

Apply knowledge of force and stress in engineering fabrications

Level 5

Credits 6

Purpose This unit standard is for personnel employed in the engineering fabrication industries and covers knowledge of force and stress in fabrication.

People credited with this unit standard are able to apply knowledge of force and stress in engineering fabrications.

Subfield Mechanical Engineering

Domain Engineering - Fabrication

Status Registered

Status date 21 May 2010

Date version published 21 May 2010

Planned review date 31 December 2015

Entry information Recommended: Unit 16955, *Calculate sizes, mass, volumes, and quantities for fabrication*; or demonstrate equivalent knowledge and skills.

Accreditation Evaluation of documentation and visit by NZQA and industry.

Standard setting body (SSB) Competenz

Accreditation and Moderation Action Plan (AMAP) reference 0013

This AMAP can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Special notes

Assessment

- a For assessment purposes, values referred to in this unit standard will be expressed in Système Internationale (SI) units including multiples and sub-multiples (micro, milli, kilo, etc).
- b Calculators, computers, and other relevant technology may be used for this unit standard.

Elements and performance criteria

Element 1

Apply knowledge of force and stress in engineering fabrications.

Performance criteria

- 1.1 The permissible load on a fixed joint is calculated for a given scenario.
Range fixed joints – bolt, rivet.
- 1.2 The working stress and bolt size is calculated for a fixed joint for a given scenario.
- 1.3 The required size and length of a weld is calculated given the strength of the weld metal, the load, and the factor of safety.
- 1.4 The theoretical thickness of the shell of a thin cylinder is calculated for a given design pressure.
- 1.5 The pressure within a tank is determined given the depth and relative density of the contained liquid.
- 1.6 Changes in dimension of a component due to compressive stress, tensile stress, and changes in temperature are calculated.
Range temperature – linear expansion and contraction, non-linear expansion and contraction.

Please note

Providers must be accredited by NZQA, or an inter-institutional body with delegated authority for quality assurance, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be accredited by NZQA before they can register credits from assessment against unit standards.

Accredited providers and Industry Training Organisations assessing against unit standards must engage with the moderation system that applies to those standards.

Accreditation requirements and an outline of the moderation system that applies to this standard are outlined in the Accreditation and Moderation Action Plan (AMAP). The AMAP also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

Comments on this unit standard

Please contact Competenz info@competenz.org.nz if you wish to suggest changes to the content of this unit standard.