

## Achievement Standard

<b>Subject Reference</b>	Generic Technology 2.11		
<b>Title</b>	Demonstrate understanding of advanced concepts related to human factors in design		
<b>Level</b>	2	<b>Credits</b>	4
		<b>Assessment</b>	Internal
<b>Subfield</b>	Technology		
<b>Domain</b>	Generic Technology		
<b>Status</b>	Registered	<b>Status date</b>	17 November 2011
<b>Planned review date</b>	31 December 2019	<b>Date version published</b>	17 November 2016

This achievement standard requires demonstrating understanding of advanced concepts related to human factors in design.

### Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> <li>Demonstrate understanding of advanced concepts related to human factors in design.</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrate in-depth understanding of advanced concepts related to human factors in design.</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrate comprehensive understanding of advanced concepts related to human factors in design.</li> </ul>

### 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 *Demonstrate understanding of advanced concepts related to human factors in design* involves:
- explaining how statistics and probability are used to establish guiding ratios for anthropometric data and how this and ergonomic aids are used
  - explaining how customisation allows for user preference and enables ergonomic fit.

*Demonstrate in-depth understanding of advanced concepts related to human factors in design* involves:

- explaining how anthropometric data is gathered and ergonomic aids are used when designing a product, system or environment
- explaining how customisation is undertaken to address user preference and enable the ergonomic fit of a product, system or environment.

*Demonstrate comprehensive understanding of advanced concepts related to human factors in design* involves:

- discussing the relationship between anthropometric data, user preference and ergonomic fit in a product, system or environment
- discussing the customisation undertaken to address user preference and obtain ergonomic fit in a product, system or environment.

- 3 *Human factors* include ergonomic and aesthetic factors that influence the design of products, systems and environments. These factors may include but are not limited to the use of anthropometric, psychological and sensory data gathering and analysis techniques. An understanding of spatial relationships between people, objects and their environments is important when considering human factors in design.

- 4 Customisation techniques used to address user preference and obtain ergonomic fit may include but are not limited to:
- using dressmakers mannequins, patterns, and ergonomes
  - using data from anthropometric, psychological and sensory data, focus groups and test subjects
  - using investigation and stimuli to establish user preferences
  - using functional modelling and prototypes.

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

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## 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