Qualification Reform

Jobs and Skills Council Demonstration Project

Final report – due 27 September 2024

Jobs and Skills Council	Manufacturing Industry Skills Alliance
Contact information	
Demonstration project title	MSA07 Manufacturing Training Package

Demonstration projects are a mechanism for Jobs and Skills Council to trial and refine the proposed purpose-led approach to develop new qualification models that will codify learning in a way that is best suited to their sectors. Outcomes and learnings from Demonstration Projects will be used to inform the Design Group thinking on what may be required to support a high performing qualifications system. For further details on the purpose-led model, Qualification Development Quality Principles, and demonstration projects - please refer to the *Qualification Reform guidance for Jobs and Skills Councils.*

The **final report** is expected to highlight an issue identified through recent Jobs and Skills Council workforce planning, industry intelligence and data, and the outline of a new qualification model to address through the application of the *purpose-driven model* and *Qualification Development Quality Principles* to the existing Training Package Organising Templates (for example the Unit of Competency template). The report should also indicate any considerations to amend the current system where it presents a limitation in developing the new model.

The final report is due to the department by **27 September 2024,** with developed examples of the new qualification to support.

Template

Part A – Final assessment of purpose and principles model

Part B – Outcomes from testing the purposes and principals' model, including agreed deliverables (to be attached to this report).

Final Report – Demonstration Projects Part A

As a demonstration project, no decisions will be made concerning implementation without industry support.

Final assessment

1. Refinements to the purpose led and principles-based model.

a) Do the *three purposes* enable greater flexibility in training product design?

- Are the descriptions/characteristics of the purposes sufficiently clear? Is clarification needed to assist with aligning products to each purpose?
- Do the purposes enable enough flexibility to design the product as desired?
- Do the descriptions of the purposes, and characteristics of the subsequent qualifications assist when considering the design and intent of qualifications/units of competency?

General comments on Purpose Descriptions

The Manufacturing Alliance Demonstration Project has supported findings in the Manufacturing Alliance Report on Categorisation Against Purposes. These findings are:

- the descriptions for the purpose categories are not definitive and are open to interpretation. Assumptions about the intent of each purpose was required to facilitate purpose categorisation. For example, the assumption that the reference to 'tasks' in purpose 1 description was primarily about 'skills' (as this terminology in manufacturing is widespread).
- qualifications did not fit easily into one category alone and that the purposes are best approached as a continuum. Approaching the purposes as a continuum will also assist in providing flexibility for future training product design. The final categorisation of the manufacturing technology qualifications was purpose 2, based on assumptions made by Manufacturing Alliance and through stakeholder consultations. However, they could have also been categorised as purpose 1.
- data analysis alone is insufficient to accurately assign a purpose. Significant industry insights and knowledge is required when aligning qualifications to purposes.
- all three descriptions may benefit from further refinement.

Comments on individual Purpose Descriptions

Purpose 1

Occupational alignment

Work undertaken as part of the Demonstration Project indicated that Purpose 1 may assist in designing manufacturing and engineering related qualifications, subject to changes to the purpose description. It was found that the current Purpose 1 description was not particularly useful for manufacturing because of the reference to 'specific tasks and a high level of prescription to support safety or technical requirements'. As indicated above, assumptions were made about how

this could be applied within manufacturing. When applied using those assumptions, and the consideration that Purpose 1 was primarily intended to apply to qualifications providing training for specific occupations, there was a high correlation to existing MEM, PMB and MSL qualifications (this is consistent with the Manufacturing Industry Skills Alliance Jobs and Skills Council Categorisation Against Purposes final report for these training packages).

It will be important for the application of Purpose 1 to distinguish between specialisations within an occupation and multiple occupations (as defined in Purpose 2). For example, the trade of Mechanical Engineering Tradesperson has many specialisations and common usage terms such as maintenance fitter, fitter and turner, fitter and machinist, etc. As some data sources rely on self-reported specialisations, data analysis may show an incorrectly skewed result to a purpose category, or a blurring between purposes. This illustrates the importance of stakeholder insights for purpose categorisation, and the need to consider a continuum rather than three distinct purposes.

Licencing/regulation

While licencing and regulatory requirements are important, feedback suggests licencing and regulation have been given too much prominence in the definition. There are many trades, and highly technical occupations, in the manufacturing sector that would support Purpose 1 categorisation, but only a small percentage of the total number of trades and very few technician occupations are licenced.

It is recommended that instead of 'licensed trade' the wording 'for example a trade occupation typically gained through an apprenticeship' could be used.

Skills/tasks

The current Purpose 1 description states these qualifications may be built around specific tasks, with a high level of prescription to support safety or technical requirements. The use of the word 'tasks' could be open to misinterpretation, and not accurately reflect the views of the manufacturing sector. The majority of workers in manufacturing, and their employers, define Purpose 1 employees as 'skilled workers' especially tradespeople. This terminology is widespread across manufacturing, including in many awards and agreements.

In addition, the use of 'high level' is a relative term as it could be argued that nearly all qualifications in manufacturing, including those in the demonstration project, have a high degree of safety and/or technical requirements even though there may not be specific regulatory or licencing requirements.

It is suggested that reference to 'tasks' is removed. Sentences could be considered along the lines of 'These qualifications usually require specific technical skills and knowledge well understood within the occupation as well as a range of supporting skills. There may also be links to licensing, regulatory requirements or technical standards and/or specific safety and technical requirements.'

Purpose 2

The Demonstration Project has identified there is potential for qualifications to overlap between the purpose categories based on the current purpose descriptions. This is most evident in the current MSA07 Manufacturing Technology qualifications which can sit across Purpose 1 and Purpose 2.

The Manufacturing Technology qualifications by design are most aligned with Purpose 2 as each qualification can prepare learners for multiple occupations. They are built around a common core of skills and knowledge, with optional specialist streams as outlined below.

Manufacturing Technology Streams			
Certificate III	**Certificate IV**	**Diploma**	**Advanced Diploma**
CAD/drafting	CAD/Drafting	Metallurgy	Metallurgy
Manufacturing operations	Manufacturing Operations	Polymer technology	Polymer Technology
Laboratory operations	Laboratory Operations	Structural steel detailing	
Technical officer	Technical Officer		
Metallurgy	Polymer Technology		
Polymer technology			
Structural steel detailing			

Although the qualifications develop entry and operational skills in a wide range of manufacturing technology application areas, the outcomes for some of these qualifications are well defined and lead to a specific occupation, especially at the higher levels. This consideration would support a Purpose 1 categorisation. For example, structural steel detailing involves taking a design for a steel structure such as a steel framed building prepared by an engineer or architect and transforming it into a series of complete working drawings and erection diagrams for use by steel fabricators and builders. The steel detailer is required to create drawings for all components of a steel structure including all welded and bolted connections. The work of the steel detailer is critical as they produce all the detailed instructions that enable both fabrication and construction to occur.

The comments on Purpose 2 in the *Manufacturing Alliance Interim Report on Categorisation Against Purposes* are supported by consultations and mapping conducted for the Demonstration Project. In particular that Purpose 2 definition relies heavily on how the term 'industry' is defined. The distinction between occupations 'within an industry' - at a broad sector level, a single industry subsector, or a group of industry subsectors - will impact categorisation. For the Demonstration Project, Manufacturing Alliance adopted the definition used in the Manufacturing Alliance Interim Report on Categorisation Against Purposes - *if skills and knowledge were specific to this 'industry' they were categorised as purpose 2 or if they were specific to an occupation in manufacturing they would be categorised as Purpose 1. If skills and knowledge were applied in multiple industries, Manufacturing JSC remit plus one (or more) in other JSC's remit, they were categorised as Purpose 3.*

Mapping and data analysis undertaken as part of the Demonstration Project has indicated that in manufacturing, there has been a trend for industry to move occupations from a Purpose 2 qualification to a Purpose 1 qualification.

Purpose 3

As Purpose 3 was not categorised against either MSA07 Manufacturing Technology qualifications or any of the aligned current qualifications assessed for equivalence to MSA07 qualifications, it did not feature prominently in the work of the Demonstration Project. The Purpose 3 description was shown to stakeholders consulted during the Demonstration Project and assessed for relevance to non-trade technical training under a purpose led approach.

Stakeholders commented that that the Purpose 3 definition provided less guidance in practical terms than the other purpose definitions as it does not rely on a link to occupations or industry. It was noted that while 'Purpose 3' type cross-sector and foundation type skills are easier to conceive and apply at the unit level, the concept of separate Purpose 3 qualifications is much more complex and will require comprehensive guidance to JSCs and training providers.

b) Do the *Qualification Development Quality Principles* effectively guide the development of training products to meet industry and student needs?
   - Were any of the principles more difficult to achieve?
   - Did the principles assist or inhibit stakeholder buy-in to the project?

The Qualification Development Quality Principles have been numbered below for easy reference in this discussion.

1. Ensure learners' needs and aspirations inform qualification design, including occupations, transferability, transitioning occupations and industries, and mobility across industries,
2. Place equal importance on skill, knowledge, and application,
3. Allow flexible training and assessment in high-quality training environments,
4. Avoid duplication with other training products where industry context does not require it,
5. Reduce specificity except where a higher level of detail is required for licencing, high-risk, safety, regulatory or graduate quality reasons,
6. Consider and integrate foundation skills, general capabilities, and knowledge progression.

While these principles have been proposed as quality principles i.e. to determine the 'quality' of a qualification, stakeholders raised concern there are other factors which should inform 'development' of VET qualifications. Additional principles to those mentioned above is that development should be competency based, industry led and tripartite.

Stakeholders noted the absence of a reference to industry needs in Purpose 1. For years VET has been promoted to industry organisations, individual employers, and employees as an 'industry led' system. However, all stakeholders consulted took it for granted that a focus on learners is legitimate. So there has generally been a balance between industry and learner needs. The support for Purpose 1 was conditional on a reinstatement of industry focus alongside not instead of learner focus. The focus only on learners is seen to be a significant shift and may affect buy-in from some industry stakeholders.

The suitability of Principle 2 is hard to assess unless a common understanding of 'application' is reached. The many possible interpretations of application for assessment purposes has traditionally been problematic in manufacturing qualifications and will need guidance materials that can be tested through consultations.

Further clarification of Principle 3 is required, especially as it relates to the specification of assessment. Assessment requirements are determined by stakeholder advice which in the case of some manufacturing units of competency does not allow for assessment in a simulated environment. The extent to which this proposed principle changes the ability for industry to specify assessment requirements needs to be understood before stakeholder buy-in is achieved.

Principle 4 is supported but stakeholders noted that historically this has been very difficult to be achieved in practice. The sticking point is nearly always stakeholders not willing to hand over development of qualifications or units of competency to parties outside their industry or sector.

There are competing views around Principle 5 and consensus may be hard to achieve. Some stakeholders maintain that the level of detail is either too great or too little. The level of specificity required also varies significantly by sector. Some stakeholders are wary of too little specificity as it may increase the ability of the training organisation to determine the standard of performance rather than industry.

Foundation skills and general capabilities in Principle 6 should have a defined framework if considered for integration. This framework should be careful to distinguish between skills and capabilities as both are mentioned in Principle 6. There are also industry sensitivities over the word 'capabilities' and buy-in will be dependent on the proposed definition of 'capabilities'.

2. Requirements to successfully implement the proposed model within your industry.

a) Any changes to product templates (Qualification, UoC) or certifications to facilitate the new approach? (including any possible updates to the *Training Package Organising Framework*)

- What is the best way for a student's testamur/statement of attainment to reflect their knowledge and skills to promote recognition across sectors?

Consultation has highlighted the need for greater clarity on purpose descriptions and the Qualification Development Quality Principles before definitive advice on the suitability of TPOF, including templates, can be provided. However, some key issues were identified that should be considered before implementation of the proposed purpose-led model. These are:

- the TPOF treatment of equivalence and non-equivalence under the new model will be important and will need to be considered further as qualification reform progresses. Judgments on equivalence that were made for the mapping in the Demonstration Project required use of the additional assumptions about Purpose 1, 2 and 3 described in the response to Q1 of this report.
- there was strong support from manufacturing stakeholders for maintaining the current Standard 4 in the Standards for Training Packages which specifies that Units of Competency specify the standards of performance required in the workplace. It was identified that there is a relationship between the Application section of the Unit of Competency template and Standard 4 in the Standards for Training Packages. Manufacturing stakeholders generally interpret this section as referring to application of the unit of competency in the workplace.
- The role of knowledge specification under the proposed purpose-led approach was discussed with several stakeholders. There was clear preference for knowledge specifications, at a qualification or unit of competency level, to maintain the current requirement that VET emphasises applied knowledge, particularly in the assessable sections of a unit of competency. Should there be a change to the qualification template that requires specification of knowledge at the qualification level, potentially using the

qualification description, feedback suggests the manufacturing want specification of applied knowledge gained from the qualification.

- As the Demonstration Project's key deliverable is a rationalisation of qualifications the issue of student's testamur/statement of attainment was not considered.

b) What supports would be needed to enable expansion of this approach across Jobs and Skills Councils? (development of resources and guidance etc)

- Are additional measures necessary to support/encourage cross-JSC collaboration to remove duplicative products from the system and replace them with transferable products?
- Are there barriers to implementation not identified above? Do they require additional rule changes or is education/engagement more appropriate?

The work undertaken as part of the Demonstration Project strongly suggests that rationalisation should be undertaken at a unit of competency level first, within aligned industries, before expansion more broadly across other industries.

Stakeholders also raised ownership as part of discussions on rationalisation. Industry wants ownership of 'their' training products to determine content and overall requirements. They also want to ensure that a learner has the skills required for the job, and that this is easily recognisable through titles and common language used within industry, such as through Awards and technical standards. The desire to retain ownership was present in discussions across all AQF level qualifications being considered in the Demonstration Project and did not vary between trade or technician qualifications.

The following is an approach that has previously been raised for rationalisation of manufacturing training products. This would need to be tested with stakeholders but may assist to alleviate ownership concerns outlined above:

- As ownership concerns primarily relate to a desire to maintain relevance to an industry or sector a new 'implementation advice' section on customisation of units of competency, skill sets, and qualifications could be added to these products. This would need to be developed by each JSC that used the training product and made enforceable by RTOs through their regulator. This may ease the desire by some stakeholders for new products to be developed for their industry or sector. An alternative but similar approach would be to vary the TPOF unit of competency template to make the Range of Conditions mandatory, but JSCs could vary advice in this field to identify their industry and sector context without requiring formal endorsement. All versions of the Range of Conditions would need to show relevance to assessable sections of the unit of competency.

3. **Are there any potential blockers to implement the proposed model more broadly and what could be the potential solutions?**

Implementation of the proposed Qualifications Reforms will depend not only on gaining the support of key stakeholders – peak industry associations, unions, major RTOs etc but will also depend on gaining the support of individual users of VET, employers and students. This final report confirms that the lack of clarity of what is intended by the purpose definitions and the Qualification Development Quality Principles may be a barrier to gaining stakeholder support. Stakeholders, especially those from industry, have noted that the scope of change proposed is significant.

In terms of potential solutions from a manufacturing perspective, clear advice on the following issues will assist in progressing the model:

- JSCs and their industry stakeholders will continue to be responsible for specifying content including assessment requirements in training products
- VET will continue to be based on skills and a standard definition of skill will be developed that will include the requirement that training products will continue to be based on the standard of skill required in the workplace.
- Flexibility will be given to JSCs in applying Principle 5 as it is unlikely to be supported by some manufacturing industry stakeholders in its current form.

Consultation revealed that manufacturing training products are used for other outcomes beyond accredited training e.g. alignment of a worker for skills classification (usually against an award). Although not a blocker implementation, an inability to continue to use training products in this way could affect stakeholder buy-in for reform.

Final Report – Demonstration Projects
Part B

As a demonstration project, no decisions will be made concerning implementation without industry support.

Outcomes from testing the purpose and principles model.

Broad summary of project and outcome

- What did you do?
- Who did you consult with?
- What are your key findings?

Project Summary

Note: The word 'technical' as used in the Demonstration Project and more widely by some Training Packages, especially MEM Manufacturing and Engineering, carries an occupational meaning and refers to skills used by technicians as against skills related to trade or production work in manufacturing.

The Demonstration Project has two broad aims:

- Testing the implications of the purpose-driven approach by demonstrating how the frame model would work in practice, to address future non-trade technical skills training in manufacturing
- Testing the purpose-driven approach and principles for the rationalisation of existing qualifications.

The purpose-driven approach has been used to consider how best to align the future skills needs of non-trade technology-based training in manufacturing. Currently, these skills are covered by the following four qualifications in the MSA07 Manufacturing Training Package as well as in other Manufacturing Alliance Training Packages:

- MSA30208 Certificate III in Manufacturing Technology
- MSA40108 Certificate IV in Manufacturing Technology
- MSA50108 Diploma of Manufacturing Technology
- MSA60108 Advanced Diploma of Manufacturing Technology.

Project Outcomes

Mapping

The key deliverable as indicated in the project proposal is 'a conceptual approach on how the MSA07 Manufacturing Training Package, and its associated qualifications, may be removed from the system, plus any barriers and/or risks.' The need for changes to existing or the development of new training products was to be also informed by the mapping.

The Demonstration Project methodology is shown in **Attachment A** to this report with the first stage in this methodology being mapping of the Manufacturing Technology qualifications against aligned training packages and qualifications listed in the project proposal.

Mapping was conducted at the qualification and stream level for all Manufacturing Technology qualifications. In addition, a detailed unit by unit mapping was conducted for the Certificate III in Manufacturing Technology as enrolment data indicated some use of this qualification was occurring up to 2023. The aim of this detailed Certificate III mapping

was to be certain that content alternatives were available for learners if the MSA 30208 Certificate III in Manufacturing Technology qualification was deleted.

A mapping report is given in **Attachment B.** This mapping report covers:

- qualification and stream level mapping of all Manufacturing Technology qualifications
- unit by unit mapping at Certificate II level.

The mapping has indicated:

- Equivalent outcomes exist in current qualifications in other training packages for many Manufacturing Technology qualification streams (see Attachment B for more detail)
- There are no, or not entire, equivalent outcomes for:
    - MSA60108 Advanced Diploma of Manufacturing Technology as there is now no AQF 6 equivalent qualification outcome for the two streams in MSA60108 due to industry no longer requiring this level of qualification in metallurgy and polymer technology
    - Certificate IV in Manufacturing Technology (CAD/Drafting stream). The closest aligned qualification is the MEM40422 Certificate IV in Engineering Drafting which now requires significantly more CAD/Drafting specific units for the qualification
    - Certificate IV in Manufacturing Technology: There is no equivalent occupational outcome for the Manufacturing Operations and Technical Officer streams at Certificate IV level. However, these streams were only ever meant to be used as a pathway to a higher-level VET qualification. Occupational outcomes for Manufacturing Operations and Technical Officer align to the MEM50222 Diploma of Engineering – Technical and the MEM60122 Advanced Diploma of Engineering.
    - Certificate IV in Manufacturing Technology: The closest aligned qualification is the PMB40121 Certificate IV in Polymer Technology which has significant differences in units and packaging to the Polymer Technology stream in the Certificate IV in Manufacturing Technology.
- Manufacturing Technology qualifications have not been updated to new and revised units of competency. This means that even where an equivalent outcome is indicated through mapping at the unit level, the equivalence is only a subset of wider options available in the current qualifications due to additional units now being available as electives.
- Manufacturing Technology qualification streams generally reflect a broad training intent consistent with the aim of providing introductory training in non-trade technical skills. In terms of qualification reform, the mapping supports the Purpose 2 categorisation of the Manufacturing Technology qualifications as at the time of development these qualifications had a much narrower range of non-trade technical units of competency and therefore were more general in scope than is now available in the MEM Manufacturing and Engineering, MSL Laboratory Operations, and PMB Polymer Technology Training Packages.
- The aligned (MEM, MSL and PMB) training packages now provide greater specialisation at the qualification and unit level than the Manufacturing Technology qualifications and require a greater number of specific technical skill

units to be selected than in the MSA07 qualification stream rules. This reflects their more specific occupational focus and supports the Purpose 1 alignment of these qualifications in the Manufacturing Alliance Categorisation Final Report.

- In qualification reform terms the trend in the skill areas covered by MSA07 streams has been from a Purpose 2 focus to a Purpose 1 focus. However, there needs to be caution in applying this too prescriptively as a broad conclusion as there are significant differences in the approach to elective choice and qualification packaging between the aligned (MEM, MSL and PMB) training packages. The Purpose 2 to Purpose 1 change is best described as a trend applied within each training package but not necessarily in the same way.

Mapping of Current MSA Units of Competence

The Demonstration Project was required to determine if there is any impact on Manufacturing Alliance qualifications, including on the range of imported electives, if the current MSA coded units in the MSA07 training package were deleted.

There are five MSA coded units in the MSA07 Manufacturing Technology qualifications:

- MSATCM506A Monitor blast furnace operations
- MSARVS301A Develop and update caravan industry knowledge
- MSARVS201A Install LP gas systems in a recreational vehicle
- MSAPMSUP201A Receive or despatch goods
- MSAPMOHS220A Provide initial First Aid response

A detailed mapping of these five units is available at the end of Attachment B. This mapping shows that there is no impact on any Manufacturing Alliance qualifications from the removal of these units from MSA07. There are two qualifications in the MSF Furnishing Training Package that list one MSA07 unit as an elective.

Purpose Categorisation and Data Analysis

The Demonstration Project required consideration of any implications from the removal of MSA07 and its qualifications for purpose categorisation of the aligned qualifications listed in Stage 1, along with supporting data analysis.

<u>Data Analysis</u>

Data analysis early in the Demonstration Project confirmed there was recent delivery of the MSA30208 Certificate III in Manufacturing Technology qualifications NCVER enrolment data at a qualification level is available up to 2023 and shows that some delivery was occurring in the MSA30208 Certificate III in Manufacturing Technology.

Code	**Count of RTOs on scope**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
MSA30208	3	*315*	*370*	*385*	*405*	*235*	*255*
MSA40108	0	130	90	25	< 5	-	
MSA50108	1	5	-	-	-	-	

MSA60108	1	-	-	-	-	-	

Source: NCVER

NCVER data on unit enrolments for MSA30208 Certificate III in Manufacturing Technology Government funded delivery is available until 2023 and shows:

- MSA30208 Certificate III in Manufacturing Technology was delivered in NSW, Victoria and Queensland over the period 2019-2023 with unit enrolments in NSW and Queensland increasing from 470 in 2022 to 875 in 2023
- The NSW and Queensland elective unit delivery was strongly skewed towards CAD/Drafting and related supporting elective units and was all TAFE delivery
- Victorian delivery does not feature CAD/Drafting electives and is more diverse with competitive systems and practices and quality related units being the most selected electives. The Victorian enrolments are also lower over the period than NSW and Queensland and significantly declined from 135 unit enrolments in 2022 to 25 unit enrolments in 2023. As the mapping shows there are alternative qualifications available for all MSA07 units delivered in Victoria, the declining enrolments may be an indication of enrolments transferring to these qualifications.

The above data supports a conclusion that the MSA07 Training Package can be deleted with no impact in all States and Territories with the exception of NSW and Queensland. In order to assess the possible impact in NSW and Queensland consultations were held with selected training providers and additional data analysis undertaken.

Analysis was undertaken to determine if similar CAD/Drafting outcomes were duplicated and could be achieved through other current qualifications. Mapping indicated that a wide range of CAD/Drafting units are available in the MEM30522 Certificate III in Engineering – Technical and the MEM40422 Certificate IV in Engineering Drafting qualifications. Analysis of enrolment data in the MEM30522 Certificate III in Engineering – Technical was undertaken to determine if enrolments in MSA30208 Certificate III in Manufacturing Technology was occurring because CAD/Drafting units were not being delivered, or made available by RTOs in this qualification. As the table below shows, elective unit enrolments in MEM30522 Certificate III in Engineering – Technical have a strong bias towards CAD/Drafting units.

MEM30505 Certificate III in Engineering – Technical - Most popular units

Unit	**Total 2022 enrolment**
Core units	
MEM16006A - Organise and communicate information	830
MEM16008A - Interact with computing technology	830
MEM30012A - Apply mathematical techniques in a manufacturing engineering or related environment	85
Electives in decreasing enrolments	
MEM30031A - Operate computer-aided design (CAD) system to produce basic drawing elements	885
MEM09002B - Interpret technical drawing	875

MSAENV272B - Participate in environmentally sustainable work practices	800
MEM09202A - Produce freehand sketches	740
MEM12023A - Perform engineering measurements	725
MEM12024A - Perform computations	450
MEM30033A - Use computer-aided design (CAD) to create and display 3-D models	570
MEM30032A - Produce basic engineering drawings	550
ICPPTD302 - Set up and produce 3D prints	385
UEENEEE104A - Solve problems in d.c. circuits	170
MEM18001C - Use hand tools	160
UEENEEE101A - Apply Occupational Health and Safety regulations, codes and practices in the workplace	155
MEM30007A - Select common engineering materials	90

Source MSA30208 Subject Enrolments – NCVER Data Builder

The data suggests that in the main deletion of MSA07 would not diminish availability of CAD/Drafting content as a significantly greater range of current CAD/Drafting units is available in MSA30522 Certificate III in Engineering - Technical (as well as MEM40422 Certificate IV in Engineering Drafting).

Stakeholder consultation

Stakeholder consultations were undertaken to understand the reasons for continued delivery of MSA30208 Certificate III in Manufacturing Technology. Feedback indicated a range of reasons that are not content related, this included:

- student preference for MSA30208 Certificate III in Manufacturing Technology as it allows their testamur to identify CAD/Drafting in the qualification title - MSA30208 Certificate III in Manufacturing Technology (CAD/Drafting). MEM30522 Certificate III in Engineering – Technical does not allow for this specification.
- use of MSA30208 Certificate III in Manufacturing Technology by non-engineering faculties of TAFE that have not identified or do not wish to deliver MEM30522 Certificate III in Engineering - Technical.
- Funding for MSA30208 Certificate III in Manufacturing Technology.

Key findings

Both mapping, data analysis and consultations indicated there is potential to remove the MSA07 Manufacturing Training Package as currently, existing qualifications sufficiently met the skill needs of the non-trade technical occupations covered by the Manufacturing Technology qualifications and a need for replacement qualifications was not identified.

The current delivery of MSA30208 is related to CAD/Drafting and disadvantaging students as delivery is occurring using superseded units and a more limited range of CAD/Drafting electives. Mapping has identified available alternative qualifications and units of competency, with a trend for these content areas to now be met through more

occupationally focused Purpose 1 qualifications for non-trade technical skills training. It is recommended that as a part of any work to delete MSA07, consideration is given to the benefit of a future review of MEM30522 Certificate III in Engineering – Technical to identify named streams/specialisations in the qualification (eg CAD/Drafting).

Attachment A: Manufacturing Alliance Demonstration Project Methodology

1. Mapping of the Manufacturing Technology qualifications' specialist streams and units against the aligned training packages and qualifications listed in the project proposal. These are:
    - MEM Manufacturing and Engineering Training Package
        - MEM30522 Certificate III in Engineering – Technical
        - MEM40119 Certificate IV in Engineering
        - MEM40422 Certificate IV in Engineering Drafting
        - MEM50222 Diploma of Engineering – Technical
        - MEM60122 Advanced Diploma of Engineering
    - MSL Laboratory Operations Training Package
        - MSL30122 Certificate III in Laboratory Skills
        - MSL40122 Certificate IV in Laboratory Techniques
    - PMB Plastics, Rubber and Cablemaking
        - PMB30121 Certificate III in Polymer Processing
        - PMB40121 Certificate IV in Polymer Processing
        - PMB50121 Diploma of Polymer Technology.

2. A check of Manufacturing Alliance training packages to determine if there is any impact on their qualifications from the removal of MSA coded units from MSA07 especially in regard to imported electives.

3. Consideration of any implications from the removal of MSA07 and its qualifications for purpose categorisation of the qualification listed in Stage 1. This stage will also include in depth data analysis e.g. NCVER, DEWR and JSA data. This stage will be done cooperatively with Manufacturing Alliance staff conducting the broader categorisation of Training Packages and qualifications required by DEWR.

4. An initial report on the results of Stages 1 and 2. This report will include:
    - Recommendations on whether MSA coded units in Manufacturing Technology qualifications should be moved to another qualification either as is, amended, or deleted.
    - Initial consideration of Qualification Reform Proposal implications from the project activities up to this stage e.g. qualification rationalisation or qualification purpose categorisation.

    The aim of this stage will be to test initial findings and identify issues to be raised in later consultations.

5. Targeted consultations with key stakeholders for each aligned training package listed in Stage 1. The consultation list will include:
    - Major employer organisations and unions
    - A selection of TAFEs and private RTOs that have the Manufacturing Technology qualifications on scope
    - A sample of employers and students that use and have used the Manufacturing Technology qualifications

6. Preparation of proposals on future skills needs of non-trade technology-based training in manufacturing that takes into account:

- Earlier mapping
- Results of consultations
- Data analysis
- Qualification Development Quality Principles

The proposals will identify opportunities for rationalisation, changes to existing qualifications or used to inform a framework for a new qualification.

7. Preparation of a final report according to the DEWR template.

Attachment B: Qualification Mapping

Qualification	Stream	Outcome
MSA30208 Certificate III in Manufacturing Technology	CAD/Drafting	An equivalent outcome is possible through the MEM30522 Certificate III in Engineering – Technical. The only significant differences are in quality skills where the equivalent MEM unit is an elective rather than a core unit and requires a higher level of skill
	Manufacturing Operations	An equivalent outcome to the Manufacturing Operations stream for most sectors of manufacturing is available through the MEM30522 Certificate III in Engineering – Technical qualification. A close equivalent non-trade technical outcome for non-MEM manufacturing industries can be gained through careful selection of electives in the MSM30116 - Certificate III in Process Manufacturing qualification. However, a much greater number of units are required.
	Laboratory Operations	An equivalent outcome to MSA30208 is possible through selecting equivalent current units in the MSL30122 Certificate III in Laboratory Skills qualification apart from the two glassblowing units which were deleted in July 2018. However, there are differences between the two qualifications that make the MSL qualification more specific in its focus on laboratory skills. These differences are: • five imported units in the MSA30208 qualification are not included in MSL30122. Instead, there is a much wider range of laboratory related electives available through Group A and B in the MSL qualification. • MSL integrates specific mathematics skill and knowledge requirements into each MSL unit unlike MSA30208 which relies on the MEM30012 Apply mathematical techniques in a manufacturing engineering or related environment to provide the required mathematical skill. • MSL has a specific laboratory quality unit in the core - MSL933009 Contribute to the achievement of quality objectives compared to MSA30208 which has a generic quality unit.

	Technical Officer	An equivalent outcome is available through the MEM30522 Certificate III in Engineering – Technical qualification. All units in the Technical Officer stream are available through equivalent units in the Certificate III in Engineering – Technical qualification.
	Metallurgy	An equivalent outcome is available through the MEM30522 Certificate III in Engineering – Technical qualification. All units in the Metallurgy stream are available through equivalent current units in the Certificate III in Engineering – Technical qualification.
	Polymer Technology	There is not complete equivalence between the Polymer Technology stream and the current PMB30121 Certificate III in Polymer Processing with four units in the MSA stream not included in PMB30121. Mapping equivalence was initially uncertain due to some of the units that are listed on TGA as equivalent to the Polymer Technology stream having statements in their Application that state that the unit applies to experienced technicians or operators. This made their application to entry level non-trade training uncertain. Consultations with industry clarified that the statement relates to providing guidance on the selection of the units by students who are already working. Industry advice was that the units could also be selected by school leavers seeking to train as technicians in polymer technology. The MEM31119 - Certificate III in Engineering - Composites Trade qualification is not aimed at entry to technician work but at the trade level and has not been mapped.
	Structural Steel Detailing	An equivalent structural steel detailing outcome is available through the MEM30522 Certificate III in Engineering – Technical qualification apart from the MEM05051A Select welding processes unit which is not included in the MEM30522. This is a minor non-equivalence.
MSA40108 Certificate IV in Manufacturing Technology		MSA40108 decreases to five (5) streams. There are no Metallurgy and Structural Steel Detailing streams. The increase in the number of units of competency required from the Certificate III in Manufacturing Technology to the Certificate IV qualification is modest

		in terms of both the number of core units and the total number of units. There is a significant increase in employability skills required for the MSA40108 Certificate IV in Manufacturing Technology qualification from MSA30208. This increase clearly indicates that MSA40108 qualification was intended for technicians who were required to exercise skill and knowledge across a team, area or the organisation as a whole.
	CAD/Drafting	There is no significant equivalence between this stream and the MEM40422 qualification as there are insufficient CAD/Drafting specific elective units to generate an equivalent outcome to the MEM40422 - Certificate IV in Engineering Drafting qualification.
	Manufacturing Operations	This stream partly maps to the MEM50222 Diploma of Engineering-Technical in terms of units. This Certificate IV Manufacturing Operations stream does not have a natural current equivalent qualification in MEM. The stream was intended to support more in-depth technology cadetship study in manufacturing but does not give full capability as a manufacturing technician.
	Laboratory Operations	An equivalent outcome can be achieved in the MSL40122 Certificate IV in Laboratory Techniques through selection of current equivalent units. However, there are more laboratory electives available in MSL40122 giving a range of additional outcomes.
	Technical Officer	The same comments apply for this stream as for the Manufacturing Operations stream. Only two additional units – one supplying basic CAD skills (MEM30031A) and a drafting unit (MEM30032A) have been added to this stream. These additions preserve the Purpose 2 character of this stream.
	Polymer Technology	There is no equivalence between this stream and the closest equivalent polymer technology qualification which is the PMB40121 - Certificate IV in Polymer Technology. This is because of significant differences in packaging rules and units including the very low number of additional polymer technology specific units in the Certificate IV Manufacturing Technology stream.
MSA50108 Diploma of Manufacturing Technology		
	Metallurgy	An equivalent outcome in most manufacturing related areas of metallurgy can be achieved in MEM50522

		Diploma of Engineering -Materials through equivalent and updated units. Some units that are in this stream now have no equivalent units as industry advice during the development of MEM50522 was that these skills were now only required at degree level.
	Polymer Technology	This stream only partially maps to the following current qualifications: • MEM50522 - Diploma of Engineering – Materials • PMB50121 - Diploma of Polymer Technology. This is because some stream units have since been deleted and also because both MEM50522 and PMB50121 have newer and additional polymer technology units that make these qualifications more rigorous and polymer focused than the Polymer Technology stream.
	Structural Steel Detailing	The MEM05222 Diploma of Engineering – Technical qualification can provide a close equivalent outcome to the Structural Steel Detailing stream except for the non inclusion of MEM09006 Perform advanced engineering detail drafting.
MSA60108 Advanced Diploma of Manufacturing Technology		
	Metallurgy	There is no equivalent qualification. Consultations with industry and RTOs in 2022 for the development of the MEM50522 Diploma of Engineering – Materials indicated that there was no longer industry demand at the VET level for specialist metallurgists. Demand for broader materials science technicians is now met through the MEM50522 Diploma of Engineering – Materials qualification.
	Polymer Technology	The current PMB Plastics, Rubber and Cablemaking Training Package does not have an Advanced Diploma qualification, and the Polymer Processing Advanced Diploma stream is now redundant.

Attachment C: Mapping of the MSA30208 Certificate III in Manufacturing Technology Units of Competency

Introduction

Data analysis confirmed that some delivery of the MSA30208 Certificate III in Manufacturing Technology Units of Competency Mapping was occurring up until 2023. Because of this a detailed mapping of units of competency included in MSA30208 was conducted to identify:

- Assessing barriers and risks on the proposed deletion of MSA30208 as part of the wider deletion of the MSA07 Manufacturing Training Package
- Where skills are duplicated between MSA30208 and current qualifications
- Where similar occupational outcomes may be achieved
- Lines of enquiry for targeted consultations with key stakeholders
- If the removal of the Manufacturing Technology qualifications would impact on other Manufacturing Alliance training package qualifications especially in regards to imported electives.

References in this mapping to aligned qualifications refers to qualifications identified in the Demonstration Project to be specifically checked for any impact from the potential deletion of the MSA07 training package. The aligned qualifications are:

- MEM Manufacturing and Engineering Training Package
  - MEM30522 Certificate III in Engineering – Technical
  - MEM40119 Certificate IV in Engineering
  - MEM40422 Certificate IV in Engineering Drafting
  - MEM50222 Diploma of Engineering – Technical
  - MEM60122 Advanced Diploma of Engineering
- MSL Laboratory Operations Training Package
  - MSL30122 Certificate III in Laboratory Skills
  - MSL40122 Certificate IV in Laboratory Techniques
- PMB Plastics, Rubber and Cablemaking
  - PMB30121 Certificate III in Polymer Processing
  - PMB40121 Certificate IV in Polymer Processing
  - PMB50121 Diploma of Polymer Technology.

MSA30208 - Certificate III in Manufacturing Technology (Release 4)

Unit Code	**Unit Title**	**Status**	**Current unit** *Unless otherwise stated the current unit is equivalent to the superseded unit*	**Comment including any barriers & risks to removal from MSA07**
Core				
MEM30012A	Apply mathematical techniques in a manufacturing, engineering or related environment	Superseded	MEM30012 Apply mathematical techniques in a manufacturing engineering or related environment	All MEM qualifications that previously incorporated MEM30012A have been updated to MEM30012. However, there are 11 non MEM current qualifications that still list MEM30012A as either a core or elective unit on TGA including four MEA qualifications. Equivalent outcomes in all current qualifications can be achieved by updating to MEM30012
MSS402051A	Apply quality standards	Superseded	MSS402055 Apply quality standards.	No aligned qualifications contain MSS402051A. However, a number of MSM and PMA qualifications are listed on TGA as containing MSS402051A. When the packaging rules for these qualifications were checked the unit listed is MSS402051 which is still not the most current unit version. Equivalent outcomes for these qualifications can be achieved by updating to MSS402055.
MSAENV272B	Participate in environmentally sustainable work practices	Superseded	MSAENV272 Participate in environmentally sustainable work practices	No aligned qualifications contain MSAENV272B. The superseded unit is listed in MEM20105 Certificate II in Engineering qualification
CAD /drafting specialist stream				
AUM4003A	Interpret customer requirements	Deleted	This unit was deleted in June 2017 and is no longer available on TGA.	After AUM4003A was deleted, a new unit MEM09201 - Work effectively in an engineering drafting workplace was developed to give a more specific drafting focus on working with others

Unit Code	Unit Title	Status	Current unit *Unless otherwise stated the current unit is equivalent to the superseded unit*	Comment including any barriers & risks to removal from MSA07
				including customers. This unit is presently incorporated into MEM305022 Certificate III in Engineering – Technical and MEM40422 Certificate IV in Engineering Drafting. As AUM4003A is included the Diploma and Advanced Diploma Manufacturing Technology qualifications the unit will be considered for adding MEM09201 as an elective to the MEM Diploma of Engineering-Technical and Advanced Diploma of Engineering qualifications to ensure an equivalent outcome for higher level draftspersons needing customer interface skills.
LMTGN4002A	Participate in product engineering	Superseded	MSTGN4017 Participate in product engineering	The only qualifications containing this unit are the Certificate III and IV in Manufacturing Technology. The equivalent current unit MSTGN4017 unit is available in the MEM40422 Certificate IV in Engineering Drafting qualification. A similar unit MSTGN4020 Contribute to the development of products or processes is available in the MEM30522 Certificate III in Engineering – Technical qualification.
MEM12024A	Perform computations	Superseded	MEM12024 Perform computations is equivalent	No aligned qualifications contain the superseded unit. However, the superseded unit has not been updated in the following qualifications: • MEM20105 - Certificate II in Engineering • MSM30216 - Certificate III in Surface Preparation and Coating Application

Unit Code	Unit Title	Status	Current unit *Unless otherwise stated the current unit is equivalent to the superseded unit*	Comment including any barriers & risks to removal from MSA07
MEM16006A	Organise and communicate information	Superseded	MEM16006 Organise and communicate information	No aligned qualifications contain the superseded unit. However, the superseded unit has not been updated in the following qualifications: • MEM20105 - Certificate II in Engineering • MSM20116 - Certificate II in Process Manufacturing • MSM30216 - Certificate III in Surface Preparation and Coating Application • MSM30116 - Certificate III in Process Manufacturing • MSM40116 - Certificate IV in Process Manufacturing
MEM16008A	Interact with computing technology	Superseded	MEM16008 Interact with computing technology	No aligned qualifications contain the superseded unit. However, the superseded unit has not been updated in the following qualifications: • MEM20105 - Certificate II in Engineering • MSM20116 - Certificate II in Process Manufacturing • MSM30116 - Certificate III in Process Manufacturing • MSM30216 - Certificate III in Surface Preparation and Coating Application • MSM40116 - Certificate IV in Process Manufacturing
MEM30005A	Calculate force systems within simple beam structures	Superseded	MEM30005 Calculate force systems within simple beam structures	No aligned qualifications or other current Manufacturing Alliance qualifications contain the superseded unit

Unit Code	Unit Title	Status	Current unit *Unless otherwise stated the current unit is equivalent to the superseded unit*	Comment including any barriers & risks to removal from MSA07
MEM30006A	Calculate stresses in simple structures	Superseded	MEM30006 Calculate stresses in simple structures	No aligned qualifications or other current Manufacturing Alliance qualifications contain the superseded unit.
MEM30007A	Select common engineering materials	Superseded	MEM30007 Select common engineering materials	No aligned qualifications contain the superseded unit. HoweverMEM30007A is still current in the following MEA qualifications: • MEA60322 - Advanced Diploma of Aviation Non-Destructive Testing qualification • MEA50422 - Diploma of Aviation Maintenance Management • MEA50522 - Diploma of Aeroskills (Non-Destructive Testing) • MEA60222 - Advanced Diploma of Aviation Maintenance Management
MEM30008A	Apply basic economic and ergonomic concepts to evaluate engineering applications	Superseded	MEM30008 Apply basic economic and ergonomic concepts to evaluate engineering applications	No aligned qualifications or other current Manufacturing Alliance qualifications contain the superseded unit.
MEM30010A	Set up basic hydraulic circuits	Superseded	MEM30010 Set up basic hydraulic circuits	As above
MEM30011A	Set up basic pneumatic circuits	Superseded	MEM30011- Set up basic pneumatic circuits	As above
MEM30013A	Assist in the preparation of a basic workplace layout	Superseded	MEM30013- Assist in the preparation of a basic workplace layout	As above
MEM30025A	Analyse a simple electrical system circuit	Superseded	MEM30025 Analyse a simple electrical system circuit	As above
MEM30031A	Operate computer-aided design (CAD) systems to	Superseded	MEM30031 Operate computer-aided design (CAD) systems to	The following aligned qualifications contain the superseded unit:

Unit Code	Unit Title	Status	Current unit *Unless otherwise stated the current unit is equivalent to the superseded unit*	Comment including any barriers & risks to removal from MSA07
	produce basic drawing elements		produce basic drawing elements	• PMB30121 - Certificate III in Polymer Processing • PMB50121 Diploma of Polymer Technology
MEM30032A	Produce basic engineering drawings	Superseded	MEM30032 Produce basic engineering drawings	No aligned qualifications or other Manufacturing Alliance qualifications contain the superseded unit
MEM30033A	Use computer-aided design (CAD) to create and display 3-D models	Superseded	MEM30033 Use computer-aided design (CAD) to create and display 3-D models	The following aligned qualifications contain the superseded unit: • PMB30121 - Certificate III in Polymer Processing • PMB40121 Certificate IV in Polymer Technology • PMB50121 Diploma of Polymer Technology
Manufacturing Operations specialist stream				*Only units not already mapped in the CAD/Drafting stream mapping are shown for Manufacturing Operations*
FDFOP2005A	Work in a socially diverse environment	Superseded	FBPOPR2073 Work in a socially diverse environment	No aligned qualifications or other Manufacturing Alliance qualifications contain the superseded unit or its successor unit
MEM15001B	Perform basic statistical quality control	Superseded	MEM15001 - Perform basic statistical quality control	No aligned qualifications contain the superseded unit. The following Manufacturing Alliance qualifications contain the superseded unit: • MEM20105 - Certificate II in Engineering • MSM30116 - Certificate III in Process Manufacturing • MSM40116 Certificate IV in Process Manufacturing
MEM30014A	Apply basic just in time systems to the reduction of waste	Superseded	MEM30014 Apply basic just in time systems to the reduction of waste	No aligned qualifications or other Manufacturing Alliance qualifications contain the superseded unit

Unit Code	Unit Title	Status	Current unit *Unless otherwise stated the current unit is equivalent to the superseded unit*	Comment including any barriers & risks to removal from MSA07
MEM30015A	Develop recommendations for basic set up time improvements	Superseded	MEM30015 Develop recommendations for basic set up time improvements	No aligned qualifications or other Manufacturing Alliance qualifications contain the superseded unit
MEM30016A	Assist in the analysis of a supply chain	Superseded	MEM30016 - Assist in the analysis of a supply chain	No aligned qualifications contain the superseded unit. MSS40122 Certificate IV in Sustainable Operations includes the superseded unit:
MEM30017A	Use basic preventative maintenance techniques and tools	Superseded	MEM30017 Use basic preventative maintenance techniques and tools	No aligned qualifications or other Manufacturing Alliance qualifications contain the superseded unit
MEM30018A	Undertake basic process planning	Superseded	MEM30018 Undertake basic process planning	As above
MEM30019A	Use resource planning software systems in manufacturing	Superseded	MEM30019 Use resource planning software systems in manufacturing	No aligned qualifications or other Manufacturing Alliance qualifications contain the superseded unit
MEM30020A	Develop and manage a plan for a simple manufacturing related project	Superseded	MEM30020 Develop and manage a plan for a simple manufacturing related project	No aligned qualifications or other Manufacturing Alliance qualifications contain the superseded unit
MEM30021A	Prepare a simple production schedule	Superseded	MEM30021 Prepare a simple production schedule	As above
MEM30023A	Prepare a simple cost estimate for a manufactured product	Superseded	MEM30023 Prepare a simple cost estimate for a manufactured product	As above
MEM30024A	Participate in quality assurance techniques	Superseded	Participate in quality assurance techniques	No aligned qualifications or other Manufacturing Alliance qualifications contain the superseded unit.
MSS402001A	Apply competitive systems and practices	Superseded	MSS402001 Apply competitive systems and practices	As above • MSM20216 Certificate II in Manufacturing Technology

Unit Code	Unit Title	Status	Current unit *Unless otherwise stated the current unit is equivalent to the superseded unit*	Comment including any barriers & risks to removal from MSA07
MSS402002A	Sustain process improvements	Superseded	MSS402002 Sustain process improvements	No aligned qualifications contain the superseded unit. The following qualifications contain the superseded unit: • MSM20116 Certificate II in Process Manufacturing • MSM30116 Certificate III in Process Manufacturing • MSM40116 Certificate IV in Process Manufacturing • PMA 20116 Certificate II in Process Plant Operations • PMA40116 Certificate IV in Process Plant Technology
MSS402020A	Apply quick changeover procedures	Superseded	MSS402020 Apply quick changeover procedures	No aligned qualifications contain the superseded unit. The following qualifications contain the superseded unit: • MSM20116 Certificate II in Process Manufacturing • MSM30116 Certificate III in Process Manufacturing • MSM40116 Certificate IV in Process Manufacturing
MSS402030A	Apply cost factors to work practices	Superseded	MSS402030 Apply cost factors to work practices	No aligned qualifications contain the superseded unit. The following qualifications contain the superseded unit: • MSM20116 Certificate II in Process Manufacturing • MSM30116 Certificate III in Process Manufacturing

Unit Code	Unit Title	Status	Current unit *Unless otherwise stated the current unit is equivalent to the superseded unit*	Comment including any barriers & risks to removal from MSA07
				• MSM40116 Certificate IV in Process Manufacturing • MSM50316 Diploma of Production Management • PMA20116 Certificate II in Process Plant Operations • PMA40116 Certificate IV in Process Plant Technology
MSS402031A	Interpret product costs in terms of customer requirements	Superseded	MSS402031 Interpret product costs in terms of customer requirements	No aligned qualifications contain the superseded unit. The following qualifications contain the superseded unit: • PMA20116 Certificate II in Process Plant Operations • PMA40116 Certificate IV in Process Plant Technology
MSS402050A	Monitor process capability	Superseded	MSS402050 Monitor process capability	No aligned qualifications contain the superseded unit. The following qualifications contain the superseded unit: • MSM20116 Certificate II in Process Manufacturing • MSM30116 Certificate III in Process Manufacturing • MSM40116 Certificate IV in Process Manufacturing • PMA20116 Certificate II in Process Plant Operations • PMA40116 Certificate IV in Process Plant Technology

Unit Code	Unit Title	Status	Current unit *Unless otherwise stated the current unit is equivalent to the superseded unit*	Comment including any barriers & risks to removal from MSA07
MSS402060A	Use planning software systems in operations	Superseded	MSS402086 Use planning software systems in operations	No aligned qualifications contain the superseded unit. The following qualifications contain the superseded unit: • MSM20116 Certificate II in Process Manufacturing • MSM30116 Certificate III in Process Manufacturing • MSM40116 Certificate IV in Process Manufacturing • PMA20116 Certificate II in Process Plant Operations • PMA40116 Certificate IV in Process Plant Technology
MSS402061A	Use SCADA systems in operations	Superseded	MSS402061 Use SCADA systems in operations	No aligned qualifications or other Manufacturing Alliance qualifications contain the superseded unit
Laboratory Operations Specialist Stream				
LMTGN4016A	Contribute to the development of products or processes	Superseded	MSTGN4020 Contribute to the development of products or processes	Neither this unit or its successor unit are listed in any MSL current qualification
MEM15001B	Perform basic statistical quality control	Superseded	MEM15001 Perform basic statistical quality control	As above
MEM16006A	Organise and communicate information	Superseded	MEM16006 Organise and communicate information	As above
MEM16008A	Interact with computing technology	Superseded	MEM16008 Interact with computing technology	As above
MEM30024A	Participate in quality assurance techniques	Superseded	MEM30024 Participate in quality assurance techniques	As above

Unit Code	Unit Title	Status	Current unit *Unless otherwise stated the current unit is equivalent to the superseded unit*	Comment including any barriers & risks to removal from MSA07
MSL913001A	Communicate with other people	Deleted	MSL913003 which was the most current equivalent unit was deleted from MSL in December 22.	No aligned qualifications contain MSL913001A. Communication skills are now covered through the inclusion of BSBCMM211 Apply communication skills as a core unit in MSL30122 Certificate III in Laboratory Skills.
MSL913002A	Plan and conduct laboratory/field work	Superseded	MSL913004 Plan and conduct laboratory/field work	No aligned qualifications contain the superseded unit. The current unit is included in MSL30122 Certificate III in Laboratory Skills.
MSL922001A	Record and present data	Superseded	MSL922002 - Record and present data	As above
MSL933001A	Maintain the laboratory/field workplace fit for purpose	Superseded	MSL933005 - Maintain the laboratory/field workplace fit for purpose	As above
MSL933002A	Contribute to the achievement of quality objectives	Superseded	MSL933009 - Contribute to the achievement of quality objectives	As above
MSL933003A	Apply critical control point requirements	Superseded	MSL933007 - Apply critical control point requirements	As above
MSL934002A	Apply quality system and continuous improvement processes	Superseded	MSL934009 Apply quality system and continuous improvement processes	No aligned qualifications contain the superseded unit. MSL934009 is included in the MSL30122 Certificate III in Laboratory Skills and MSL40122 Certificate IV in Laboratory Techniques qualifications. MSL34009 is also included in the current MSL50122 Diploma of Laboratory Technology.
MSL943001A	Work safely with instruments that emit ionising radiation	Superseded	MSL943003 Work safely with instruments that emit ionising radiation	No aligned qualifications contain the superseded unit. The current unit is included in MSL30122 Certificate III in Laboratory Skills.

Unit Code	Unit Title	Status	Current unit *Unless otherwise stated the current unit is equivalent to the superseded unit*	Comment including any barriers & risks to removal from MSA07
MSL943002A	Participate in laboratory/field workplace safety	Superseded	MSL943004 Participate in laboratory/field workplace safety	As above
MSL952001A	Collect routine site samples	Superseded	MSL952003 Collect routine site samples	As above
MSL952002A	Handle and transport samples or equipment	Superseded	MSL952004 Handle and transport samples or equipment	As above
MSL953001A	Receive and prepare samples for testing	Superseded	MSL953005 Receive and prepare samples for testing	No aligned qualifications contain the superseded unit. The current unit is included in the MSL30122 Certificate III in Laboratory Skills and MSL40122 Certificate IV in Laboratory Techniques qualifications.
MSL954001A	Obtain representative samples in accordance with sampling plan	Superseded	MSL954007 Obtain representative samples in accordance with sampling plan	No aligned qualifications contain the superseded unit. The current unit is included in the MSL30122 Certificate III in Laboratory Skills and MSL40122 Certificate IV in Laboratory Techniques qualifications. The current unit is also included in the MSL50122 Diploma of Laboratory Technology and MSL60122 Advanced Diploma of Laboratory Management.
MSL963001A	Operate basic handblowing equipment	Deleted		No aligned qualifications contain the superseded unit. Unit was deleted in July 2018
MSL963002A	Repair glass apparatus using simple glassblowing equipment	Deleted		As above
MSL973001A	Perform basic tests	Superseded	MSL973025 Perform basic tests	No aligned qualifications contain the superseded unit. The current unit is included in the aligned qualifications:

Unit Code	Unit Title	Status	Current unit *Unless otherwise stated the current unit is equivalent to the superseded unit*	Comment including any barriers & risks to removal from MSA07
				• the MSL30122 Certificate III in Laboratory Skills • MSL40122 Certificate IV in Laboratory Techniques qualifications The current unit is also included in: • FBP20122 Certificate II in Food Processing • MSL20122 Certificate II in Sampling and Measurement
MSL973002A	Prepare working solutions	Superseded	MSL973026 Prepare working solutions	No aligned qualifications contain the superseded unit. The current unit is included in the MSL30122 Certificate III in Laboratory Skills and MSL40122 Certificate IV in Laboratory Techniques qualifications.
MSL973003A	Prepare culture media	Superseded	MSL973015 Prepare culture media	No aligned qualifications contain the superseded unit. The current unit is included in the MSL30122 Certificate III in Laboratory Skills.
MSL973004A	Perform aseptic techniques	Superseded	MSL973027 Perform techniques that prevent cross-contamination	No aligned qualifications contain the superseded unit. The current unit is included in the MSL30122 Certificate III in Laboratory Skills and MSL40122 Certificate IV in Laboratory Techniques qualifications. The current unit is also included in the MSL20122 Certificate II in Sampling and Measurement and the MSL50122 Diploma of Laboratory Technology
MSL973005A	Assist with fieldwork	Superseded	MSL973017 Assist with fieldwork	No aligned qualifications contain the superseded unit. The current unit is included in the MSL30122 Certificate III in Laboratory Skills. The current unit is also included in the MSL20122 Certificate II in Sampling and Measurement.

Unit Code	Unit Title	Status	Current unit *Unless otherwise stated the current unit is equivalent to the superseded unit*	Comment including any barriers & risks to removal from MSA07
MSL973006A	Prepare trial batches for evaluation	Superseded	MSL973018 Prepare trial batches for evaluation	As above
MSL973007A	Perform microscopic examination	Superseded	MSL973028 Perform microscopic examination	No aligned qualifications contain the superseded unit. The current unit is included in the MSL30122 Certificate III in Laboratory Skills and MSL40122 Certificate IV in Laboratory Techniques qualifications. The current unit is also included in the MSL20122 Certificate II in Sampling and Measurement and the MSL50122 Diploma of Laboratory Technology.
Technical Officer Specialist Stream				This stream has not been mapped at the unit level as updated versions of all units in the stream are available through the MEM30522 Certificate III in Engineering – Technical qualification. Additional comments are in the qualification mapping document.
Metallurgy Specialist Stream				
MSATCM301A	Test the mechanical properties of materials	Superseded	MEM48001 - Test the mechanical properties of materials	No aligned qualifications contain the superseded unit. The current unit is also included in: • MEM30522 Certificate III in Engineering – Technical • MEM50522 Diploma of Engineering – Technical It is also included in the MEM50522 Diploma of Engineering – Materials
MSATCM302A	Monitor ferrous melting and casting processes	Superseded	MEM48002 - Monitor ferrous melting and casting processes	As above. Note: This unit is incorrectly listed in the TGA MSA30208 qualification as “Monitor basic ferrous

Unit Code	Unit Title	Status	Current unit *Unless otherwise stated the current unit is equivalent to the superseded unit*	Comment including any barriers & risks to removal from MSA07
				melting and casting processes". The correct title is shown when MSATCM302A is viewed on TGA.
MSATCM303A	Monitor basic non-ferrous melting and casting processes	Superseded	MEM48003 - Monitor nonferrous melting and casting processes	No aligned qualifications contain the superseded unit. The current unit is included in the aligned qualifications: • MEM30522 Certificate III in Engineering – Technical • MEM50522 Diploma of Engineering – Technical • MEM60122 Advanced Diploma of Engineering It is also included in: • MEM50522 Diploma of Engineering – Materials. Note: This unit is incorrectly listed in the TGA MSA30208 qualification as "Monitor basic non-ferrous melting and casting processes". The correct title is when MSATCM303A is viewed on TGA.
MSATCM304A	Interpret basic binary phase diagrams	Superseded	MEM48004 Interpret basic binary phase diagrams	No aligned qualifications contain the superseded unit. The current unit is included in: • MEM30522 Certificate III in Engineering – Technical • MEM40119 Certificate IV in Engineering • MEM50522 Diploma of Engineering – Technical • MEM60122 Advanced Diploma of Engineering It is also included in: • MEM50119 Diploma of Engineering - Advanced Trade

Unit Code	Unit Title	Status	Current unit *Unless otherwise stated the current unit is equivalent to the superseded unit*	Comment including any barriers & risks to removal from MSA07
				• MEM50522 Diploma of Engineering – Materials • MEM50422 Diploma of Engineering - Non-Destructive Testing
MSATCM305A	Demonstrate basic knowledge of casting operations	Superseded	MEM48005 - Apply basic knowledge of casting operations	No aligned qualifications contain the superseded unit. The current unit is included in: • MEM30522 Certificate III in Engineering – Technical • MEM50522 Diploma of Engineering – Technical • MEM60122 Advanced Diploma of Engineering It is also included in: • MEM50119 Diploma of Engineering - Advanced Trade
MEM09002B	Interpret technical drawing	Superseded	MEM09002B Interpret technical drawing	No aligned qualifications contain the superseded unit. The current unit is included in the following aligned qualifications: • MEM50522 Diploma of Engineering – Technical • MEM60122 Advanced Diploma of Engineering It is also included in most other MEM qualifications. A new unit MEM09229 Read and interpret technical engineering drawings was developed for technicians in December 2022. This unit is a more appropriate replacement for technician entry level training and is available in: • MEM30522 Certificate III in Engineering – Technical

Unit Code	Unit Title	Status	Current unit *Unless otherwise stated the current unit is equivalent to the superseded unit*	Comment including any barriers & risks to removal from MSA07
				• MEM50522 Diploma of Engineering – Technical • MEM60122 Advanced Diploma of Engineering
MEM13003B	Work safely with industrial chemicals and materials	Superseded	MEM13003 - Work safely with industrial chemicals and materials	No aligned qualifications contain the superseded unit. The current unit is included in: • MEM30522 Certificate III in Engineering – Technical • MEM40119 Certificate IV in Engineering • PMB30121 Certificate III in Polymer Processing • PMB40121 Certificate IV in Polymer Technology *Note TGA in the MSA30208 qualification unit listing incorrectly gives the unit title as "MEM13003B* Work safely with industrial chemicals". The correct unit title is given when the actual unit is viewed on TGA.
MEM13004B	Work safely with molten metals/glass	Superseded	MEM13004 Work safely with molten metals/glass	No aligned qualifications contain the superseded unit. The current unit is included in the aligned qualifications: • MEM30522 Certificate III in Engineering – Technical • MEM404119 Certificate IV in Engineering. It is also included in 11 other MEM current qualifications. The superseded unit is included in MEM20105 Certificate II in Engineering

Unit Code	Unit Title	Status	Current unit *Unless otherwise stated the current unit is equivalent to the superseded unit*	Comment including any barriers & risks to removal from MSA07
MEM16008A	Interact with computing technology	Superseded	MEM16008 Interact with computing technology	No aligned qualifications contain the superseded unit. The current unit is included in the aligned qualifications: • MEM30522 Certificate III in Engineering – Technical • MEM404119 Certificate IV in Engineering. • MEM40422 Certificate IV in Engineering Drafting • MEM50222 Diploma of Engineering - Technical • MEM60122 Advanced Diploma of Engineering The current unit is included in most other MEM qualifications as well as the PMB20121 Certificate II in Polymer Processing. The superseded unit is included in: • MEM20105 Certificate II in Engineering • MSM40116 Certificate II in Process Manufacturing • MSM30116 Certificate III in Process Manufacturing • MSM30216 Certificate III in Surface Preparation and Coating Application • MSM20116 Certificate IV in Process Manufacturing
Polymer Technology Specialist Stream				

Unit Code	Unit Title	Status	Current unit *Unless otherwise stated the current unit is equivalent to the superseded unit*	Comment including any barriers & risks to removal from MSA07
MSAPMSUP303A	Identify equipment faults	Superseded	MSAPMSUP303 Identify equipment faults	No aligned qualifications contain the superseded unit. The current unit is included in the aligned qualifications: • PMB30121 Certificates III in Polymer Processing • PMB40121 Certificate IV in Polymer Technology. The current unit is also included in FBP, MSM and PMA Certificate III qualifications.
PMAOPS350B	Match and adjust colour	Superseded	PMAOPS350 Match and adjust colour	No aligned qualifications contain the superseded unit. The current unit is included in: • PMA30120 Certificate III in Process Plant Operations • PMA40116 Certificate IV in Process Plant Technology • PMA50116 Diploma of Process Plant Technology • PMA60116 Advanced Diploma of Process Plant Technology
PMBPREP206C	Prepare materials to formulae	Superseded	PMBPREP206E - Prepare polymer materials to specified formulae	No aligned qualifications contain the superseded unit. The superseded unit is included in the MSM10216 Certificate I in Manufacturing (Pathways) qualification. The current unit is included in: • PMB30121 Certificate III in Polymer Processing

Unit Code	Unit Title	Status	Current unit *Unless otherwise stated the current unit is equivalent to the superseded unit*	Comment including any barriers & risks to removal from MSA07
				• PMB40121 Certificate IV in Polymer Technology. The current unit is also included in the PMB20121 - Certificate II in Polymer Processing PMBPREP206E is not as clear in its application to non-trade entry level training as PMBPREP206C. PMBPREP206E states that it applies to an experienced technician working alone or as part of a team while PMBPREP206C only states that it applies to operators which would allow entry level training.
PMBPREP301C	Set up and prepare for production	Superseded	PMBPREP301E - Set up and prepare for batch production	No aligned qualifications contain the superseded unit. The current unit is included in: • PMB30121 Certificate III in Polymer Processing • PMB40121 Certificate IV in Polymer Technology. Both PMBPREP301C and PMBPREP301E have statements in their Application that they apply to advanced operators (PMBPREP301C) or to an experienced technician (PMBPREP301E) yet both units appear to have been used in entry level training.
PMBPREP303C	Set up equipment for continuous production	Superseded	PMBPREP303E - Set up equipment for continuous operation	No aligned qualifications contain the superseded unit. The current unit is included in:

Unit Code	Unit Title	Status	Current unit *Unless otherwise stated the current unit is equivalent to the superseded unit*	Comment including any barriers & risks to removal from MSA07
				• PMB30121 Certificate III in Polymer Processing • PMB40121 Certificate IV in Polymer Technology. PMBPREP303E is rated as equivalent to the successor unit to PMBPREP303 and through tat unit to PMBPREP303C. Deletion of PMBPREP303C will not cause issues as the current unit is broader and less rigorous than PMBPREP303C.
PMBPREP304C	Set a die	Superseded	PMBPREP304E - Set a die for injection moulding production	No aligned qualifications contain the superseded unit. The current unit is included in: • PMB30121 Certificate III in Polymer Processing • PMB40121 Certificate IV in Polymer Technology. The superseded unit is included in the MSM20116 Certificate IV in Process Manufacturing. Both the MSA07 unit and the current unit state that they are for experienced technicians. The current unit's application to entry level training needs to be confirmed.
PMBPROD235C	Use materials and process knowledge to complete work operations	Superseded	PMBPROD235E - Use materials and process knowledge to complete work operations	No aligned qualifications contain the superseded unit. The current unit is included in: • PMB20121 Certificate II in Polymer Processing • PMB30121 Certificate III in Polymer Processing

Unit Code	Unit Title	Status	Current unit *Unless otherwise stated the current unit is equivalent to the superseded unit*	Comment including any barriers & risks to removal from MSA07
				• PMB40121 Certificate IV in Polymer Technology. PMBPROD235C states it applies to operators while PMBPROD235E states it applies to an experienced technician.
PMBTECH301B	Use material and process knowledge to solve problems	Superseded	PMBTECH301E - Optimise polymer processing operations	No aligned qualifications contain the superseded unit. The current unit is included in: • PMB30121 Certificate III in Polymer Processing • PMB40121 Certificate IV in Polymer Technology. • PMB50121 Diploma of Polymer Technology The superseded unit is included in the MSM20116 Certificate IV in Process Manufacturing. PMBTECH301E states it applies to an experienced technician.
PMBTECH302A	Modify existing compounds	Superseded	PMBTECH302E - Modify existing compounds	No aligned qualifications contain the superseded unit. The current unit is included in: • PMB40121 Certificate IV in Polymer Technology. • MEM50522 Diploma of Engineering - Materials
PMBTECH303A	Make minor modifications to products	Superseded	PMBTECH303E - Make minor modifications to products	No aligned qualifications contain the superseded unit. The current unit is included in the PMB40121 Certificate IV in Polymer Technology.

Unit Code	Unit Title	Status	Current unit *Unless otherwise stated the current unit is equivalent to the superseded unit*	Comment including any barriers & risks to removal from MSA07
				PMBTECH303E states it applies to an experienced technician.
MSL973001A	Perform basic tests	Superseded	MSL973025 - Perform basic tests	See entry for MSL973001A under the Laboratory Operations stream. The current unit MSL973025 is not included in any PMB qualification.
Structural Steel Specialist Stream				SSD units were included in the first release of the MEM40412 - Certificate IV in Engineering Drafting on 25 June 2012 with a MSA code. The Certificate IV in Engineering Drafting was recoded to MEM40422 in December 2022. This release also recoded the SSD units to MEM codes. The current MEM40422 qualification contains the SSD units with their MEM codes.
MSATCS301A	Interpret architectural and engineering design specifications for structural steel detailing			No aligned qualifications contain the superseded unit. The current unit is included in the following aligned qualifications: • MEM30522 Certificate III in Engineering – Technical • MEM40422 Certificate IV in Engineering Drafting • MEM50522 Diploma of Engineering – Technical • MEM60122 Advanced Diploma of Engineering
MSATCS302A	Detail bolts and welds for structural steelwork connections	Superseded	MEM09224 - Detail bolts and welds for structural steelwork connections	No aligned qualifications contain the superseded unit. The current unit is included in the following aligned qualifications:

Unit Code	Unit Title	Status	Current unit *Unless otherwise stated the current unit is equivalent to the superseded unit*	Comment including any barriers & risks to removal from MSA07
				• MEM30522 Certificate III in Engineering – Technical • MEM40422 Certificate IV in Engineering Drafting • MEM50522 Diploma of Engineering – Technical • MEM60122 Advanced Diploma of Engineering
MEM05051A	Select welding processes	Superseded	MEM05085 - Select welding processes	No aligned qualifications contain the superseded unit. The current unit is included in the following aligned qualifications: • MEM40119 Certificate IV in Engineering The current unit is also included in the following non-aligned qualifications: • MEM30119 Certificate III in Engineering - Production Systems • MEM31822 Certificate III in Engineering - Textile Mechanic • MEM31519 Certificate III in Engineering - Toolmaking Trade • MEM31922 Certificate III in Engineering - Fabrication Trade • MEM40422 Certificate IV in Engineering Drafting • MEM50119 Diploma of Engineering - Advanced Trade The original MEM05051A unit did not have prerequisites or the advice that is in the

Unit Code	Unit Title	Status	Current unit *Unless otherwise stated the current unit is equivalent to the superseded unit*	Comment including any barriers & risks to removal from MSA07
				Application of the current unit that MEM05085 can only be selected with one or more of the welding process trade level units. This makes the unit not suitable for drafting or structural steel detailing. MEM05085's inclusion in the MEM40422 Certificate IV in Engineering Drafting should be reviewed.
MEM09002B	Interpret technical drawing	Superseded	MEM09002B Interpret technical drawing	See comments in the Metallurgy stream for this unit. The new unit MEM09229 Read and interpret technical engineering drawings which was developed for technicians is a more appropriate unit for structural steel detailing application.
MEM16006A	Organise and communicate information	Superseded		See entry under the CAD/Drafting stream
MEM16008A	Interact with computing technology	Superseded		See entry under the CAD/Drafting stream
MEM30031A	Operate computer-aided design (CAD) system to produce basic engineering elements	Superseded		See entry under the CAD/Drafting stream
MEM30032A	Produce basic engineering drawings	Superseded		See entry under the CAD/Drafting stream
MEM30033A	Use computer-aided design (CAD) to create and display 3-D models	Superseded		See entry under the CAD/Drafting stream

Current MSA07 units

The Demonstration Project is required to determine if there is any impact on Manufacturing Alliance qualifications from the removal of current MSA coded units from MSA07 especially in regard to imported electives. The MSA current coded units are listed in the table below. There is no impact on any Manufacturing Alliance qualifications from the removal of these units from MSA07. However, there may be a risk to the Furnishing Training package qualifications that include MSAPMSUP201A Receive or despatch goods.

Unit Code	**Unit Title**	**Qualification Inclusions** *Only current qualifications are listed*	**Comment including any barriers & risks to removal from MSA07**
MSATCM506A	Monitor blast furnace operations	MSA50108 Diploma of Manufacturing Technology MSA60108 Advanced Diploma of Manufacturing Technology	The current status of this unit on TGA appears to be an error as other steelmaking related metallurgy units in the Manufacturing Technology qualifications are listed as deleted. NCVER does not show any enrolments in this unit since 2018. Enrolments in earlier years are not available from NCVER.
MSARVS301A	Develop and update caravan industry knowledge		This unit is listed as current in MSA07 on TGA but is not listed in any current qualifications or skill sets in this or any other Training Package. There is no current equivalent unit. However, a current closely related unit - MSMRV201 Source and use recreational vehicle industry information is in the MSM Manufacturing Training Package Certificate II and III Recreational Vehicle Manufacture qualifications.
MSARVS201A	Install LP gas systems in a recreational vehicle		This unit is listed as current in MSA07 on TGA but is not listed in any current qualifications or skill sets in this or any other Training Package. The unit has been replaced in the current MSM31122 - Certificate III in Recreational Vehicle Manufacturing qualification by CPCPGS3046 Install LPG systems in caravans, mobile homes and mobile workplaces.

Unit Code	Unit Title	Qualification Inclusions *Only current qualifications are listed*	Comment including any barriers & risks to removal from MSA07
MSAPMSUP201A	Receive or despatch goods	MSF20322 Certificate II in Cabinet Making and Timber Technology MSF30422 Certificate III in Glass and Glazing	No aligned qualifications contain this unit. It is listed in these two Furnishing Training Package qualifications as an elective, so impact of removal is likely minimal. Relevant JSC will be notified of any work undertaken to remove this unit.
MSAPMOHS220A	Provide initial First Aid response		This unit is listed as current in MSA07 on TGA but is not listed in any current qualifications or skill sets in this or any other Training Package. There are many current alternative First Aid units available.