM05 Units of Competency

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
MEM03001B	Perform manual production assembly	MEM03001	Perform manual production assembly	New format. Equivalent
MEM03002B	Perform precision assembly	MEM03002	Perform precision assembly	New format. Equivalent
MEM03003B	Perform sheet and plate assembly	MEM03003	Perform sheet and plate assembly	New format. Equivalent
MEM03004B	Perform electronic/electrical assembly (production)	MEM03004	Perform electronic/electrical assembly (production)	New format. Equivalent
MEM03005B	Rework and repair (electrical/electronic production)	MEM03005	Rework and repair (electrical/electronic production)	New format. Equivalent
MEM03006B	Set assembly stations	MEM03006	Set assembly stations	New format. Equivalent
MEM04001B	Operate melting furnaces	MEM04001	Operate melting furnaces	New format. Equivalent
MEM04002B	Perform gravity die casting	MEM04002	Perform gravity die casting	New format. Equivalent
MEM04003B	Operate pressure die casting machine	MEM04003	Operate pressure die casting machine	New format. Equivalent
MEM04004B	Prepare and mix sand for metal moulding	MEM04004	Prepare and mix sand for metal moulding	New format. Equivalent
MEM04006B	Operate sand moulding and core making machines	MEM04006	Operate sand moulding and core making machines	New format. Equivalent
MEM04007B	Pour molten metal	MEM04007	Pour molten metal	New format. Equivalent
MEM04008B	Fettle and trim metal castings/forgings	MEM04008	Fettle and trim metal castings/forgings	New format. Equivalent
MEM04010B	Develop and manufacture wood patterns	MEM04010	Develop and manufacture wood patterns	New format. Equivalent
MEM04011B	Produce polymer patterns	MEM04011	Produce polymer patterns	New format. Equivalent
MEM04012B	Assemble plated patterns	MEM04012	Assemble plated patterns	New format. Equivalent
MEM04013B	Develop and manufacture polystyrene patterns	MEM04013	Develop and manufacture polystyrene patterns	New format. Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
MEM04014B	Develop and manufacture production patterns	MEM04014	Develop and manufacture production patterns	New format. Equivalent
MEM04015B	Develop and manufacture vacuum forming moulds and associated equipment	MEM04015	Develop and manufacture vacuum forming moulds and associated equipment	New format. Equivalent
MEM04016C	Develop and manufacture precision models	MEM04016	Develop and manufacture precision models	New format. Equivalent
MEM04017B	Develop and manufacture gear, conveyor screw and propeller patterns	MEM04017	Develop and manufacture gear, conveyor screw and propeller patterns	New format. Equivalent
MEM04018B	Perform general woodworking machine operations	MEM04018	Perform general woodworking machine operations	New format. Equivalent
MEM04019B	Perform refractory installation and repair	MEM04019	Perform refractory installation and repair	New format. Equivalent
MEM04020A	Supervise individual ferrous melting and casting operation	MEM04020	Supervise individual ferrous melting and casting operation	New format. Equivalent
MEM04021A	Supervise individual non-ferrous melting and casting operation	MEM04021	Supervise individual non-ferrous melting and casting operation	New format. Equivalent
MEM04022A	Examine appropriateness of methoding for mould design	MEM04022	Examine appropriateness of methoding for mould design	New format. Equivalent
MEM04023A	Undertake prescribed tests on foundry related materials	MEM04023	Undertake prescribed tests on foundry - related materials	New format. Equivalent
		MEM04024	Produce moulds and cores by hand	New unit. Supersedes MEM04005C - not equivalent
		MEM04025	Produce moulds and cores by hand (advanced)	New unit. Supersedes MEM04005C - not equivalent.
MEM05001B	Perform manual soldering/desoldering -	MEM05001	Perform manual soldering/desoldering -	New format. Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
	electrical/electronic components		electrical/electronic components	
MEM05002B	Perform high reliability soldering and desoldering	MEM05002	Perform high reliability soldering and desoldering	New format. Equivalent
MEM05003B	Perform soft soldering	MEM05003	Perform soft soldering	New format. Equivalent
MEM05004C	Perform routine oxy acetylene welding	MEM05004	Perform routine oxy fuel gas welding	New title and format. Equivalent
MEM05005B	Carry out mechanical cutting	MEM05005	Carry out mechanical cutting	New format. Equivalent
MEM05006C	Perform brazing and or silver soldering	MEM05006	Perform brazing and / or silver soldering	New format. Equivalent
MEM05007C	Perform manual heating and thermal cutting	MEM05007	Perform manual heating and thermal cutting	New format. Equivalent
MEM05008C	Perform advanced manual thermal cutting, gouging and shaping	MEM05008	Perform advanced manual thermal cutting, gouging and shaping	New format. Equivalent
MEM05009C	Perform automated thermal cutting	MEM05009	Perform automated thermal cutting	New format. Equivalent
MEM05010C	Apply fabrication, forming and shaping techniques	MEM05010	Apply fabrication, forming and shaping techniques	New format. Equivalent
MEM05011D	Assemble fabricated components	MEM05011	Assemble fabricated components	New format. Equivalent
MEM05012C	Perform routine manual metal arc welding	MEM05012	Perform routine manual metal arc welding	New format. Equivalent
MEM05013C	Perform manual production welding	MEM05013	Perform manual production welding	New format. Equivalent
MEM05014C	Monitor quality of production welding/fabrications	MEM05014	Monitor quality of production welding/fabrications	New format. Equivalent
MEM05015D	Weld using manual metal arc welding process	MEM05015	Weld using manual metal arc welding process	New format. Equivalent
MEM05016C	Perform advanced welding using manual metal arc welding process	MEM05016	Perform advanced welding using manual metal arc welding process	New format. Equivalent
MEM05017D	Weld using gas metal arc welding process	MEM05017	Weld using gas metal arc welding process	New format. Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
MEM05018C	Perform advanced welding using gas metal arc welding process	MEM05018	Perform advanced welding using gas metal arc welding process	New format. Equivalent
MEM05019D	Weld using gas tungsten arc welding process	MEM05019	Weld using gas tungsten arc welding process	New format. Equivalent
MEM05020C	Perform advanced welding using gas tungsten arc welding process	MEM05020	Perform advanced welding using gas tungsten arc welding process	New format. Equivalent
MEM05022C	Perform advanced welding using oxy acetylene welding process	MEM05022	Perform advanced welding using oxy acetylene welding process	New format. Equivalent
MEM05023C	Weld using submerged arc welding process	MEM05023	Weld using submerged arc welding process	New format. Equivalent
MEM05024B	Perform welding supervision	MEM05024	Perform welding supervision	New format. Equivalent
MEM05025C	Perform welding/fabrication inspection	MEM05025	Perform welding/fabrication inspection	New format. Equivalent
MEM05026C	Apply welding principles	MEM05026	Apply welding principles	New format. Equivalent
MEM05027A	Perform aluminothermic welding	MEM05027	Perform aluminothermic welding	New format. Equivalent
MEM05036C	Repair/replace/modify fabrications	MEM05036	Repair/replace/modify fabrications	New format. Equivalent
MEM05037C	Perform geometric development	MEM05037	Perform geometric development	New format. Equivalent
MEM05038B	Perform advanced geometric development - cylindrical/rectangular	MEM05038	Perform advanced geometric development - cylindrical/rectangular	New format. Equivalent
MEM05039B	Perform advanced geometric development - conical	MEM05039	Perform advanced geometric development - conical	New format. Equivalent
MEM05040B	Perform advanced geometric development - transitions	MEM05040	Perform advanced geometric development - transitions	New format. Equivalent
MEM05041B	Weld using powder flame spraying	MEM05041	Weld using flame powder spraying	New format. Equivalent
MEM05042B	Perform welds to code standards using flux core arc welding process	MEM05042	Perform welds to code standards using flux core arc welding process	New format. Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
MEM05043B	Perform welds to code standards using gas metal arc welding process	MEM05043	Perform welds to code standards using gas metal arc welding process	New format. Equivalent
MEM05044B	Perform welds to code standards using gas tungsten arc welding process	MEM05044	Perform welds to code standards using gas tungsten arc welding process	New format. Equivalent
MEM05045B	Perform pipe welds to code standards using manual metal arc welding process	MEM05045	Perform pipe welds to code standards using manual metal arc welding process	New format. Equivalent
MEM05046B	Perform welds to code standards using manual metal arc welding process	MEM05046	Perform welds to code standards using manual metal arc welding process	New format. Equivalent
MEM05047B	Weld using flux core arc welding process	MEM05047	Weld using flux core arc welding process	New format. Equivalent
MEM05048B	Perform advanced welding using flux core arc welding process	MEM05048	Perform advanced welding using flux core arc welding process	New format. Equivalent
MEM05049B	Perform routine gas tungsten arc welding	MEM05049	Perform routine gas tungsten arc welding	New format. Equivalent
MEM05050B	Perform routine gas metal arc welding	MEM05050	Perform routine gas metal arc welding	New format. Equivalent
MEM05051A	Select welding processes	MEM05051	Select welding processes	New format. Equivalent
MEM05052A	Apply safe welding practices	MEM05052	Apply safe welding practices	New format. Equivalent
MEM05053A	Set and edit computer controlled thermal cutting machines	MEM05053	Set and edit computer controlled thermal cutting machines	New format. Equivalent
MEM05054A	Write basic NC/CNC programs for thermal cutting machines	MEM05054	Write basic NC/CNC programs for thermal cutting machines	New format. Equivalent
		MEM05055	Weld using oxy fuel gas welding process	New Unit
		MEM05056	Perform routine flux core arc welding	New Unit
		MEM05057	Perform routine submerged arc welding	New Unit

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
		MEM05058	Perform welds to code standards using oxy fuel gas welding process	New Unit
MEM06001B	Perform hand forging	MEM06001	Perform hand forging	New format. Equivalent
MEM06002B	Perform hammer forging	MEM06002	Perform hammer forging	New format. Equivalent
MEM06003C	Carry out heat treatment	MEM06003	Carry out heat treatment	New format. Equivalent
MEM06004B	Select heat treatment processes and test finished product	MEM06004	Select heat treatment processes and test finished product	New format. Equivalent
MEM06005B	Perform drop and upset forging	MEM06005	Perform drop and upset forging	New format. Equivalent
MEM06006C	Repair springs	MEM06006	Repair springs	New format. Equivalent
MEM06007B	Perform basic incidental heat/quenching, tempering and annealing	MEM06007	Perform basic incidental heat/quenching, tempering and annealing	New format. Equivalent
MEM06008A	Hammer forge complex shapes	MEM06008	Hammer forge complex shapes	New format. Equivalent
MEM06009A	Hand forge complex shapes	MEM06009	Hand forge complex shapes	New format. Equivalent
MEM07001B	Perform operational maintenance of machines/equipment	MEM07001	Perform operational maintenance of machines/equipment	New format. Equivalent
MEM07002B	Perform precision shaping/planing/slotting operations	MEM07002	Perform precision shaping/planing/slotting operations	New format. Equivalent
MEM07003B	Perform machine setting (routine)	MEM07003	Perform machine setting (routine)	New format. Equivalent
MEM07004B	Perform machine setting (complex)	MEM07004	Perform machine setting (complex)	New format. Equivalent
MEM07005C	Perform general machining	MEM07005	Perform general machining	New format. Equivalent
MEM07006C	Perform lathe operations	MEM07006	Perform lathe operations	New format. Equivalent
MEM07007C	Perform milling operations	MEM07007	Perform milling operations	New format. Equivalent
MEM07008D	Perform grinding operations	MEM07008	Perform grinding operations	New format. Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
MEM07009B	Perform precision jig boring operations	MEM07009	Perform precision jig boring operations	New format. Equivalent
MEM07010B	Perform tool and cutter grinding operations	MEM07010	Perform tool and cutter grinding operations	New format. Equivalent
MEM07011B	Perform complex milling operations	MEM07011	Perform complex milling operations	New format. Equivalent
MEM07012B	Perform complex grinding operations	MEM07012	Perform complex grinding operations	New format. Equivalent
MEM07013B	Perform machining operations using horizontal and/or vertical boring machines	MEM07013	Perform machining operations using horizontal and/or vertical boring machines	New format. Equivalent
MEM07014B	Perform electro-discharge (EDM) machining operations	MEM07014	Perform electro-discharge machining (EDM) operations	New format. Equivalent
MEM07015B	Set computer controlled machines/processes	MEM07015	Set computer controlled machines/processes	New format. Equivalent
MEM07016C	Set and edit computer controlled machines/processes	MEM07016	Set and edit computer controlled machines/processes	New format. Equivalent
MEM07018C	Write basic NC/CNC programs	MEM07018	Write basic NC/CNC programs	New format. Equivalent
MEM07019C	Program NC/CNC machining centre	MEM07019	Program NC/CNC machining centre	New format. Equivalent
MEM07020C	Program multiple spindle and/or multiple axis NC/CNC machining centre	MEM07020	Program multiple spindle and/or multiple axis NC/CNC machining centre	New format. Equivalent
MEM07021B	Perform complex lathe operations	MEM07021	Perform complex lathe operations	New format. Equivalent
MEM07022C	Program CNC wire cut machines	MEM07022	Program CNC wire cut machines	New format. Equivalent
MEM07023C	Program and set up CNC manufacturing cell	MEM07023	Program and set up CNC manufacturing cell	New format. Equivalent
MEM07024B	Operate and monitor machine/process	MEM07024	Operate and monitor machine/process	New format. Equivalent
MEM07025B	Perform advanced machine/process operation	MEM07025	Perform advanced machine/process operation	New format. Equivalent
MEM07026B	Perform advanced plastic processing	MEM07026	Perform advanced plastic processing	New format. Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
MEM07027B	Perform advanced press operations	MEM07027	Perform advanced press operations	New format. Equivalent
MEM07028B	Operate computer controlled machines/processes	MEM07028	Operate computer controlled machines/processes	New format. Equivalent
MEM07029B	Perform routine sharpening/maintenance of production tools and cutters	MEM07029	Perform routine sharpening/maintenance of production tools and cutters	New format. Equivalent
MEM07030C	Perform metal spinning lathe operations (basic)	MEM07030	Perform metal spinning lathe operations (basic)	New format. Equivalent
MEM07031C	Perform metal spinning lathe operations (complex)	MEM07031	Perform metal spinning lathe operations (complex)	New format. Equivalent
MEM07032B	Use workshop machines for basic operations	MEM07032	Use workshop machines for basic operations	New format. Equivalent
MEM07033B	Operate and monitor basic boiler	MEM07033	Operate and monitor basic boiler	New format. Equivalent
MEM07039A	Write programs for industrial robots	MEM07039	Write programs for industrial robots	New format. Equivalent
MEM07040A	Set multistage integrated processes	MEM07040	Set multistage integrated processes	New format. Equivalent
MEM07041A	Perform production machining	MEM07041	Perform production machining	New format. Equivalent
MEM07042A	Undertake corrections and basic maintenance to aluminium extrusion dies and die support systems	MEM07042	Undertake corrections and basic maintenance to aluminium extrusion dies and die support systems	New format. Equivalent
MEM07043A	Identify causes of faulty aluminium extrusions	MEM07043	Identify causes of faulty aluminium extrusions	New format. Equivalent
MEM07044A	Test a new aluminium extrusion die	MEM07044	Test a new aluminium extrusion die	New format. Equivalent
MEM08001B	Perform wire, jig and barrel load/unload work	MEM08001	Perform wire, jig and barrel load/unload work	New format. Equivalent
MEM08002C	Pre-treat work for subsequent surface coating	MEM08002	Pre-treat work for subsequent surface coating	New format. Equivalent
MEM08003C	Perform electroplating operations	MEM08003	Perform electroplating operations	New format. Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
MEM08004B	Finish work using wet, dry and vapour deposition methods	MEM08004	Finish work using wet, dry and vapour deposition methods	New format. Equivalent
MEM08005B	Prepare and produce specialised coatings	MEM08005	Prepare and produce specialised coatings	New format. Equivalent
MEM08006B	Produce clear and/or coloured and/or sealed anodised films on aluminium	MEM08006	Produce clear and/or coloured and/or sealed anodised films on aluminium	New format. Equivalent
MEM08007B	Control surface finish production and finished product quality	MEM08007	Control surface finish production and finished product quality	New format. Equivalent
MEM08008B	Operate and control surface finishing waste treatment process	MEM08008	Operate and control surface finishing waste treatment process	New format. Equivalent
MEM08009C	Make up solutions	MEM08009	Make up solutions	New format. Equivalent
MEM08010B	Manually finish/polish materials	MEM08010	Manually finish/polish materials	New format. Equivalent
MEM08011B	Prepare surfaces using solvents and/or mechanical means	MEM08011	Prepare surfaces using solvents and/or mechanical means	New format. Equivalent
MEM08012B	Prepare surfaces by abrasive blasting (basic)	MEM08012	Prepare surfaces by abrasive blasting (basic)	New format. Equivalent
MEM08013B	Prepare surfaces by abrasive blasting (advanced)	MEM08013	Prepare surfaces by abrasive blasting (advanced)	New format. Equivalent
MEM08014B	Apply protective coatings (basic)	MEM08014	Apply protective coatings (basic)	New format. Equivalent
MEM08015B	Apply protective coatings (advanced)	MEM08015	Apply protective coatings (advanced)	New format. Equivalent
MEM08016B	Control blast coating by-products, materials and emissions	MEM08016	Control blast coating by-products, materials and emissions	New format. Equivalent
MEM08018B	Electroplate engineering coatings	MEM08018	Electroplate engineering coatings	New format. Equivalent
MEM08019B	Electroplate protective finishes	MEM08019	Electroplate protective finishes	New format. Equivalent
MEM08020B	Electroplate decorative finishes	MEM08020	Electroplate decorative finishes	New format. Equivalent
MEM09002B	Interpret technical drawing	MEM09002	Interpret technical drawing	New format. Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
MEM09003B	Prepare basic engineering drawing	MEM09003	Prepare basic engineering drawing	New format. Equivalent
MEM09004B	Perform electrical/electronic detail drafting	MEM09004	Perform electrical/electronic detail drafting	New format. Equivalent
MEM09005B	Perform basic engineering detail drafting	MEM09005	Perform basic engineering detail drafting	New format. Equivalent
MEM09006B	Perform advanced engineering detail drafting	MEM09006	Perform advanced engineering detail drafting	New format. Equivalent
MEM09007B	Perform advanced mechanical detail drafting	MEM09007	Perform advanced mechanical detail drafting	New format. Equivalent
MEM09008B	Perform advanced structural detail drafting	MEM09008	Perform advanced structural detail drafting	New format. Equivalent
MEM09009C	Create 2D drawings using computer aided design system	MEM09009	Create 2-D drawings using computer-aided design system	New format. Equivalent
MEM09010C	Create 3D models using computer aided design system	MEM09010	Create 3-D models using computer-aided design system	New format. Equivalent
MEM09011B	Apply basic engineering design concepts	MEM09011	Apply basic engineering design concepts	New format. Equivalent
MEM09021B	Interpret and produce curved 3-dimensional shapes	MEM09021	Interpret and produce curved 3-D shapes	New format. Equivalent
MEM09022A	Create 2D code files using computer aided manufacturing system	MEM09022	Create 2-D code files using computer-aided manufacturing system	New format. Equivalent
MEM09023A	Create 3D code files using computer aided manufacturing system	MEM09023	Create 3-D code files using computer-aided manufacturing system	New format. Equivalent
MEM10001C	Erect structures	MEM10001	Erect structures	New format. Equivalent
MEM10002B	Terminate and connect electrical wiring	MEM10002	Terminate and connect electrical wiring	New format. Equivalent
MEM10003B	Install and test electrical wiring and circuits up to 1000 volts a.c. and 1500 volts d.c.	MEM10003	Install and test electrical wiring and circuits up to 1000 volts a.c. and 1500 volts d.c.	New format. Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
MEM10004B	Enter and change programmable controller operational parameters	MEM10004	Enter and change programmable controller operational parameters	New format. Equivalent
MEM10005B	Commission programmable controller programs	MEM10005	Commission programmable controller programs	New format. Equivalent
MEM10006B	Install machine/plant	MEM10006	Install machine/plant	New format. Equivalent
MEM10007C	Modify control systems	MEM10007	Modify control systems	New format. Equivalent
MEM10008B	Undertake commissioning procedures for plant and/or equipment	MEM10008	Undertake commissioning procedures for plant and/or equipment	New format. Equivalent
MEM10009B	Install refrigeration and air conditioning plant and equipment	MEM10009	Install refrigeration and air conditioning plant and equipment	New format. Equivalent
MEM10010B	Install pipework and pipework assemblies	MEM10010	Install pipework and pipework assemblies	New format. Equivalent
MEM10011B	Terminate and connect specialist cables	MEM10011	Terminate and connect specialist cables	New format. Equivalent
MEM10013A	Install split air conditioning systems and associated pipework	MEM10013	Install split air conditioning systems and associated pipework	New format. Equivalent
MEM11001C	Erect/dismantle scaffolding and equipment	MEM11001	Erect/dismantle scaffolding and equipment	New format. Equivalent
MEM11002C	Erect/dismantle complex scaffolding and equipment	MEM11002	Erect/dismantle intermediate scaffolding and equipment	New title and format. Equivalent
MEM11003B	Coordinate erection/dismantling of complex scaffolding/equipment	MEM11003	Coordinate erection/dismantling of complex scaffolding/equipment	New format. Equivalent
MEM11004B	Undertake dogging	MEM11004	Undertake dogging	New format. Equivalent
MEM11005B	Pick and process order	MEM11005	Pick and process order	New format. Equivalent
MEM11006B	Perform production packaging	MEM11006	Perform production packaging	New format. Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
MEM11007B	Administer inventory procedures	MEM11007	Administer inventory procedures	New format. Equivalent
MEM11008B	Package materials (stores and warehouse)	MEM11008	Package materials (stores and warehouse)	New format. Equivalent
MEM11009B	Handle/move bulk fluids/gases	MEM11009	Handle/move bulk fluids/gases	New format. Equivalent
MEM11010B	Operate mobile load shifting equipment	MEM11010	Operate mobile load shifting equipment	New format. Equivalent
MEM11011B	Undertake manual handling	MEM11011	Undertake manual handling	New format. Equivalent
MEM11012B	Purchase materials	MEM11012	Purchase materials	New format. Equivalent
MEM11013B	Undertake warehouse receival process	MEM11013	Undertake warehouse receival process	New format. Equivalent
MEM11014B	Undertake warehouse dispatch process	MEM11014	Undertake warehouse dispatch process	New format. Equivalent
MEM11015B	Manage warehouse inventory system	MEM11015	Manage warehouse inventory system	New format. Equivalent
MEM11016B	Order materials	MEM11016	Order materials	New format. Equivalent
MEM11017B	Organise and lead stocktakes	MEM11017	Organise and lead stocktakes	New format. Equivalent
MEM11018B	Organise and maintain warehouse stock receival and/or dispatch system	MEM11018	Organise and maintain warehouse stock receival and dispatch system	New format. Equivalent
MEM11019B	Undertake tool store procedures	MEM11019	Undertake tool store procedures	New format. Equivalent
MEM11020B	Perform advanced warehouse computer operations	MEM11020	Perform advanced warehouse computer operations	New format. Equivalent
MEM11021B	Perform advanced operation of load shifting equipment	MEM11021	Perform advanced operation of load shifting equipment	New format. Equivalent
MEM11022B	Operate fixed/moveable load shifting equipment	MEM11022	Operate fixed/moveable load shifting equipment	New format. Equivalent
MEM11023A	Operate a bridge and gantry crane	MEM11023	Operate a bridge and gantry crane	New format. Equivalent
MEM11024A	Undertake basic rigging	MEM11024	Undertake basic rigging	New format. Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
MEM11025A	Operate a non-slewing mobile crane of greater than three tonnes capacity	MEM11025	Operate a non-slewing mobile crane of greater than three tonnes capacity	New format. Equivalent
MEM12001B	Use comparison and basic measuring devices	MEM12001	Use comparison and basic measuring devices	New format. Equivalent
MEM12002B	Perform electrical/electronic measurement	MEM12002	Perform electrical/electronic measurement	New format. Equivalent
MEM12003B	Perform precision mechanical measurement	MEM12003	Perform precision mechanical measurement	New format. Equivalent
MEM12004B	Perform precision electrical/electronic measurement	MEM12004	Perform precision electrical/electronic measurement	New format. Equivalent
MEM12005B	Calibrate measuring equipment	MEM12005	Calibrate measuring equipment	New format. Equivalent
MEM12006C	Mark off/out (general engineering)	MEM12006	Mark off/out (general engineering)	New format. Equivalent
MEM12007D	Mark off/out structural fabrications and shapes	MEM12007	Mark off/out structural fabrications and shapes	New format. Equivalent
MEM12019B	Measure components using coordinate measuring machines	MEM12019	Measure components using coordinate measuring machines	New format. Equivalent
MEM12020B	Set and operate coordinate measuring machines	MEM12020	Set and operate coordinate measuring machines	New format. Equivalent
MEM12021B	Program coordinate measuring machines	MEM12021	Program coordinate measuring machines	New format. Equivalent
MEM12022B	Program coordinate measuring machines (advanced)	MEM12022	Program coordinate measuring machines (advanced)	New format. Equivalent
MEM12023A	Perform engineering measurements	MEM12023	Perform engineering measurements	New format. Equivalent
MEM12024A	Perform computations	MEM12024	Perform computations	New format. Equivalent
MEM12025A	Use graphical techniques and perform simple statistical computations	MEM12025	Use graphical techniques and perform simple statistical computations	New format. Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
		MEM12026	Perform advanced trade calculations in a manufacturing, engineering or related environment	New Computations Unit
MEM13001B	Perform emergency first aid	MEM13001	Perform emergency first aid	New format. Equivalent
MEM13002B	Undertake occupational health and safety activities in the workplace	MEM13002	Undertake work health and safety activities in the workplace	New format. Equivalent
MEM13003B	Work safely with industrial chemicals and materials	MEM13003	Work safely with industrial chemicals and materials	New format. Equivalent
MEM13004B	Work safely with molten metals/glass	MEM13004	Work safely with molten metals/glass	New format. Equivalent
MEM13006B	Collect and evaluate occupational health and safety data for an enterprise or section of an enterprise	MEM13006	Collect and evaluate work health and safety data for an enterprise or section of an enterprise	New format. Equivalent
MEM13007B	Maintain water treatment systems for cooling towers	MEM13007	Maintain water treatment systems for cooling towers	New format. Equivalent
MEM13010A	Supervise occupational health and safety in an industrial work environment	MEM13010	Supervise work health and safety in an industrial work environment	New format. Equivalent
MEM13013B	Work safely with ionizing radiation	MEM13013	Work safely with ionizing radiation	New format. Equivalent
MEM13014A	Apply principles of occupational health and safety in the work environment			Superseded by MEM13015 Not equivalent
		MEM13015	Work safely and effectively in manufacturing and engineering	Supersedes MEM13014A, MEM14004A, MEM15002A MEM15024A MEM16007A Not equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
MEM14001B	Schedule material deliveries	MEM14001	Schedule material deliveries	New format. Equivalent
MEM14002B	Undertake basic process planning	MEM14002	Undertake basic process planning	New format. Equivalent
MEM14003B	Undertake basic production scheduling	MEM14003	Undertake production scheduling	New Title and format. Equivalent
MEM14004A	Plan to undertake a routine task			Superseded by MEM13015 Not equivalent
MEM14005A	Plan a complete activity	MEM14006	Plan work activities	Equivalent
MEM15001B	Perform basic statistical quality control	MEM15001	Perform basic statistical quality control	New format. Equivalent
MEM15002A	Apply quality systems			Superseded by MEM13015 Not equivalent
MEM15003B	Use improvement processes in team activities	MEM15003	Use improvement processes in team activities	New format. Equivalent
MEM15004B	Perform inspection	MEM15004	Perform inspection	New format. Equivalent
MEM15005B	Select and control inspection processes and procedures	MEM15005	Select and control inspection processes and procedures	New format. Equivalent
MEM15007B	Conduct product and/or process capability studies	MEM15007	Conduct product and/or process capability studies	New format. Equivalent
MEM15008B	Perform advanced statistical quality control	MEM15008	Perform advanced statistical quality control	New format. Equivalent
MEM15010B	Perform laboratory procedures	MEM15010	Perform laboratory procedures	New format. Equivalent
MEM15011B	Exercise external quality assurance	MEM15011	Exercise external quality assurance	New format. Equivalent
MEM15012B	Maintain/supervise the application of quality procedures	MEM15012	Maintain/supervise the application of quality procedures	New format. Equivalent
MEM15024A	Apply quality procedures			Superseded by MEM13015 Not equivalent
MEM16001B	Give formal presentations and take part in meetings	MEM16001	Give formal presentations and take part in meetings	New format. Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
MEM16002C	Conduct formal interviews and negotiations	MEM16002	Conduct formal interviews and negotiations	New format. Equivalent
MEM16003B	Provide advanced customer service	MEM16003	Provide advanced customer service	New format. Equivalent
MEM16004B	Perform internal/external customer service	MEM16004	Perform internal/external customer service	New format. Equivalent
MEM16005A	Operate as a team member to conduct manufacturing, engineering or related activities	MEM16005	Operate as a team member to conduct manufacturing, engineering or related activities	New format. Equivalent
MEM16006A	Organise and communicate information	MEM16006	Organise and communicate information	New format. Equivalent
MEM16007A	Work with others in a manufacturing, engineering or related environment			Superseded by MEM13015 Not equivalent
MEM16008A	Interact with computing technology	MEM16008	Interact with computing technology	New format. Equivalent
MEM16009A	Research and analyse engineering information	MEM16009	Research and analyse engineering information	New format. Equivalent
MEM16010A	Write reports	MEM16010	Write reports	New format. Equivalent
MEM16011A	Communicate with individuals and small groups	MEM16011	Communicate with individuals and small groups	New format. Equivalent
MEM16012A	Interpret technical specifications and manuals	MEM16012	Interpret technical specifications and manuals	New format. Equivalent
MEM16013A	Operate in a self-directed team	MEM16013	Operate in a self-directed team	New format. Equivalent
MEM16014A	Report technical information	MEM16014	Report technical information	New format. Equivalent
MEM17001B	Assist in development and deliver training in the workplace	MEM17001	Assist in development and deliver training in the workplace	New format. Equivalent
MEM17002B	Conduct workplace assessment	MEM17002	Conduct workplace assessment	New format. Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
MEM17003A	Assist in the provision of on the job training	MEM17003	Assist in the provision of on the job training	New format. Equivalent
MEM18001C	Use hand tools	MEM18001	Use hand tools	New format. Equivalent
MEM18002B	Use power tools/hand held operations	MEM18002	Use power tools/hand held operations	New format. Equivalent
MEM18003C	Use tools for precision work	MEM18003	Use tools for precision work	New format. Equivalent
MEM18004B	Maintain and overhaul mechanical equipment	MEM18004	Maintain and overhaul mechanical equipment	New format. Equivalent
MEM18005B	Perform fault diagnosis, installation and removal of bearings	MEM18005	Perform fault diagnosis, installation and removal of bearings	New format. Equivalent
MEM18006C	Repair and fit engineering components	MEM18006	Perform precision fitting of engineering components	New Title and format. Equivalent
MEM18007B	Maintain and repair mechanical drives and mechanical transmission assemblies	MEM18007	Maintain and repair mechanical drives and mechanical transmission assemblies	New format. Equivalent
MEM18008B	Balance equipment	MEM18008	Balance equipment	New format. Equivalent
MEM18009B	Perform levelling and alignment of machines and engineering components	MEM18009	Perform precision levelling and alignment of machines and engineering components	New Title and format. Equivalent
MEM18010C	Perform equipment condition monitoring and recording	MEM18010	Perform equipment condition monitoring and recording	New format. Equivalent
MEM18011C	Shut down and isolate machines/equipment	MEM18011	Shut down and isolate machines/equipment	New format. Equivalent
MEM18012B	Perform installation and removal of mechanical seals	MEM18012	Perform installation and removal of mechanical seals	New format. Equivalent
MEM18013B	Perform gland packing	MEM18013	Perform gland packing	New format. Equivalent
MEM18014B	Manufacture press tools and gauges	MEM18014	Manufacture press tools and gauges	New format. Equivalent
MEM18015B	Maintain tools and dies	MEM18015	Maintain tools and dies	New format. Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
MEM18016B	Analyse plant and equipment condition monitoring results	MEM18016	Analyse plant and equipment condition monitoring results	New format. Equivalent
MEM18017C	Modify mechanical systems and equipment	MEM18017	Modify mechanical systems and equipment	New format. Equivalent
MEM18018C	Maintain pneumatic system components	MEM18018	Maintain pneumatic system components	New format. Equivalent
MEM18019B	Maintain pneumatic systems	MEM18019	Maintain pneumatic systems	New format. Equivalent
MEM18020B	Maintain hydraulic system components	MEM18020	Maintain hydraulic system components	New format. Equivalent
MEM18021B	Maintain hydraulic systems	MEM18021	Maintain hydraulic systems	New format. Equivalent
MEM18022B	Maintain fluid power controls	MEM18022	Maintain fluid power controls	New format. Equivalent
MEM18023B	Modify fluid power system operation	MEM18023	Modify fluid power system operation	New format. Equivalent
MEM18024B	Maintain engine cooling systems	MEM27001	Maintain and repair stationary and mobile plant engine cooling systems	Equivalent
MEM18025B	Service combustion engines	MEM27032	Service combustion engines	Equivalent
MEM18026C	Test compression ignition fuel systems	MEM27002	Test and repair compression ignition systems	Equivalent
MEM18027C	Overhaul engine fuel system components	MEM27003	Overhaul engine fuel system components	Equivalent
MEM18028B	Maintain engine lubrication systems	MEM27004	Maintain and repair engine lubrication systems	Equivalent
MEM18029B	Tune diesel engines	MEM27005	Tune diesel engines	Equivalent
MEM18030B	Diagnose and rectify low voltage electrical systems	MEM27006	Diagnose and rectify batteries, low voltage sensors and circuits	Equivalent
MEM18031B	Diagnose and rectify low voltage starting systems	MEM27007	Diagnose and rectify low voltage starting systems	Equivalent
MEM18032B	Maintain induction/exhaust systems	MEM27008	Maintain induction, exhaust and emission control system	Not equivalent
MEM18033B	Perform engine bottom-end overhaul	MEM27030	Perform engine bottom-end overhaul	Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
MEM18034B	Perform engine top-end overhaul	MEM27031	Perform engine top-end overhaul	Equivalent
MEM18035B	Diagnose and rectify braking systems	MEM27009	Diagnose and rectify braking system	Equivalent
MEM18037B	Diagnose and rectify low voltage charging systems	MEM27010	Diagnose and rectify low voltage charging systems	Equivalent
MEM18038B	Maintain wheels and tyres	MEM27029	Maintain wheels and tyres	Equivalent
MEM18039B	Diagnose and rectify track type undercarriage	MEM27011	Maintain track type undercarriage on mobile plant	Equivalent
MEM18040B	Maintain suspension systems	MEM27012	Maintain mobile plant suspension systems	Equivalent
MEM18041B	Maintain steering systems	MEM27013	Maintain steering wheels	Equivalent
MEM18042C	Diagnose and rectify manual transmissions	MEM27028	Diagnose and rectify manual transmissions	Equivalent
MEM18043C	Diagnose and rectify automatic transmissions	MEM27014	Diagnose and rectify automatic transmission	Equivalent
MEM18044C	Diagnose and rectify drive line and final drives	MEM27015	Diagnose and rectify drive line and final drives	Equivalent
MEM18045B	Fault find/repair electrical equipment/components up to 250 volts single phase supply	MEM18045	Fault find/repair electrical equipment/components up to 250 volts single phase supply	New format. Equivalent
MEM18046B	Fault find/repair electrical equipment/components up to 1000 volts a.c./1500 volts d.c.	MEM18046	Fault find/repair electrical equipment/components up to 1000 volts a.c./1500 volts d.c.	New format. Equivalent
MEM18047B	Diagnose and maintain electronic controlling systems on mobile plant	MEM27016	Diagnose and maintain electronic controlling systems on mobile and stationary plant	New format. Equivalent
MEM18048B	Fault find and repair/rectify basic electrical circuits	MEM18048	Fault find and repair/rectify basic electrical circuits	New format. Equivalent
MEM18049C	Disconnect/reconnect fixed wired equipment up to 1000 volts a.c./1500 volts d.c.	MEM18049	Disconnect/reconnect fixed wired equipment up to 1000 volts a.c./1500 volts d.c.	New format. Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
MEM18050C	Disconnect/reconnect fixed wired equipment over 1000 volts a.c./1500 volts d.c.	MEM18050	Disconnect/reconnect fixed wired equipment over 1000 volts a.c./1500 volts d.c.	New format. Equivalent
MEM18051B	Fault find and repair/rectify complex electrical circuits	MEM18051	Fault find and repair/rectify complex electrical circuits	New format. Equivalent
MEM18052B	Maintain fluid power systems for mobile plant	MEM27017	Maintain fluid power systems for mobile plant	New format. Equivalent
MEM18053B	Modify fluid power control systems	MEM18053	Modify fluid power control systems	New format. Equivalent
MEM18054B	Fault find, test and calibrate instrumentation systems and equipment	MEM18054	Fault find, test and calibrate instrumentation systems and equipment	New format. Equivalent
MEM18055B	Dismantle, replace and assemble engineering components	MEM18055	Dismantle, replace and assemble engineering components	New format. Equivalent
MEM18056B	Diagnose and repair analog equipment and components	MEM18056	Diagnose and repair analog equipment and components	New format. Equivalent
MEM18057B	Maintain/service analog/digital electronic equipment	MEM18057	Maintain/service analog/digital electronic equipment	New format. Equivalent
MEM18058C	Modify electronic equipment	MEM18058	Modify electronic equipment	New format. Equivalent
MEM18059B	Modify electronic systems	MEM18059	Modify electronic systems	New format. Equivalent
MEM18060B	Maintain, repair control instrumentation - single and multiple loop control systems	MEM18060	Maintain, repair control instrumentation - single and multiple loop control systems	New format. Equivalent
MEM18061B	Maintain/calibrate complex control systems	MEM18061	Maintain/calibrate complex control systems	New format. Equivalent
MEM18062B	Install, maintain and calibrate instrumentation sensors, transmitters and final control elements	MEM18062	Install, maintain and calibrate instrumentation sensors, transmitters and final control elements	New format. Equivalent
MEM18063B	Terminate signal and data cables	MEM18063	Terminate signal and data cables	New format. Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
MEM18064B	Maintain instrumentation system components	MEM18064	Maintain instrumentation system components	New format. Equivalent
MEM18065B	Diagnose and repair digital equipment and components	MEM18065	Diagnose and repair digital equipment and components	New format. Equivalent
MEM18066B	Diagnose and repair microprocessor-based equipment	MEM18066	Diagnose and repair microprocessor-based equipment	New format. Equivalent
MEM18067B	Tune control loops - multi controller or multi element systems	MEM18067	Tune control loops - multi controller or multi element systems	New format. Equivalent
MEM18069B	Maintain, repair instrumentation process control analysers	MEM18069	Maintain, repair instrumentation process control analysers	New format. Equivalent
MEM18071B	Connect/disconnect fluid conveying system components	MEM18071	Connect/disconnect fluid conveying system components	New format. Equivalent
MEM18072B	Manufacture fluid conveying conductor assemblies	MEM18072	Manufacture fluid conveying conductor assemblies	New format. Equivalent
MEM18073A	Perform advanced equipment testing and diagnostics on mobile plant and equipment	MEM27033	Perform advanced equipment testing and diagnostics on mobile plant and equipment	New format. Equivalent
		MEM18083	Handle fluorocarbon refrigerants according to regulations	New unit
MEM18084A	Commission and decommission split air conditioning systems	MEM18084	Commission and decommission split air conditioning systems	New format. Equivalent
MEM18085A	Install, service and repair domestic air conditioning and refrigeration appliances	MEM18085	Install, service and repair domestic air conditioning and refrigeration appliances	New format. Equivalent
MEM18086B	Test, recover, evacuate and charge refrigeration systems	MEM18086	Test, recover, evacuate and charge refrigeration systems	New format. Equivalent
MEM18087B	Service and repair domestic and light commercial refrigeration	MEM18087	Service and repair domestic and light commercial refrigeration	New format. Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
	and air conditioning equipment		and air conditioning equipment	
MEM18088B	Maintain and repair commercial air conditioning systems and components	MEM18088	Maintain and repair commercial air conditioning systems and components	New format. Equivalent
MEM18089B	Maintain and repair central air handling systems	MEM18089	Maintain and repair central air handling systems	New format. Equivalent
MEM18090B	Maintain and repair industrial refrigeration systems and components	MEM18090	Maintain and repair industrial refrigeration systems and components	New format. Equivalent
MEM18091B	Maintain and repair multi stage, cascade and/or ultra-cold industrial refrigeration systems	MEM18091	Maintain and repair multi stage, cascade and/or ultra-cold industrial refrigeration systems	New format. Equivalent
MEM18092B	Maintain and repair commercial and/or industrial refrigeration and/or air conditioning controls	MEM18092	Maintain and repair commercial and/or industrial refrigeration and/or air conditioning controls	New format. Equivalent
MEM18093B	Maintain and repair integrated industrial refrigeration and/or large air handling system controls	MEM18093	Maintain and repair integrated industrial refrigeration and/or large air handling system controls	New format. Equivalent
MEM18094B	Service and repair commercial refrigeration	MEM18094	Service and repair commercial refrigeration	New format. Equivalent
MEM18095A	Maintain and repair cooling towers/evaporative condensers and associated equipment	MEM18095	Maintain and repair cooling towers/evaporative condensers and associated equipment	New format. Equivalent
MEM18096A	Maintain, repair/replace and adjust refrigerant flow controls and associated equipment	MEM18096	Maintain, repair/replace and adjust refrigerant flow controls and associated equipment	New format. Equivalent
MEM18097A	Manufacture cavity dies	MEM18097	Manufacture cavity dies	New format. Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
MEM18098A	Prepare to perform work associated with fuel system installation and servicing	MEM18098	Prepare to perform work associated with fuel system installation and servicing	New format. Equivalent
MEM19001B	Perform jewellery metal casting	MEM19001	Perform jewellery metal casting	New format. Equivalent
MEM19002B	Prepare jewellery illustrations	MEM19002	Prepare jewellery illustrations	New format. Equivalent
MEM19003B	Handle gem materials	MEM19003	Handle gem materials	New format. Equivalent
MEM19004B	Handle and examine gemstone materials	MEM19004	Handle and examine gemstone materials	New format. Equivalent
MEM19005B	Produce three-dimensional precision items	MEM19005	Produce three-dimensional precision items	New format. Equivalent
MEM19006B	Replace watch batteries	MEM19006	Replace watch batteries	New format. Equivalent
MEM19007B	Perform gemstone setting	MEM19007	Perform gemstone setting	New format. Equivalent
MEM19008B	Prepare jewellery designs	MEM19008	Prepare jewellery designs	New format. Equivalent
MEM19009B	Perform investment procedures for lost wax casting process	MEM19009	Perform investment procedures for lost wax casting process	New format. Equivalent
MEM19010B	Produce rubber moulds for lost wax casting process	MEM19010	Produce rubber moulds for lost wax casting process	New format. Equivalent
MEM19011B	Perform wax injection of moulds for lost wax casting process	MEM19011	Perform wax injection of moulds for lost wax casting process	New format. Equivalent
MEM19012B	Produce jewellery wax model	MEM19012	Produce jewellery wax model	New format. Equivalent
MEM19013B	Produce jewellery metal masters	MEM19013	Produce jewellery metal masters	New format. Equivalent
MEM19014B	Perform hand engraving	MEM19014	Perform hand engraving	New format. Equivalent
MEM19015B	Perform jewellery enamelling	MEM19015	Perform jewellery enamelling	New format. Equivalent
MEM19016B	Construct jewellery components	MEM19016	Construct jewellery components	New format. Equivalent
MEM19017B	Fabricate jewellery items	MEM19017	Fabricate jewellery items	New format. Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
MEM19018B	Repair jewellery items	MEM19018	Repair jewellery items	New format. Equivalent
MEM19020B	Fault-find and maintain micro-mechanisms	MEM19020	Fault-find and maintain micro-mechanisms	New format. Equivalent
MEM19021B	Diagnose and service micro-mechanisms	MEM19021	Diagnose and service micro-mechanisms	New format. Equivalent
MEM19022B	Perform precision micro-mechanism diagnosis and servicing	MEM19022	Perform precision micro-mechanism diagnosis and servicing	New format. Equivalent
MEM20001A	Produce keys	MEM20001	Produce keys	New format. Equivalent
MEM20002A	Assemble and test lock mechanisms	MEM20002	Assemble and test lock mechanisms	New format. Equivalent
MEM20003A	Install and upgrade locks and hardware	MEM20003	Install and upgrade locks and hardware	New format. Equivalent
MEM20004A	Gain entry	MEM20004	Gain entry	New format. Equivalent
MEM20005A	Install and maintain door control devices/systems	MEM20005	Install and maintain door control devices/systems	New format. Equivalent
MEM20006A	Maintain and service mechanical locking devices	MEM20006	Maintain and service mechanical locking devices	New format. Equivalent
MEM20007A	Plan and prepare a masterkey system	MEM20007	Plan and prepare a masterkey system	New format. Equivalent
MEM20008A	Develop and implement a masterkey system	MEM20008	Develop and implement a masterkey system	New format. Equivalent
MEM20009A	Gain entry and reinstate fire and security containers	MEM20009	Gain entry and reinstate fire and security containers	New format. Equivalent
MEM20010A	Gain entry and reinstate automotive locking systems	MEM20010	Gain entry and reinstate automotive locking systems	New format. Equivalent
MEM20011A	Service and repair fire and security containers	MEM20011	Service and repair fire and security containers	New format. Equivalent
MEM20012A	Service and repair mechanical automotive locking systems	MEM20012	Service and repair mechanical automotive locking systems	New format. Equivalent
MEM20013A	Service automotive transponder systems	MEM20013	Service automotive transponder systems	New format. Equivalent
MEM20014A	Perform a site security survey	MEM20014	Perform a site security survey	New format. Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
MEM21001A	Replace watch batteries, capacitors and bands	MEM21001	Replace watch batteries, capacitors and bands	New format. Equivalent
MEM21002A	Perform watch movement exchange	MEM21002	Perform watch movement exchange	New format. Equivalent
MEM21003A	Perform watch case servicing, repair and refurbishment	MEM21003	Perform watch case servicing, repair and refurbishment	New format. Equivalent
MEM21004A	Clean watch and clock components	MEM21004	Clean watch and clock components	New format. Equivalent
MEM21005A	Diagnose faults in quartz watches	MEM21005	Diagnose faults in quartz watches	New format. Equivalent
MEM21006A	Service quartz watches	MEM21006	Service quartz watches	New format. Equivalent
MEM21007A	Service complex quartz watches	MEM21007	Service complex quartz watches	New format. Equivalent
MEM21008A	Service mechanical watches	MEM21008	Service mechanical watches	New format. Equivalent
MEM21009A	Inspect, diagnose, adjust and repair mechanical watches	MEM21009	Inspect, diagnose, adjust and repair mechanical watches	New format. Equivalent
MEM21010A	Service watch power generating systems	MEM21010	Service watch power generating systems	New format. Equivalent
MEM21011A	Service calendar and other dial indication mechanisms for watches	MEM21011	Service calendar and other dial indication mechanisms for watches	New format. Equivalent
MEM21012A	Service and repair mechanical watch oscillating systems	MEM21012	Service and repair mechanical watch oscillating systems	New format. Equivalent
MEM21013A	Service, test and adjust watch escapements	MEM21013	Service, test and adjust watch escapements	New format. Equivalent
MEM21014A	Service mechanical chronograph watches	MEM21014	Service mechanical chronograph watches	New format. Equivalent
MEM21015A	Perform precision watch timing and adjustment	MEM21015	Perform precision watch timing and adjustment	New format. Equivalent
MEM21016A	Install and set up clocks	MEM21016	Install and set up clocks	New format. Equivalent
MEM21017A	Service and repair clock timepieces	MEM21017	Service and repair clock timepieces	New format. Equivalent
MEM21018A	Service clock escapements and oscillating systems	MEM21018	Service clock escapements and oscillating systems	New format. Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
MEM21019A	Service and repair clock striking mechanisms	MEM21019	Service and repair clock striking mechanisms	New format. Equivalent
MEM21020A	Service and repair clock chiming mechanisms	MEM21020	Service and repair clock chiming mechanisms	New format. Equivalent
MEM21021A	Restore clockwork mechanisms	MEM21021	Restore clockwork mechanisms	New format. Equivalent
MEM21022A	Manufacture watch and clock components	MEM21022	Manufacture watch and clock components	New format. Equivalent
MEM21023A	Plan, set up and operate horological workshop or service centre	MEM21023	Plan, set up and operate horological workshop or service centre	New format. Equivalent
MEM25001B	Apply fibre-reinforced materials	MEM25001	Apply fibre-reinforced materials	New format. Equivalent
MEM25002B	Form and integrate fibre-reinforced structures	MEM25002	Form and integrate fibre-reinforced structures	New format. Equivalent
MEM25003B	Set up marine vessel structures	MEM25003	Set up marine vessel structures	New format. Equivalent
MEM25004B	Fair and shape surfaces	MEM25004	Fair and shape surfaces	New format. Equivalent
MEM25005B	Construct and assemble marine vessel timber components	MEM25005	Construct and assemble marine vessel timber components	New format. Equivalent
MEM25006B	Undertake marine sheathing operations	MEM25006	Undertake marine sheathing operations	New format. Equivalent
MEM25007B	Maintain marine vessel surfaces	MEM25007	Maintain marine vessel surfaces	New format. Equivalent
MEM25008B	Repair marine vessel surfaces and structures	MEM25008	Repair marine vessel surfaces and structures	New format. Equivalent
MEM25009B	Form timber shapes using hot processes	MEM25009	Form timber shapes using hot processes	New format. Equivalent
MEM25010B	Perform fitout procedures	MEM25010	Perform fitout procedures	New format. Equivalent
MEM25011B	Install marine systems	MEM25011	Install marine systems	New format. Equivalent
MEM25012B	Install and test operations of marine auxiliary systems	MEM25012	Install and test operations of marine auxiliary systems	New format. Equivalent
MEM25013B	Produce three-dimensional plugs/moulds	MEM25013	Produce three-dimensional plugs/moulds	New format. Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
MEM25014B	Perform marine slipping operations	MEM25014	Perform marine slipping operations	New format. Equivalent
MEM25015A	Assemble and install equipment and accessories/ancillaries	MEM25015	Assemble and install equipment and accessories/ancillaries	New format. Equivalent
MEM26001A	Lay up composites using open moulding techniques	MEM26001	Lay up composites using open moulding techniques	New format. Equivalent
MEM26002A	Lay up composites using vacuum closed moulding techniques	MEM26002	Lay up composites using vacuum closed moulding techniques	New format. Equivalent
MEM26003A	Lay up composites using pressure closed moulding techniques	MEM26003	Lay up composites using pressure closed moulding techniques	New format. Equivalent
MEM26004A	Make basic plugs for composites fabrication	MEM26004	Make basic plugs for composites fabrication	New format. Equivalent
MEM26005A	Make basic moulds for composites fabrication	MEM26005	Make basic moulds for composites fabrication	New format. Equivalent
MEM26006A	Mark and cut out sheets for composite use	MEM26006	Mark and cut out sheets for composite use	New format. Equivalent
MEM26007A	Select and use reinforcing appropriate for product	MEM26007	Select and use reinforcing appropriate for product	New format. Equivalent
MEM26008A	Select and use resin systems appropriate for product	MEM26008	Select and use resin systems appropriate for product	New format. Equivalent
MEM26009A	Select and use cores and fillers appropriate for product	MEM26009	Select and use cores and fillers appropriate for product	New format. Equivalent
MEM26010A	Store and handle composite materials	MEM26010	Store and handle composite materials	New format. Equivalent
MEM26011A	Determine materials and techniques for a composite component or product	MEM26011	Determine materials and techniques for a composite component or product	New format. Equivalent
MEM26012A	Record and trial work processes for one-off composite products	MEM26012	Record and trial work processes for one-off composite products	New format. Equivalent
MEM26013A	Select and use composite processes or systems appropriate for product	MEM26013	Select and use composite processes or systems appropriate for product	New format. Equivalent

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
MEM26014A	Adjust resin chemicals for current conditions	MEM26014	Adjust resin chemicals for current conditions	New format. Equivalent
MEM26015A	Select and apply repair techniques	MEM26015	Select and apply repair techniques	New format. Equivalent
MEM26016A	Select and use joining techniques	MEM26016	Select and use joining techniques	New format. Equivalent
MEM26017A	Prepare composite or other substrate surfaces	MEM26017	Prepare composite or other substrate surfaces	New format. Equivalent
MEM26018A	Organise composite trials	MEM26018	Organise composite trials	New format. Equivalent
MEM26019A	Finish a composite product	MEM26019	Finish a composite product	New format. Equivalent
MEM26020A	Identify and interpret required standards for composites	MEM26020	Identify and interpret required standards for composites	New format. Equivalent
		MEM27018	Test, diagnose and rectify mobile and stationary plant external monitoring and control systems	New Unit
		MEM27019	Diagnose, repair and replace diesel engines in stationary and mobile plant	New Unit
		MEM27020	Apply knowledge of large combustion engine operations to service and maintenance tasks	New Unit
		MEM27021	Maintain, fault find and repair stationary plant gas turbine engine	New Unit
		MEM27022	Maintain, fault find and repair traction drive mechanics	New Unit
		MEM27023	Diagnose and rectify fieldbus circuits in mobile and stationary plant and equipment	New Unit
		MEM27024	Diagnose and rectify mobile plant hydrostatic systems	New Unit

Code	MEM05 Release 11.1 Title	Code	MEM Release 2 Title	Comment / Equivalence
		MEM27025	Maintain, diagnose and rectify fluid power controls in mobile equipment	New Unit
		MEM27026	Service and repair mobile plant air conditioning systems	New Unit
		MEM27027	Install or modify mobile plant air conditioning systems	New Unit
MEM50001B	Classify recreational boating technologies and features	MEM50001	Classify recreational boating technologies and features	New format. Equivalent
MEM50002B	Work safely on marine craft	MEM50002	Work safely on marine craft	New format. Equivalent
MEM50003B	Follow work procedures to maintain the marine environment	MEM50003	Follow work procedures to maintain the marine environment	New format. Equivalent
MEM50004B	Maintain quality of environment by following marina codes	MEM50004	Maintain quality of environment by following marina codes	New format. Equivalent
MEM50005B	Refuel vessels	MEM50005	Refuel vessels	New format. Equivalent
MEM50006B	Check operational capability of marine craft	MEM50006	Check operational capability of marine craft	New format. Equivalent
MEM50007B	Check operational capability of sails and sail operating equipment	MEM50007	Check operational capability of sails and sail operating equipment	New format. Equivalent
MEM50008B	Carry out trip preparation and planning	MEM50008	Carry out trip preparation and planning	New format. Equivalent
MEM50009B	Safely operate a mechanically powered recreational boat	MEM50009	Safely operate a mechanically powered recreational boat	New format. Equivalent
MEM50010B	Respond to boating emergencies and incidents	MEM50010	Respond to boating emergencies and incidents	New format. Equivalent

Imported units of competency

Note: Depending on endorsement timelines, currency of all imported units will be checked and updated prior to release of MEM R2 on TGA.

Unit code	Unit title
AURTTE005	Overhaul engines
AURTTM011	Recondition engine cylinder heads
CPCCLDG3001A	Licence to perform dogging
CPCCLRG3001A	Licence to perform rigging basic level
CPCCLSF2001A	Licence to erect, alter and dismantle scaffolding basic level
CPCCLSF3001A	Licence to erect, alter and dismantle scaffolding intermediate level
CPPFES2027A	Inspect, test and maintain non-gaseous pre-engineered fire-suppression systems
CPPFES3042A	Install and commission pre-engineered fire-suppression systems
CPPSEC2021A	Install security equipment and system
CPPSEC3036A	Program security equipment and system
CPPSEC3037A	Test installed security equipment and system
CPPSEC3038A	Commission and decommission security equipment and system
CPPSEC3039A	Identify and diagnose electronic security equipment and system fault
CPPSEC3041A	Maintain and service security equipment and system
CPPSEC3047A	Provide estimate and quote on security system
CPPSEC3049A	Modify and repair security equipment and system
MEM14091A	Integrate manufacturing fundamentals into an engineering task
MEM15015B	Examine trading practices
MEM15016B	Inspect pre-packed articles
MEM15017B	Use and maintain reference standards
MEM15018B	Investigate consumer complaints
MEM15019B	Conduct a field inspection
MEM15020C	Perform verification/certification or in-service inspection
MEM15021C	Conduct audits of servicing licensees and public weighbridge licensees
MEM15022B	Verify reference standards
MEM23004A	Apply technical mathematics
MEM24001B	Perform basic penetrant testing
MEM24002B	Perform penetrant testing
MEM24003B	Perform basic magnetic particle testing
MEM24004B	Perform magnetic particle testing
MEM24005B	Perform basic eddy current testing
MEM24006B	Perform eddy current testing
MEM24007B	Perform ultrasonic thickness testing
MEM24008B	Perform ultrasonic testing
MEM24009B	Perform basic radiographic testing
MEM24010B	Perform radiographic testing
MEM24011B	Establish non-destructive tests

Unit code	Unit title
MEM24012C	Apply metallurgy principles
MEM30012A	Apply mathematical techniques in a manufacturing, engineering or related environment
MEM30025A	Analyse a simple electrical system circuit
MSATCM304A	Interpret binary phase diagrams
MSMENV472	Implement and monitor environmentally sustainable work practices
PMBPROD291	Operate resin infusion moulding equipment
PMBPROD294	Operate resin transfer moulding equipment
PMBPROD298	Operate equipment using pre-preg material
PMBPROD391	Produce composites using resin infusion
PMBPROD394	Produce composites using resin transfer moulding
PMBPROD398	Produce composites using pre-pregs
TLILIC0012	Licence to operate a vehicle loading crane (capacity 10 metre tonnes and above)
TLILIC2001	Licence to operate a forklift truck
TLILIC2002	Licence to operate an order picking forklift truck
TLILIC3003	Licence to operate a bridge and gantry crane
TLILIC3006	Licence to operate a non-slewing mobile crane (greater than three tonnes capacity)

Appendix B: Development process participants

Existing units of competency were revised with input from technical experts and experienced assessment specialists. Specialist groups were established to review the revised units and new Assessment Requirements.

Through the 2014-2015 conversion and redevelopment phase, drafts were made available on the MSA website for validation and stakeholders were advised by email about how to access the site and provide feedback. This included industry stakeholders listed on the MSA database, State and Territory Industry Training Advisory Bodies (ITABs), State and Territory Training Authorities (STAs) and Vocational Educational and Training (VET) Regulators.

During this period feedback was reviewed and changes were incorporated in the draft materials. All draft materials remained available for ongoing feedback into 2016.

From July 2016, MSA worked closely with representatives of the Australian Metal Workers' Union (AMWU) and Australian Industry Group to review draft materials in preparation for finalisation of the endorsed components.

The following individuals and organisations participated in the development process. The great value of their expertise and input is gratefully acknowledged.

Expertise input group participants

First Name	Family Name	Organisation	State
Ian	Curry	Australian Manufacturing Workers' Union	SA
David	Tiller	Australian Industry Group	NSW
Alex	Stanojevic	Australian Industry Group	QLD
Paul	Baxter	Australian Manufacturing Workers' Union	QLD

Technical reference group participants

First Name	Family Name	Organisation	State
George	Adda	CMM- Engineering Industries	VIC
Luke	Alao	Swinburne University of Technology	VIC
Wayne	Allan	Department of Defence	ACT
Chris	Amos	Hastings Deering	QLD
Phil	Angel	TAFE Riverina	NSW
Lucas	Archer	South Western Sydney Institute of TAFE	NSW
David	Baer	Northern Sydney Institute of TAFE	NSW
Paul	Barry	Caterpillar Underground Mining Pty Ltd	TAS
Paul	Baxter	Manufacturing Industry Skills Training and Assessment Services	QLD
Stephen	Beath	TAFE Western	NSW
Graham	Behrendorff	Locksmiths Guild of Australia	National
Phill	Bovis	Kangan Institute	VIC
Aaron	Boyd	SkillsTech	QLD
Keith	Brown	Department of Defence Army	VIC
Mark	Bullock	NMIT	VIC
Daniel	Burcombe	GippsTAFE	VIC

First Name	Family Name	Organisation	State
Bruce	Burt	Dalby State High School	QLD
Rohan	Butler	The Gordon Institute of TAFE Geelong.	VIC
Michael	Byers	TasTAFE	TAS
Guy	Camilleri	SkillsTech Australia	QLD
Chris	Cheater	Wodonga Institute of TAFE	VIC
Naresh	Chugh	Bonnyrigg High School	NSW
Andrew	Connell	Kangan Institute	VIC
Graham	Creed	TAFE SA	SA
Denis	Crowley	CMM- Engineering Industries	VIC
Nathan	Cryer	Northern Melbourne Institute of TAFE	VIC
Gina	Danaia	Rio Tinto Iron Ore	WA
Stephen	Davies	TAFE NSW - Industry Skills Unit (ISU)	NSW
Tony	Davis	Victoria University	VIC
James	Dawes	CAJE Jewellers	NSW
Doug	De Cean	O-I Australia	NSW
Nick & Leasa	de Klerk	de Klerk and Pinn Jewellers PTY. LTD	NSW
Lyndon	Deane	Hastings Deering (Australia) Pty Ltd	QLD
Paul	Delaney	Swinburne University of Technology	VIC
Peter	Dickinson	DMS Services	VIC
Peter	Dimond	ALS Industrial	NSW
Brad	Diplock	Training Prospects	SA
Leon	Drury	MSA NSW ITAB	NSW
Bruce	Dunn	Hunter Institute of TAFE	NSW
Mark	Earnshaw	Kawana Waters State College	QLD
John	Edwards	TECNQ	QLD
Helen	Einstein	Jeff Einstein Jewellery	NSW
Heidi	Fabian	Academy of Jewellery Manufacture & Design	SA
Len	Farren	Mount Isa Institute of TAFE	QLD
John	Farrow	Goulburn Ovens Institute of TAFE	VIC
Kirsten	Ferguson	Blessington Pty Ltd	NSW
Cliff	Forrester	Fortec Security	QLD
Stephen	Foster	Goulburn Ovens Institute of TAFE	VIC
Kirk	Franks	Sydney Institute of TAFE	NSW
Richard	Griffiths	North Coast TAFE	NSW
Paul	Guntley	Western Sydney Institute of TAFE	NSW
Elizabeth	Hellenpach	Western Sydney Institute of TAFE	NSW
Wayne	Herd	Tam Training and Assessment Mentor	QLD
Stephen	Herring	Careers Australia	QLD
Noel	Higginbotham	N & J Computing Services	QLD
Peter	Hiosan	Pilbara Institute	WA
Leanne	Hixon	QMI Solutions	QLD
Toni	Hoyle	Industry Training & Workplace Services	WA
Karen	Humphreys	Hunter Institute of TAFE	NSW
Heath	Hutcheon	Coolamon Steelworks	NSW
Ken	Jefferies	SkillsTech Australia	QLD
Daniel	Jenkins	Careers Australia	QLD

First Name	Family Name	Organisation	State
Mark	Johnson	Careers Australia	QLD
Peter	Johnson	Master Locksmiths Association	National
Stephen	Johnson	TAFE NSW - Industry Skills Unit (ISU)	NSW
Ted	Johnson	South Western Sydney Institute of TAFE	NSW
Tony	Johnson	Training Prospects	SA
Alan	Kay	Kangan Institute	VIC
Peter	Keep	Central Institute of Technology	WA
Gordon	Kelso	Carter Holt Harvey	VIC
Andrew	Key	South Western Sydney Institute of TAFE	NSW
Kodanda	Kottampally	Box Hill Institute	VIC
Peter	Lausberg	Queensland Studies Authority - VET Branch	QLD
Mark	Lester	Challenger Institute of Technology	WA
Ross	Lidbury	Hunter Institute of TAFE	NSW
Phil	Lowe	Wodonga TAFE	VIC
Ricky	Luke	Manufacturing Industry Skills Training and Assessment Services	QLD
Geoff	Manton	SMA Australia	NSW
Ian	McDonald	Challenger Institute of Technology	WA
Steven	McMahon	CIT	ACT
Pani	Meda	TAFE SA	SA
Scott	Mengel	Defence	ACT
Julie	Micallef	Polytechnic West	WA
John	Miles	Guilford Young College	TAS
Grant	Mills	Blue Dog Training	QLD
Jason	Morgan	TAFE NSW	NSW
Wayne	Morris	South Western Sydney Institute of TAFE	NSW
Peter	Munn	Oz Assess	WA
Joe	Naidoo	SkillsTech Australia	QLD
John	O` Neill	Sandvik Mining	NSW
Jeff	OHalloran	Polytechnic West	WA
Peter	O'Reilly	Hunter Institute of TAFE	NSW
Susan	Pardel	South Western Sydney Institute of TAFE	NSW
Dave	Peall	Axial	QLD
Dr Gita	Pendharkar	RMIT	VIC
Hashim	Poonawala	SKF Australia	VIC
Kyle	Probert	APT Training	NSW
Noel	Ramsden	Edwin Ramsden Pty Ltd T/AS Miranne Jewellers	NSW
Ray	Ransome	Engineering Technical & Training Services	QLD
Paul	Regan	DTWD WA	WA
Adrian	Reivers	Kangan Institute	VIC
Chris	Richardson	Southern Queensland Institute of TAFE	QLD
Amy	Robson	Amy Robson Jewellery	NSW
Phil	Ronald	The Bloomfield Group	NSW
Charlotte	Rose	Custom Fluid Power	QLD

First Name	Family Name	Organisation	State
Peter	Rundle-Curry	Process Automation Learning Services (PALS)	QLD
Anthony	Ryan	TasTAFE	TAS
Peter	Saffo	Saffo Jewellery	NSW
Eric	Sandberg	Victoria University	VIC
Michael	Sanders	Holmesglen Institute	VIC
Peter	Schreiner	University of Ballarat	VIC
David	Scott	Victoria University	VIC
Peter	Sheehan	GippsTAFE	VIC
Graham	Smith	Chisholm Institute	VIC
Les	Smith	Hunter Institute of TAFE	NSW
Ashley	Spain	Emerald State High School	QLD
Stephen	Spence	Polytechnic West	WA
Mitch	Spooner	Northern Sydney Institute of TAFE	NSW
Simon	Stanning	Polytechnic West	WA
John	Stathakis	South Western Sydney Institute of TAFE	NSW
Raven	Steadman	Axial Training	QLD
Laura	Steedman	Air Conditioning and Mechanical Contractors Association	VIC, ACT, NSW, QLD
Christine	Stephens	The City of Newcastle	NSW
Simon	Taylor	Gold Coast Institute of TAFE	QLD
Wayne	Theisenger	NMIT	VIC
Ashley	Tilley	TAFE SA	SA
Keith	Tonkies	SkillsTech Australia	QLD
Mark	Topliss	ALS Industrial	NSW
Cathie	Usher	Chisholm Institute	VIC
Shayne	van der Heide	CLB Training & Development	VIC
John	Verner	MISTAS	VIC
John	Waghorn	Challenger Institute of Technology	WA
Rod	Wallace	Western Sydney Institute of TAFE	NSW
Gary	Walsh	Sunraysia Institute of TAFE	VIC
Murray	Warren	Polytechnic West	WA
Darren	Wiggins	Bureau Veritas Asset Integrity and Reliability Services	NSW
John	Williams	Australian Pacific Training College	QLD
John	Williams	SkillsTech Australia	QLD
David	Wilson	Chisholm Institute	VIC
Mark	Wilson	Sydney Institute of TAFE	NSW
Jim	Wolf	TAFE SA	SA
Eddy	Zussa	South Western Sydney Institute of TAFE	NSW

Appendix C: Key stakeholder engagement

2014		
Jan	Acacia Ridge	QLD
Feb	Bracken Ridge	QLD
Feb	Terrigal	NSW
Feb	Wollongbar	NSW
Mar	Adamstown	NSW
Mar	Kurri Kurri	NSW
April	Preston	VIC
April	Liverpool	NSW
April	Casuarina	NT
April	Eight Mile Plains	QLD
May	Dandenong	VIC
May	Regency Park	SA
May	Rosewater	SA
May	Granville	NSW
May	Newcastle	NSW
May	Orange	NSW
May	Wagga Wagga	NSW
May	Tamworth	NSW
June	Toowoomba	QLD
June	Townsville	QLD
June	Cairns	QLD
June	Osborne Park	WA
June	Malaga	WA
June	Wetherill Park	NSW
July	North Melbourne	VIC
July	Wollongong	NSW
Aug	Traralgon	VIC
Aug	Box Hill	VIC
Sept	Ultimo	NSW
Sept	Acacia Ridge	QLD
Sept	Melbourne	VIC
Sept	Main Beach	QLD
Oct	West Melton	VIC
Oct	North Melbourne	VIC
Nov	Acacia Ridge	QLD
Nov	Hunter Region	NSW
Nov	Townsville Region	QLD
Dec	Fyshwick	ACT

2015		
Jan	Milton	QLD
Jan	North Melbourne	VIC
Jan	Ultimo	NSW
Jan	Enmore	NSW
Jan	St Leonards	NSW
Feb	Adelaide Region	SA
Feb	Newham	TAS
Feb	Crows Nest	NSW
Feb	Tamworth	NSW
Feb	Osborne Park	WA
Feb	Midland	WA
Feb	Rockingham	WA
Feb	Perth Region	WA
Mar	Bruce	ACT
Mar	Wollongong	NSW
Mar	Heidelberg	VIC
Mar	Moree	NSW
April	Eagle Farm	QLD
April	Port Kembla	NSW
May	Moree	NSW
May	Kurri Kurri	NSW
May	North Sydney	NSW
June	Bayswater	VIC
June	Toowoomba	QLD
Aug	Bowen Hills	QLD
Aug	Acacia Ridge	QLD
Aug	Berwick	VIC
Aug	Gosford	NSW
Nov	Osborne Park	WA
Nov	Derwent Park	TAS
Nov	Hobart	TAS

2016		
Jan	Kingscliff	NSW
Feb	Springwood	QLD
Mar	Dandenong	VIC
Mar	Osborne Park	WA
April	Perth	WA
May	Regency Park	SA
May	Ringwood	VIC
May	North Sydney	NSW
June	Bilinga	QLD
June	Bendigo	VIC
June	Griffith	ACT
July	Geelong	VIC
July	Acacia Ridge	QLD
Aug	Melbourne	VIC
Aug	Pymble	NSW
Sept	Healesville	VIC
Sept	Emu Plains	NSW
Sept	Melbourne	VIC
Sept	Balcatta	WA
Oct	Townsville	QLD
Oct	Belmont	WA
Oct	Wollongong	NSW
Nov	Wodonga	VIC
Nov	Wangaratta	VIC
Nov	North Wollongong	NSW
Nov	Darwin	NT
Dec	North Sydney	NSW

Appendix D: Development of this Case for Endorsement

From 2013 to 2015, MSA Training Package development work was overseen by a high-level MSA Board Sub-Committee made up of major stakeholders. The MSA Board Sub-Committee's role was to oversee the development process and provide input and advice, where necessary, relevant to their area of expertise.

Terms of reference for Board Sub-Committees were to:

- Assist in the identification of stakeholders to be consulted for the project
- Identify and assist in the resolution of industry issues in relation to strategic objectives of MSA's projects
- Provide industry input and advice on:
    - Industrial issues
    - Training and assessment issues
    - Priority areas for industry skills development
    - Appropriate methods for collection, collation and consolidation of industry information
    - Validity of the content of project outcomes
- Provide feedback on MSA's development work undertaken for the area covered
- Exchange information as appropriate between MSA, industry and other relevant professional groups covered
- Provide feedback on the project development work for the area of interest
- Make recommendations to the MSA Board on acceptance of the product of the project.

The individuals and enterprises/organisations represented on the MEM Board Sub-Committee from 2013-2015 are listed below:

Name	Enterprise/organisation
Ian Curry (Chair)	Australian Manufacturing Workers Union
Megan Lilly	Australian Industry Group
Alex Stanojevic	Australian Industry Group
Paul Kennett	Industry consultant
Dave Hicks	Engineering and Automotive Training Council, WA
Matt Murphy	Communications, Electrical, Plumbing Union
Michael Grogan	Sutton Tools

The members of the above committee represent major industry stakeholders in this sector, providing a conduit to expert technical advice and high-level support.

From January 2016, the MSA committee became the interim Manufacturing and Engineering Industry Reference Committee (IRC). A new structure and membership of this IRC was finalised in October 2017.

At the same time, management of the MEM project was undertaken by Fraser Nelson, MSA Industry Liaison Officer.

Membership of the IRC changed during the course of 2016, with the current members shown in the following table.

Name	Enterprise/organisation
Ian Curry (Chair)	Australian Manufacturing Workers Union

Name	Enterprise/organisation
David Tiller	Australian Industry Group
Matt Murphy	Communications, Electrical, Plumbing Union
Michael Grogan	Advanced Manufacturing Growth Centre

From March 2017, MSA transferred the project to IBSA Manufacturing while the interim Manufacturing and Engineering IRC continued to oversee and manage the project.

Appendix E: Manufacturing and Engineering IRC Meeting Minutes August 9 2017

Manufacturing & Engineering Industry Reference Committee (IRC)

Minutes of Meeting

IRC:	Manufacturing and Engineering
Date & Time	Wednesday 9th August 2017 1.30pm
Location:	Teleconference
IRC Chair:	Ian Curry - Australian Manufacturing Workers' Union (AMWU)
IRC Members:	Matt Murphy - Communications Electrical Plumbing Union (CEPU) – Electrical Trades Division
	David Tiller - Australian Industry Group (Ai Group)
	Michael Grogan - Director of Advanced Manufacturing Growth Centre in Victoria
Participants:	Fraser Nelson
Secretariat:	Fraser Nelson
Papers:	○ MEM R2 Case for Endorsement_28.7.17 EDITORIAL AND EQUITY REPORT final draft

Minutes

Items	Notes
1	**Introduction** ○ Ian Curry, IRC Chair, welcomed all participants to the meeting. ○ Teleconference is in relation to the MEM Release 2 transition of MEM05 as per Activity Order IBSA/AA/2016-17/002. ○ Ian Curry gave a report on the progress of MEM Release 2 including recent developments associated with the preparation of the Case for Endorsement document to ensure that it met the requirements of the AISC.
2	**MEM Release 2 Case for Endorsement** ○ Michael Grogan moved and Matt Murphy seconded the following: ○ Endorsement of the MEM Release 2 Case for Endorsement document and that it and all associated Release 2 documents should be forwarded through the administration processes to the State and Territory Training Authorities and the Industry Advice Branch, Industry Skills and Quality Group, Department of Education and Training ○ The proposal was carried unanimously
3	**Other Business** ○ The other IRC members expressed a vote of thanks to Ian Curry and David Tiller for their extensive efforts and input which led to the achievement of this outcome.

Items	Notes
4	**Meeting closed** - Meeting closed at 2.00pm

Actions Arising

Item	Action	Responsibility	Do by	Status
1.	***Circulate MEM R2 documents to appropriate organisations.***	***IBSA***	***10 August 17***	Complete

Appendix F: Quality Report

Section 1 – Details of draft training package components

Information required	Detail
Training Package title and code	**MEM Manufacturing and Engineering Training Package**
Number of new or revised qualifications	**18**
Number of new or revised units	**449**
Confirmation that the draft endorsed components meet the *Standards for Training Packages 2012*	**All Training Package components have been reviewed against the Standards for Training Packages 2012 and found to comply.** **The MEM Manufacturing and Engineering Training Package covers traditional trade (work based) apprenticeships which are tied to well-established industrial arrangements. As such MEM has characteristics/approaches, as discussed throughout this report, which may not be seen in other Training Packages and may not be seen as 'best practice'.** **However, I believe that the Training Package components comply with the letter of the Standards.**
Name of panel member completing Quality Report	**Celeste Howden**
Statement that the panel member • is independent of development and/or validation activities associated with the *Case for Endorsement* • has not undertaken the *Equity* and/or *Editorial Report* • is independent of the Training Package or Training Package components being reviewed.	Celeste Howden is independent of the MEM Manufacturing and Engineering Training Package and has not contributed to the development or validation activities undertaken for this package, nor the Editorial or Equity reports.
Date completed	**24 October 2017**

Section 2 – Compliance with the standards for training packages

Standards for Training Packages		Standard met – yes or no	Comments (including any relevant comments from the Equity and Editorial Reports)
Standard 1	Training Packages consist of the following: 1. AISC endorsed components: • units of competency • assessment requirements (associated with each unit of competency) • qualifications • credit arrangements. 2. One or more quality assured companion volumes.	***Yes***	The MEM Manufacturing and Engineering Training Package comprises the components as required in Standard 1: • units of competency • associated assessment requirements • qualifications • one Companion Volume Implementation Guide which has been quality assured (see below). The MEM CVIG was first developed and endorsed for MEM Release 1.0 in April 2015. The quality assurance process for the development of MEM CVIG R2 comprised: • Drafting of additional information as approved by the IRC • Review and editing for consistency and accuracy by the: ○ IBSA General Manger Industry ○ Relevant IBSA Industry Manager ○ Project Coordinator(s) • Presentation of the CVIG R2 to the IRC for review and approval • Distribution of the CVIG R2 with draft Case for Endorsement and the training package components to STAs for comment. No national credit arrangements are in place, see Standard 10.

Standards for Training Packages		Standard met – yes or no	Comments (including any relevant comments from the Equity and Editorial Reports)
Standard 2	Training Package developers comply with the AISC *Training Package Products Policy*.	***Yes***	The MEM Manufacturing and Engineering Training Package meets all requirements of the Training Package Products Policy (TPPP) as evidenced by: • access and equity has been considered in the development process and is confirmed in the Equity report • Foundation Skills can be clearly identified within the units of competency and do not exceed workplace requirements • codes and titles of Training Package, qualifications and units meet requirements • qualification packaging rules, while complex/controversial, meet requirements (see Standard 9 for further discussion of packaging rules) • qualification and unit of competency mapping and statements on equivalence are provided; in some cases units that are deemed equivalent have minor differences but have not changed the work outcome • Editorial Report confirmed that imported units are current and pre-requisites for imported units are listed in the packaging within qualifications • pathways advice is provided in the Companion Volume Implementation Guide • information is provided in the Companion Volume Implementation Guide about reasonable adjustment and related issues in the MEM sectors covered by the Training Package.

Standards for Training Packages		Standard met – yes or no	Comments (including any relevant comments from the Equity and Editorial Reports)
Standard 3	Training Package developers comply with the AISC *Training Package Development and Endorsement Process Policy*.	***Yes***	The MEM R2 submission comprises work that was undertaken in order to comply with the Standards for Training Packages 2012 and the related templates, in particular: • Updates/edits to Units of Competency to reflect new/amended terminology and content sections as required by the Standards • Development of Assessment Requirements • Development of Companion Volume Implementation Guide The compliance updates began in 2013 and were managed according to the then current policies notably the original Training Package Development and Endorsement Policy. The Quality Report was commissioned in the original template in January 2017 and completed on 27 February. The current report applies the new Quality Report template and the revised Training Package Development and Endorsement Policy to the pre-existing work. Despite the above the MEM R2 complies with the revised Training Package Development and Endorsement Policy except that: • A case for change was not required at the start of the work and arguably is not relevant to this compliance work • The IRC Skills Forecast and Proposed Schedule of Work was not in place/required at the start of the work; the IRC's four year work plan was developed through 2016 and released in October • A formal description of the consultation/validation methodology and why appropriate was not in place; however there is evidence of significant inclusive consultation and validation mechanisms • No direct licensing/regulatory issues apply to the units or qualifications in this compliance work. However, licensing and regulatory bodies were notified via emails to the stakeholder database of all opportunities to contribute to consultation/validation processes.

Standards for Training Packages		Standard met – yes or no	Comments (including any relevant comments from the Equity and Editorial Reports)
Standard 4	Units of competency specify the standards of performance required in the workplace.	***Yes***	MEM Manufacturing and Engineering Training Package units of competency specify the standards of performance required in the workplace. While the scope of the compliance work did not allow for full review of units of competency significant updates have been made to the wording of many units which improve their clarity, specificity and internal consistency.

Standard 5	The structure of units of competency complies with the unit of competency template.	***Yes***	MEM Manufacturing and Engineering Training Package units have been checked against all aspects of Standard 5 and found to comply. All mandatory fields have been populated with appropriate information. The units: • have titles that concisely describes unit outcome and codes and titles comply with requirements • include focused useful information about the application of each unit and its relationship to licensing, legislative, regulatory or certification requirements (see below) • define clear workplace outcomes that are demonstrable and assessable • specify performance requirements in relevant tasks, roles, skills and knowledge that facilitate implementation and assessment • specify different work environments and conditions and essential conditions that apply to the unit and its context (see below) • incorporate foundation skills that are recognisable and commensurate with workplace requirements • list pre-requisites where they apply • specify title and code of any equivalent unit or, where appropriate, the relationship to other units • link to the Companion Volume Implementation Guide which is available to be published to coincide with publishing the Training Package on training.gov.au. **Unit Application** The Application uses a number of strategies to describe how and in what context the unit can be applied and who might use it. In some cases this includes direction about use/restriction of other units. While this can be gleaned from examination of the packaging rules it is seen as critical

Standards for Training Packages	Standard met – yes or no	Comments (including any relevant comments from the Equity and Editorial Reports)
		information for training providers and other users and is included in the Application to ensure to the correct selection and application of the unit. In my view this complies with the template. **Range of Conditions** The lists in the Range of Conditions define the range of "essential operating conditions" that apply to the unit of competency "depending on the work situation". This means that: • the unit can be used in various contexts and reduces the need for near-duplicate units. While the unit can be applied in diverse work environments the Range of Conditions states that is it essential that its application encompasses at least one of the listed items • the unit differentiates these essential operating conditions from similar activities/equipment/performance criteria which might apply in other sectors or units of competency. In my view this complies with the template.

Standards for Training Packages		Standard met – yes or no	Comments (including any relevant comments from the Equity and Editorial Reports)
Standard 6	Assessment requirements specify the evidence and required conditions for assessment.	***Yes***	MEM Manufacturing and Engineering Training Package assessment requirements have been reviewed against Standard 6 and found to comply. Performance evidence clearly identifies the required frequency and/or volume of evidence required, and directly relate to the unit of competency. Note also that: • in many units the Performance Criteria are very task based and the developers decided to maintain clarity and consistency by not introducing different language to describe tasks and related evidence in the Performance Evidence section • queries about Assessment Requirements were raised in the Editorial and Quality Assurance processes; these were clarified with the developer and in many cases amendments were made as agreed by the IRC. Knowledge evidence clearly specifies the required knowledge a candidate would need in order to achieve competency. Queries raised in the Editorial and Quality Assurance processes were clarified and in some cases amendments were made by the developer as agreed by the IRC. All units of competency contain clear and specific assessment conditions, including assessor requirements, conditions for assessment, and the required access to tools, materials and equipment necessary for assessment of the unit. The Assessment Conditions also reinforce that LLN requirements must be considered in the assessment to ensure that LLN levels are appropriate to the work being performed as part of the unit of competency. There is also reference to consideration of the LLN needs of the candidate, which is required as part of reasonable adjustment, fairness and flexibility.

Standards for Training Packages		Standard met – yes or no	Comments (including any relevant comments from the Equity and Editorial Reports)
Standard 7	Every unit of competency has associated assessment requirements. The structure of assessment requirements complies with the assessment requirements template.	***Yes***	Each MEM unit has associated assessment requirements. The structure of assessment requirements complies with template. All mandatory fields have been populated with appropriate information. The assessment requirements have been checked against all aspects of Standard 6 and found to comply. The assessment requirements: • have compliant titles • specify that all aspects of the unit of competency must be satisfied • detail specific areas of product, process and knowledge evidence, directly related to the Performance Criteria and indicate the depth and breadth of evidence required • specify mandatory conditions for assessment • specify assessor requirements • link to the Companion Volume Implementation Guide which is available to be published to coincide with publishing the Training Package on training.gov.au.

Standards for Training Packages		Standard met – yes or no	Comments (including any relevant comments from the Equity and Editorial Reports)
Standard 8	Qualifications comply with the Australian Qualifications Framework specification for that qualification type.	***Yes***	Review of the MEM qualifications within the Editorial Report and Quality Report processes confirms that the qualifications comply with the Australian Qualifications Framework (AQF) specifications. The qualifications: • define learning outcomes that are coherent, demonstrable and aligned to the qualification title and descriptor • packaging of units of competency are commensurate with the AQF specifications for the qualification type • comply with the AQF specification for the qualification type. Qualification descriptors are cross-referenced with the AQF descriptors in the Companion Volume Implementation Guide and contain volume of learning.

Standard 9	The structure of the information for the Australian Qualifications Framework qualification complies with the qualification template.	***Yes***	MEM qualifications have been checked against all aspects of Standard 9 and found to comply. All mandatory fields have been populated with appropriate information. The qualifications: • have titles that reflect the qualification outcome and codes and titles comply with requirements • do not have specific entry requirements • include a description of the qualification and its relationship to licensing, legislative, regulatory or certification requirements • specify the total number of units of competency required to achieve the qualification (see packaging rules below) • specify the packaging of core and elective units required to achieve the qualification • list all core and elective unit with codes, titles and any prerequisites • include the code and title of any equivalent qualification/s where appropriate • link to the Companion Volume Implementation Guide online. The Editorial report confirms that: • core and elective units are listed in the qualifications and were checked against the unit list provided in the Case for Endorsement • units containing prerequisites were checked against the list of units contained in the Companion Volume Implementation Guide. **Packaging rules** The MEM packaging rules are complex however they meet the needs of a complex system of engineering trades which is characterised by: • long standing industrial arrangements that are enmeshed with skills/competencies • wide ranging skills/knowledge that are common across specialisations

		• diverse specialisations • many high-risk work activities • application in a range of micro, medium and large enterprises. Pre-requisites have been agreed by industry parties. They are used to: • ensure a baseline standard for all candidates in key areas including workplace safety and communication. Historically these were required but were achieved prior to the training component of an apprenticeship; their inclusion in MEM R2 will improve consistency and equity for all apprentices. • define pathways within a qualification. This helps to minimise the number of qualifications and therefore prevents duplication which can arise from qualifications that share many units. It also helps to ensure the rigour and consistent outcomes of the qualifications by providing clear pathways. The Packaging Rules for some MEM qualifications use a points system which assists industry parties to align workplace skills to the qualifications and industrial arrangements. While this is rare it has been in place for many years, is agreed by industry parties and is embedded in industrial arrangements. A points system is not prohibited by the Standards for Training Packages 2012. 'Test' packaging of several qualifications, according to the points system, was undertaken by the QA Panel member and indicated that the points system results in: • a defined number of units for each qualification and specialisation • qualifications that align to the AQF levels. It is important to note that while the points system does seem complex to industry 'outsiders' implementation of the qualifications can only be undertaken by Registered Training Organisations with qualified personnel as required by the Standards for RTOs 2012; this includes vocational competencies and industry currency.

Standards for Training Packages	Standard met – yes or no	Comments (including any relevant comments from the Equity and Editorial Reports)
		Qualification description The Description section in the MEM qualifications uses a number of strategies to describe the qualification outcomes. In some cases this includes a restriction against delivering the qualification in a school setting unless the student is 'formally engaged in a Training Contract associated with an Australian Traineeship'. This is not advice, rather it sits somewhere between a de facto outcome of the qualification (skills and knowledge will be achieved in the workplace) and a regulatory requirement (via federal and State/Territory requirements for Australian Apprenticeships). The industrial parties have agreed that this is critical information which ensures that the occupational outcomes associated with the qualifications meet the industry definitions for the respective trades/vocations as contained in the Award, and that the qualifications are used for their intended purpose. *In my view this complies with the template.*
Standard 10 Credit arrangements existing between Training Package qualifications and Higher Education qualifications are listed in a format that complies with the credit arrangements template.	**N/A**	As there are no formal credit arrangements in place at time of submission this standard is not applicable.

Standards for Training Packages	Standard met – yes or no	Comments (including any relevant comments from the Equity and Editorial Reports)
Standard 11 A quality assured Companion Volume Implementation Guide produced by the Training Package developer is available at the time of endorsement and complies with the Companion Volume Implementation Guide template.	***Yes***	MEM Companion Volume Implementation Guide is available and complies with template. MSA quality assurance process is available and the Editorial Report confirms that QA process has been applied. IBSA quality assurance process of internal review and external edit has been applied The MEM Companion Volume Implementation Guide: • provides detailed information about the industry and key work and training outcomes • lists qualifications and units of competency in the MEM Manufacturing and Engineering Training Package and provides mapping of equivalence • provides implementation information covering all requirements. The MEM Companion Volume Implementation Guide provides specific guidance and advice on: • Pathways under the heading 'Pathways to a career through the Manufacturing and Engineering Training Package Qualifications' • Access and equity under the heading 'Access and Equity' • Foundation skills under the heading 'Foundation Skills'. • A detailed table is provided outlining foundation skills essential to competent performance in every unit of competency. The information in the MEM Companion Volume Implementation Guide is consistent with information in the qualifications and units of competency.

Standards for Training Packages	Standard met – yes or no	Comments (including any relevant comments from the Equity and Editorial Reports)
Standard 12 Training Package developers produce other quality assured companion volumes to meet the needs of their stakeholders as required.	***Yes***	No additional companion volumes have been developed to date.

Section 3 – Comments on how the draft training package components meet the quality principles

1. Reflect identified workforce outcomes

Key features	Examples of evidence	Met: Yes / No	Comments/ other evidence demonstrated Provide brief commentary on how the draft endorsed components meet the Quality Principles with specific reference to the evidence provided, including any evidence provided by the Equity and Editorial Reports
Driven by industry's needs	• Changes demonstrate a clear link back to AISC and other government decisions in particular compliance with the Standards for Training Packages 2012 • Industry needs have been accommodated in four new qualifications which have been devolved from one previous qualification • Industrial parties have agreed on rationalisation of five units into one • Industrial parties have agreed on inclusion of additional pre-requisites to ensure equity and rigour of qualifications • MEM qualifications are linked to IR arrangements which have been agreed by the industry parties	Yes	The updates that result in MEM Manufacturing and Engineering Training Package R2 began in 2013 in response to government requirements embedded in the Standards for Training Packages 2012 and related policies. Nor did the work undertake a full review of units or qualifications. As such the work is not predominantly driven by industry needs. However several industry driven changes were incorporated: • Devolving of four 'new' qualifications from specialisations in a previous qualification • Rationalisation of units of competency New qualifications from previous specialisations: • MEM31317 Certificate III in Refrigeration and Air Conditioning (HVAC) • MEM31417 Certificate III in Engineering – Fixed and Mobile Plant Mechanic • MEM31517 Certificate III in Engineering – Toolmaking Trade • MEM31717 Certificate III in Engineering – Casting and Moulding Trade Rationalised units MEM13015 supersedes:

Key features	Examples of evidence	Met: Yes / No	Comments/ other evidence demonstrated Provide brief commentary on how the draft endorsed components meet the Quality Principles with specific reference to the evidence provided, including any evidence provided by the Equity and Editorial Reports
			• MEM13014A • MEM14004A • MEM15002A • MEM15024A • MEM16007A

Compliant and respond to government broad policy initiatives	• MEM R2 work was undertaken to update selected MEM qualifications and units of competency to meet requirements of Standards for Training Packages 2012 and related requirements
	• Consideration has been given to the CISC 2015 training package reforms. In MEM R2:
	  • No obsolete/duplicative qualifications were identified
	  • Five units replaced by one
	  • Qualifications use common units and specialisations which support movement between related occupations
	  • Qualifications articulate to higher level qualifications
		Yes	• Training package components have been updated to comply with the Standards for Training Packages 2012 and the Training Package Products Policy
			• The MEM R2 compliance work has been reviewed against the revised Training Package Development and Endorsement Process Policy and found to comply with the vast majority of new requirements. (See Standard 3)

Key features	Examples of evidence	Met: Yes / No	Comments/ other evidence demonstrated Provide brief commentary on how the draft endorsed components meet the Quality Principles with specific reference to the evidence provided, including any evidence provided by the Equity and Editorial Reports
	• Detailed information on industry expectations for training is embedded in units of competency, assessment conditions and packaging rules		
Reflect contemporary work organisation and job profiles incorporating a future orientation	• Significant national consultation and validation has been undertaken using various strategies and mechanisms which promote inclusion and informed feedback • Four qualifications have been devolved (from previous qualification specialisations) based on industry needs for stronger/clearer alignment to contemporary job roles • Skills/knowledge for digital and electronic technology, CAD design and sustainability are reflected in MEM units of competency	Yes	MSA conducted a range of consultation and validation activities throughout 2014 to 2016. Following the transfer of the work to IBSA Manufacturing in March 2017, editorial review and quality assurance activities continued to be undertaken. These demonstrate many opportunities for stakeholders to understand the work being undertaken and to contribute feedback to the process. Details of activities, stakeholders and feedback are provided in the Case for Endorsement and include: • Face to face workshops to provide information to stakeholders and collect feedback • Publishing draft components to the website, providing feedback proforma • Webinar sessions • Online issues register where stakeholders could log issues/feedback • Notifying stakeholders of consultation/validation opportunities by email newsletter • Engagement with enterprises, employer and employee groups, training providers, industry associations, equipment suppliers, government agencies

Key features	Examples of evidence	Met: Yes / No	Comments/ other evidence demonstrated Provide brief commentary on how the draft endorsed components meet the Quality Principles with specific reference to the evidence provided, including any evidence provided by the Equity and Editorial Reports
			• Engagement across metropolitan and regional areas nationally • Use of technical experts in development work • Input from the IRC which comprises employer and employee bodies for the sectors covered by the Training Package. MEM R2 covers a range of traditional trade qualifications which are embedded in industrial arrangements. The design philosophy for the units of competency and qualifications, which has been supported by industry for many years, has not changed and enables individual and enterprise needs to be accommodated. Any future orientation to identify substantive changes to job roles, competencies and/or qualifications would require a full review process which was beyond the scope of this compliance work.

2. Support portability of skills and competencies including reflecting licensing and regulatory requirements

Key features	Examples of evidence	Met: Yes / No	Comments/ other evidence demonstrated Provide brief commentary on how the draft endorsed components meet the Quality Principles with specific reference to the evidence provided, including any evidence provided by the Equity and Editorial Reports
Support movement of skills within and across organisations and sectors	• Qualifications framework uses specialisations and common units of competency to support movement between job roles within and across sub-sectors • Qualifications articulate to higher level qualifications (up to Diploma)	Yes	The MEM packaging rules are complex however they meet the needs of a complex system of engineering and related trades which is characterised by: • long standing industrial arrangements that are enmeshed with skills/competencies • wide ranging skills/knowledge that are common across specialisations • diverse specialisations • many high-risk work activities • application in a range of micro, medium and large enterprises.
Promote national and international portability	• Australian Standards are referenced in relevant units of competency and qualifications. • International standards have been considered and referenced as appropriate to the Australian context.	Yes	No further comments

Key features	Examples of evidence	Met: Yes / No	Comments/ other evidence demonstrated Provide brief commentary on how the draft endorsed components meet the Quality Principles with specific reference to the evidence provided, including any evidence provided by the Equity and Editorial Reports
Reflect regulatory requirements and licensing	• Regulatory and licensing requirements referenced in the units of competency and qualifications have been updated to current requirements. • Information on licensing/regulatory requirements complies with requirements.	Yes	Editorial Report and Quality Report processes confirm that references to regulatory/licensing requirements have been checked for currency and comply with Standards for Training Packages 2012.

3. Reflect national agreement about the core transferable skills and core job-specific skills required for job roles as identified by industry

Key features	Examples of evidence	Met: Yes / No	Comments/ other evidence demonstrated Provide brief commentary on how the draft endorsed components meet the Quality Principles with specific reference to the evidence provided, including any evidence provided by the Equity and Editorial Reports
Reflect national consensus	• Significant national consultation and validation has been undertaken using various strategies and mechanisms which promote inclusion and informed feedback	Yes	See Principle 1.
Recognise convergence and connectivity of skills	• Use of common core units, electives and specialisations recognises convergence/connectivity of skills across a range of products, processes and sub-sectors while accommodating divergent skills and knowledge requirements. • Pathways for progression recognise convergence and connectivity of skills	Yes	• Pathways demonstrate that generic qualifications can lead into qualifications in diverse streams/sectors e.g Certificate I in Engineering can articulate to one of ten specified Certificates III • Pathways demonstrate that the streams/sectors can lead into generic qualifications e.g. one of the ten Certificates III can articulate to Certificate IV in Engineering.

4. Be flexible to meet the diversity of individual and employer needs, including the capacity to adapt to changing job roles and workplaces

Key features	Examples of evidence	Met: Yes / No	Comments/ other evidence demonstrated Provide brief commentary on how the draft endorsed components meet the Quality Principles with specific reference to the evidence provided, including any evidence provided by the Equity and Editorial Reports
Meet the diversity of individual and employer needs	• The design philosophy for the units of competency and qualifications enables individual and enterprise needs to be accommodated within complex and diverse 'sub-sectors' of the industry, while minimising the number of qualifications and units of competency. • Qualifications framework uses electives, specialisations and common units of competency which enable customisation to meet job roles in different enterprises	Yes	The MEM qualification packaging rules meet the needs of a complex system of engineering and related trades which is characterised by: • long standing industrial arrangements that are enmeshed with skills/competencies • wide ranging skills/knowledge that are common across specialisations • diverse specialisations • many high-risk work activities • application in a range of micro, medium and large enterprises. The design philosophy for the units of competency and qualifications enables individual and enterprise needs to be accommodated within diverse 'sub-sectors' and enterprises while minimising the number of qualifications and duplication of units of competency.

Support equitable access and progression of learners	• Multiple entry and exit points are available with direct entry available to qualifications at all levels • Pre-requisite units of competency support equitable access (direct entry) and consistency of skills development (progression) across the industry • Pre-requisites have been considered and used only deemed necessary by industry	Yes	Pathways and progression: • Learners can progress from Certificate I through to Diploma level in Engineering. There are nine Certificate III pathways in this progression sequence, covering a range of 'sub sectors'. • Four Certificates III are available covering the jewellery manufacture, composites trade, boating services and industrial electrician 'sub sectors' of the industry. • Learners can choose a production skills pathway, progressing from Certificate II in Engineering through to Certificate III in Engineering - Production Systems. • An outline of possible career pathways is provided in the Companion Volume Implementation Guide. Pre-requisites The Equity Report confirms that Prerequisite units of competency have been used only where essential to the building of skills. Further information via the SSO and IRC confirms that pre-requisites have been agreed by industry parties in order to: • Ensure a baseline standard for all candidates in key areas including workplace safety and communication. Historically these skills were required but were achieved prior to the training component of an apprenticeship; their inclusion in MEM R2 will improve consistency and equity for all apprentices. • Enable direct entry into all qualifications. • Define pathways within a qualification. This helps to minimise the number of qualifications and duplication which can arise from qualifications that share many units. It also helps to ensure the rigour and consistent outcomes of the qualifications by providing clear pathways.

5. Facilitate recognition of an individual's skills and knowledge and support movement between the school, vocational education and higher education sectors

Key features	Examples of evidence	Met: Yes / No	Comments/ other evidence demonstrated Provide brief commentary on how the draft endorsed components meet the Quality Principles with specific reference to the evidence provided, including any evidence provided by the Equity and Editorial Reports
Support learner transition between education sectors	• Certificate I in Engineering is an entry level qualification that provides competencies to open up pathways into employment and/or further study in the engineering/manufacturing industry. • Qualifications articulate to higher level qualifications (up to Diploma) • Currently there is no defined articulation to higher education qualifications however people who have completed the MEM Diploma qualification could progress to higher education qualifications in related disciplines.	Yes	The Equity Report confirms that: • the MEM R2 Companion Volume Implementation Guide provides clear guidance in relation to entry and exit points • the MEM Companion Volume Implementation Guide provides a table with clear guidance on pathways from entry and preparatory level. • all qualifications have direct entry pathways and have clearly defined occupational outcomes that are aligned with industry needs.

6. Support interpretation by training providers and others through the use of simple, concise language and clear articulation of assessment requirements

Key features	Examples of evidence	Met: Yes / No	Comments/ other evidence demonstrated Provide brief commentary on how the draft endorsed components meet the Quality Principles with specific reference to the evidence provided, including any evidence provided by the Equity and Editorial Reports
Support implementation across a range of settings	• Industry advice about delivery is provided via a Companion Volume Implementation Guide • Packaging/implementation information is also included in qualifications and units of competency where it is deemed critical/mandatory	Yes	The MEM qualification packaging rules meet the needs of a complex system of engineering and related trades which is characterised by: • long standing industrial arrangements that are enmeshed with skills/competencies • wide ranging skills/knowledge that are common across specialisations • diverse specialisations • many high-risk work activities • application in a range of micro, medium and large enterprises. The design philosophy for the units of competency and qualifications enables individual and enterprise needs to be accommodated within diverse 'sub-sectors' and enterprises while minimising the number of qualifications and duplication of units of competency. The Equity Report confirms that MEM Release 2 Companion Volume Implementation Guide provides specific guidance and advice on: • choosing appropriate qualifications

Key features	Examples of evidence	Met: Yes / No	Comments/ other evidence demonstrated Provide brief commentary on how the draft endorsed components meet the Quality Principles with specific reference to the evidence provided, including any evidence provided by the Equity and Editorial Reports
			• career pathways • access and equity and reasonable adjustment • foundation skills.

Support sound assessment practice	• Units of competency and their associated assessment requirements:
	  • define clear workplace outcomes
	  • provide detailed and specific requirements in the Elements, Performance Criteria and Assessment Requirements
	  • demonstrate internal consistency
		Yes	See Standard 6

Support implementation	• Training Package components are in place and comply with requirements for publication • Implementation advice is provided in a Companion Volume Implementation Guide which is ready for publication • No structural barriers to implementation have been identified however several STAs have raised concerns; these are discussed in the Case for Endorsement	Yes	Editorial Report and Quality Report processes confirm that: • unit codes and titles have been checked and comply with template • qualification codes and titles have been checked and comply with template • Training Package components are in place and meet template requirements.