Field Engineering and Technology

Review of *Mechanical Engineering* unit standards

Subfield	Domain	ID
Mechanical Engineering	Engineering - Fabrication	25706, 25707
	Engineering Machining and Toolmaking	2712, 2714, 2715, 11661-11664, 22908
	Maintenance and Diagnostics in Mechanical Engineering	2397, 2403, 2404, 27203, 27204
	Welding	2671-2683, 18106, 22906, 22907

Competenz has completed the review of the unit standards listed above.

Date new versions published **July 2017**

Planned review date **December 2022**

Summary

The unit standards were reviewed and new unit standards were written to align with the recently registered New Zealand Certificate in Mechanical Engineering (Level 3) [Ref: 2715] and New Zealand Certificate in Mechanical Engineering (Trade) (Level 4) [Ref: 2714] and to meet Competenz's ongoing unit standard review schedule.

The review was carried out in consultation with mechanical engineering industry technical experts, users of the standards, including Polytechnics, and the changes were endorsed by the industry technical group.

Main changes

- Changes were made to outcome statements, evidence requirements (now performance criteria), and range statements to clarify assessment requirements, remove duplication, and ensure alignment with current industry requirements. Unit standards were modified to align with the revised NZQA guidelines.
- Some titles were amended to align with outcomes and changes.
- Some levels were adjusted to reflect changes made or to re-calibrate the units with the level descriptors.
- Eight new unit standards were registered, four replacing existing unit standards. Replacements included splitting unit standards 2673 and 2683 each into two new unit standards that cover the different skills that were covered in the expiring versions.
- Six unit standards were set to expire without replacement due to low usage or where alternatives are available.

Category C and D unit standards will expire at the end of December 2022

The last date for assessment of superseded versions of Category B unit standards is December 2022

Impact on existing organisations with consent to assess

Current consent for			Consent extended to		
Nature of consent	**Classification or ID**	**Level**	**Nature of consent**	**Classification or ID**	**Level**
Subfield	Mechanical Engineering	2	Standard	2397	3
		3	Standards	30285, 30286	4
Domain	Maintenance and Diagnostics in Mechanical Engineering	2	Standard	2397	3
		3	Standards	30285, 30286	4
Standard	2673	3	Standards	30282, 30283	3
Standard	2683	3	Standards	30279, 30208	3

Detailed list of unit standards – classification, title, level, and credits

All changes are in **bold**.

Key to review category	
A	Dates changed, but no other changes are made - the new version of the standard carries the same ID and a new version number
B	Changes made, but the overall outcome remains the same - the new version of the standard carries the same ID and a new version number
C	Major changes that necessitate the registration of a replacement standard with a new ID
D	Standard will expire and not be replaced

Engineering and Technology > Mechanical Engineering > Engineering - Fabrication

ID	Title	Level	Credit	Review Category
25706	Demonstrate and apply knowledge of intermediate light fabrication trade practice	3	10	B
25707	Demonstrate and apply knowledge of intermediate heavy fabrication trade practice	3	10	B

Engineering and Technology > Mechanical Engineering > Engineering Machining and Toolmaking

ID	Title	Level	Credit	Review Category
2712	Produce components by performing engineering grinding operations	3	15	B
2714	Produce components by performing engineering turning operations	3	15	B
2715	Produce components by performing engineering milling operations	3	15	B
11661	Produce components by performing basic engineering drilling operations **Perform engineering drilling operations using a pedestal type drilling machine**	2	8 **3**	B
11662	Produce components by performing basic engineering turning operations	2	12	D
11663	Produce components by performing basic engineering milling operations	2	12	D
11664	Produce components by performing basic engineering surface grinding operations	2	12	D

ID	Title	Level	Credit	Review Category
22908	Demonstrate and apply knowledge of manually controlled machining operations	3	10	D
30281	**Perform milling and turning operations in mechanical engineering**	**3**	**10**	**New**

Engineering and Technology > Mechanical Engineering > Maintenance and Diagnostics in Mechanical Engineering

ID	Title	Level	Credit	Review Category
2397	Service machines and equipment **Carry out routine servicing of engineering machinery**	2 **3**	4	B
2403 **30286**	Replace static seals in machines and equipment **Demonstrate knowledge of, and replace and test static seals in machinery**	3 **4**	5 **5**	C
2404 **30285**	Replace dynamic seals in machines and equipment **Demonstrate knowledge of, and replace and test dynamic seals in machinery**	3 **4**	8 **8**	C
27203	Demonstrate knowledge of lubrication for mechanical engineering trades **Demonstrate knowledge of lubrication systems for mechanical engineering**	3	2	B
27204	Inspect lubrication systems **Inspect lubrication systems in a mechanical engineering context**	3	3	B
30284	**Demonstrate and apply knowledge of the construction, function and application of seals in mechanical engineering**	**3**	**2**	**New**

Engineering and Technology > Mechanical Engineering > Welding

ID	Title	Level	Credit	Review Category
2671	Weld steel structures in the downhand positions using the manual metal arc welding process	3	6	B
2672	Weld steel in the downhand positions to a general purpose industry standard using the gas metal arc welding process **Weld steel to a general purpose industry standard using the gas metal arc welding process**	3	6	B
2673 **30282** **30283**	Weld steel structures in the downhand positions using the gas metal arc and flux cored arc welding processes **Weld steel structures in the downhand positions using the gas shielded flux cored arc welding process** **Weld steel structures in the downhand positions using the gas metal arc welding process**	3 **3** **3**	6 **4** **4**	C

ID	Title	Level	Credit	Review Category
2674	Weld stainless steel plate in the downhand positions using the gas metal arc and flux cored arc welding processes	3	6	B
2675	Weld aluminium in the downhand positions using the gas metal arc welding process **Weld aluminium to industry standard in downhand positions using the gas metal arc welding process**	3	6	B
2676	Weld stainless steel sheet using the gas tungsten arc welding process **Weld stainless steel sheet to industry standard using the gas tungsten arc welding process**	3	6	B
2677	Weld aluminium in the downhand positions using the gas tungsten arc welding process **Weld aluminium to industry standard in the downhand positions using the gas tungsten arc welding process**	3	6	B
2678	Join steel using the oxyacetylene welding process	3	3	B
2679	Join metals using the torch brazing and soldering processes	3	6	D
2680	Join metals using the resistance welding process	3	4	B
2681	Weld steel structures using the submerged arc welding process	3	6	B
2682	Weld steel in the downhand positions to a general purpose industry standard using the manual metal arc welding process	3	6	B
2683 **30279** **30280**	Cut metals using manual thermal processes **Cut steel using the manual gas cutting process** **Cut metals using the manual plasma cutting process**	3 **3** **3**	4 **2** **2**	C
18106	Gouge steel using the air carbon arc process **Gouge steel using the air carbon arc gouging process**	3	4	B
22906	Demonstrate and apply knowledge of welding low carbon steel	3	3	B
22907	Demonstrate and apply knowledge of welding aluminium and stainless steel	3	3	B