



SUMMARY OF PROPOSED CHANGES

Blacksmithing Project





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Qualifications

MEM31922 Certificate III in Engineering – Fabrication Trade

We are proposing changes to MEM31922 Certificate III in Engineering – Fabrication Trade, Group F – Blacksmithing Trade specialisation electives.

6 units have been updated. They will be recoded and retitled as follows:

- MEM06010 Perform hand forging (to replace MEM06001 same title)
- MEM06011 Perform power hammer forging (to replace MEM06002 Perform hammer forging)
- MEM06012 Perform drop and upset forging (to replace MEM06005 same title)
- MEM06013 Repair springs (to replace MEM06006 same title)
- MEM06014 Perform power hammer forging of complex shapes (to replace MEM06008 Hammer forge complex shapes)
- MEM06015 Hand forge complex shapes (to replace MEM06009 same title)

2 new units have been developed:

- MEM06016 Perform press forging
- MEM06017 Perform press forging of complex shapes

The new units will be added to Group H (General electives) as well as Group F.

The qualification will require a code change. Changes to MEM31922 resulting from the non-destructive testing project are proposed to occur at the same time.

Minor changes to qualifications

The updated and new blacksmithing units will be added to the following qualifications as indicated in the table below.

- MEM20219 Certificate II in Engineering - Production Technology (Release 2)
- MEM30119 Certificate III in Engineering - Production Systems (Release 2)
- MEM40119 Certificate IV in Engineering (Release 2)
- MEM50119 Diploma of Engineering - Advanced Trade (Release 2)

Unit	Qualification			
	MEM20219	MEM30119	MEM40119	MEM50119
MEM06010	✓	✓	✓	✓
MEM06011			✓	✓
MEM06012			✓	✓
MEM06013		✓	✓	✓
MEM06014			✓	✓
MEM06015			✓	✓
MEM06016			✓	✓
MEM06017			✓	✓



These qualifications will get a new release number, but no code change is required.

Changes to MEM30119, MEM40119, and MEM50119 resulting from the non-destructive testing project are proposed to occur at the same time.

In addition, changes will be made to Group A in MEM50119 (addition of MEM05061, MEM05062, MEM05065, MEM05066 and MEM05068) in order to meet prerequisite requirements.

Units

To align with standard wording used in the most recent MEM releases (Releases 3 & 4), Performance Evidence text has been changed to include 'Where a volume and/or frequency is not specified, demonstration must be provided at least once' rather than 'on at least two (2) occasions'.

MEM06010 Perform hand forging

- Application
 - Changed tool categories from 'hand tools and formers' to hand tools, forming tools, anvil tools, and floor tools. The same category changes have been made to PC 2.1 and Range of Conditions.
 - Changed 'apply hand forging techniques and operate heat treatment equipment' to 'operate heating equipment to heat metal to forging temperatures and apply hand forging techniques' ('Heat treatment' is a post-forging process not covered in this unit.)
 - Added (same changes made to all units) 'Commonwealth and state/territory laws and regulations governing work and training environments must be complied with.'
- Elements and Performance Criteria
 - PC 2.1 changed to align with tool categories in Application
 - PC 2.4 'select appropriate volume of material' added to align with measurement and calculation requirements in the current and proposed KE
 - PC 3.2 changed 'equipment' to 'heating equipment'
- Range of Conditions
 - Tools as per categories in Application. Tools added.
 - 'Heating equipment' types expanded to include solid-fuel, oil, induction, and ceramic-chip systems. (Same changes made to all units that specify heating equipment.)
- Performance Evidence:
 - tool categories as in Application
 - 'heat treatment' removed (incorrect)
- Knowledge Evidence:
 - Tools as per categories in Application
 - 'Determining volumes' added to 'Calculations'

MEM06011 Perform power hammer forging

- Application
 - Changed 'operate heating devices' to 'operate heating equipment to heat metal to forging temperatures'
 - Changed 'hammer and power hammer tools and formers' to 'power hammer and power-hammer tools and forming tools'
- Elements and Performance Criteria



- PC 2.1 Changed 'Select material for use with specific tools and formers' to 'Select material to meet job requirements'
- PC 2.2 Changed 'Make material calculations using volumes and weights that include provision for thermal expansion/contraction, oxidisation and shrinkage' to 'Calculate material volumes and weights, including provision for thermal expansion/contraction, oxidization, and shrinkage'. Aligns with Knowledge Evidence mathematical knowledge.
- PC 3.2 Replaced 'forging machine' with 'power hammer and heating equipment'.
- PC 4.1 Changed 'Select and apply appropriate hammer forging technique' to 'Select and use power-hammer forging techniques to meet job requirements'
- PC 4.3 Changed 'Apply correct techniques to the handling of hot metal with regard to balancing and pivoting' to 'Apply safe techniques, including balancing and pivoting, for handling hot metal'
- PC 4.4 Changed 'Apply the correct heating process' to 'Apply heating processes appropriate to materials and job requirements'
- Range of Conditions
 - Materials: removed 'lead'. Added 'wrought iron'
 - Material calculations: Added 'oxidisation and shrinkage allowance'
 - Replaced 'hammer tools and formers' with 'power-hammer tools' and 'power-hammer forming tools'.
 - Added 'power-hammer forming techniques' and expanded 'defects'.
 - Heating equipment as in –6010.
- Performance and Knowledge Evidence
 - Replaced 'forging machine' with 'power hammer'.

MEM06012 Perform drop and upset forging

- Application
 - Changed 'where material is forged to specified dimensional accuracy and finish' to 'to forge material to meet size, shape and finish specifications'
- Elements and Performance Criteria.
 - Moved PC 5.1 to Element 4.
 - Changed wording such as 'correct' and 'appropriate' to add more specificity (e.g. 'to meet job requirements').
- Knowledge Evidence
 - Changed terminology to align with that used in above fields.

MEM06013 Repair springs

- Elements and Performance Criteria
 - Added PC 6.5 'Record spring test results in accordance with SOPs' to align with Knowledge Evidence requirement 'procedures for recording spring test results'

MEM06014 Perform power hammer forging of complex shapes

Changed terminology throughout from 'forging machine' to 'power hammer'

- Application
 - Added text to differentiate hammer forging from forging with hand-held hammers
- Elements and Performance Criteria
 - Removed '... and heavy parts' from Element 3 'Forge complex shapes ...' .



- PC 4.2 Changed 'techniques used to heat heavy and complex forgings' to 'techniques to heat complex forgings'.
- PC 4.3 Added 'preheating' as well as 'post-forging heat treatment'
- Range of Conditions
 - Changed 'forge' to 'forging' and reworded items for clarity.
 - Added categories to 'forging plant equipment'

MEM06015 Hand forge complex shapes

- Elements and Performance Criteria
 - Element 2 Added 'forming tools'
 - PC 2.2 Added 'forming tools'
 - Element 3 Changed 'bundling' to 'bending'.
 - PC 3.2 reworded for clarity.
- Range of Conditions
 - Expanded tool categories to include floor, anvil, and hand forming tools.
 - Added additional hand forging techniques
- Performance and Knowledge Evidence
 - Changed techniques and calculations to align with those used in PCs

MEM06016 Perform press forging

New unit

MEM06017 Perform press forging of complex shapes

New unit.



Mapping Information

Equivalence status is proposed -- pending feedback from state/territory training authorities.

Qualifications - mapping to MEM Release 5.0

Current code	Current title	New code	New title	Component type	Status	E = Equivalent NE = Non-Equivalent
MEM31922	Certificate III in Engineering – Fabrication Trade	MEM31925 (anticipated code -subject to change)	No change	Qual	Revised	E
MEM20219	Certificate II in Engineering - Production Technology	No change		Qual	New release (Release 3)	E
MEM30119	Certificate III in Engineering - Production Systems			Qual	New release (Release 3)	E
MEM40119	Certificate IV in Engineering			Qual	New release (Release 3)	E
MEM50119	Diploma of Engineering - Advanced Trade			Qual	New release (Release 3)	E

Units - mapping to MEM Release 5.0

Current code	Current title	New code	New title	Component type	Status	E = Equivalent NE = Non-Equivalent
MEM06001	Perform hand forging	MEM06010	No change	<u>UoC</u>	<u>Revised</u>	E
MEM06002	Perform hammer forging	MEM06011	Perform power hammer forging	<u>UoC</u>	<u>Revised</u>	E
MEM06005	Perform drop and upset forging	MEM06012	No change	<u>UoC</u>	<u>Revised</u>	E



MEM06006	Repair springs	MEM06013	No change	<u>UoC</u>	<u>Revised</u>	E
MEM06008	Hammer forge complex shape	MEM06014	Perform power hammer forging of complex shapes	<u>UoC</u>	<u>Revised</u>	E
MEM06009	Hand forge complex shapes	MEM06015	No change	<u>UoC</u>	<u>Revised</u>	E
-	-	MEM06016	Perform press forging	<u>UoC</u>	<u>Revised</u>	New
-	-	MEM06017	Perform press forging of complex shapes	<u>UoC</u>	<u>Revised</u>	New