

Achievement Standard

Subject Reference	Generic Technology 2.13		
Title	Undertake development and implementation of an effective manufacturing process		
Level	2	Credits	6
		Assessment	Internal
Subfield	Technology		
Domain	Generic Technology		
Status	Registered	Status date	17 November 2011
Planned review date	31 December 2020	Date version published	17 November 2016

This achievement standard involves undertaking development and implementation of an effective manufacturing process.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> Undertake development and implementation of an effective manufacturing process. 	<ul style="list-style-type: none"> Undertake in-depth development and implementation of an effective manufacturing process. 	<ul style="list-style-type: none"> Undertake comprehensive development and implementation of an effective manufacturing process.

Explanatory Notes

- This achievement standard is derived from Level 7 of the Technology learning area in *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007; and is related to the material in the *Teaching and Learning Guide for Technology*, Ministry of Education at <http://seniorsecondary.tki.org.nz>.

Further information can be found at <http://www.technology.tki.org.nz/>.

Appropriate reference information is available in *Safety and Technology Education: A Guidance Manual for New Zealand Schools*, Ministry of Education at <http://technology.tki.org.nz/Curriculum-support/Safety-and-Technology-Education>, and the Health and Safety at Work Act 2015.

This standard is also derived from *Te Marautanga o Aotearoa*. For details of *Te Marautanga o Aotearoa* achievement objectives to which this standard relates, see the [Papa Whakaako](#) for the relevant learning area.

- 2 *Undertake development and implementation of an effective manufacturing process involves:*
- analysing a technological outcome to determine suitability for manufacture and making design changes as required
 - establishing specifications, including tolerances, required of the outcome that is to be manufactured
 - selecting a manufacturing process and quality control procedures that enable units to meet the established specifications and tolerances
 - organising and using selected resources and carrying out techniques independently and accurately in keeping with relevant codes of practice
 - implementing the manufacturing process using feedback from quality control to ensure the majority of the units meet the established specifications and tolerances.

Undertake in-depth development and implementation of an effective manufacturing process involves:

- modifying the techniques and the use of resources to tailor the manufacturing process to the nature of the outcome and the constraints and/or opportunities of the manufacturing location
- modifying the quality control procedures to improve the quality of the feedback within the manufacturing process.

Undertake comprehensive development and implementation of an effective manufacturing process involves:

- establishing quality control procedures that allow for ongoing monitoring to enhance the review and refinement of the manufacturing process to better suit the nature of the outcome and the constraints and/or opportunities of the manufacturing location.

- 3 Determining the suitability of a technological outcome proposed for manufacture includes consideration of the following:

- methods of construction or processing to be used
- the materials, ingredients and/or components to be used
- qualities of the outcome that need to be preserved (e.g. function, aesthetics, ergonomics, cost, components)
- resource availability (e.g. labour, materials, components)
- broader factors (e.g. legal, social, cultural, political, environmental, and economic).

- 4 *An effective manufacturing process* enables the multi-unit production of a technological outcome where the majority of the units meet the established specifications and tolerances. Selection of an appropriate manufacturing process requires students to consider the type of outcome, the resources and techniques to be used.

- 5 Conditions of Assessment related to this achievement standard can be found at <http://ncea.tki.org.nz/Resources-for-Internally-Assessed-Achievement-Standards>.

Quality Assurance

- 1 Providers and Industry Training Organisations must have been granted consent to assess by NZQA before they can register credits from assessment against achievement standards.
- 2 Organisations with consent to assess and Industry Training Organisations assessing against achievement standards must engage with the moderation system that applies to those achievement standards.

Consent and Moderation Requirements (CMR) reference

0233