

Main changes resulting from the development and revision processes

- All TMoA Level 2 (NZQF Level 7) outcomes are now assessed using achievement standards.
- Grading criteria for achievement standards were reviewed in accordance with the Standards Review Guidelines.
- Seven new standards were created for *Hangarau* that align to TMoA achievement objectives.
- One Business Studies achievement standard (90846 – Business Studies 2.4), eight Generic Technology achievement standards (91354-91360 & 91363 – Generic Technology 2.1-2.7 & 2.10), three Design and Visual Technology achievement standards (91337-91339 – DVC 2.30-2.32), and two Digital Technologies achievement standards (91367 & 91371 – DT 2.40 & 2.44) were amended in November 2014 to show that they also derive from TMoA Whāinga Paetae.

For a detailed description of the development of Hangarau standards, see the **Appendix** at the end of this report.

Impact on existing organisations with consent to assess

None.

Impact on Consent and Moderation Requirements (CMR)

All new achievement standards have been registered on CMR 0233.

Impact on registered qualifications

None.

Impact of changes on [Exclusions List](#)

None.

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

New achievement standards

Māori > Te Marautanga o Aotearoa > Hangarau

ID	MoE Ref	Title	Level	Credit
91770	Hangarau 2.1	Te whakaputa tauāki hei whakaea i tētahi take hangarau motuhake	2	4
91771	Hangarau 2.2	Te whakatakoto tikanga hei whakaea i tētahi take hangarau motuhake	2	4
91772	Hangarau 2.3	Te whakaputa hoahoa hei whakaea i tētahi take hangarau motuhake	2	4
91773	Hangarau 2.4	Te whakaputa i tētahi hua hangarau rorohiko hei whakaea i tētahi take hangarau motuhake	2	6
91774	Hangarau 2.5	Te whakaputa i tētahi hua hangarau hanganga hei whakaea i tētahi take hangarau motuhake	2	6

ID	MoE Ref	Title	Level	Credit
91775	Hangarau 2.6	Te whakaputa i tētahi hua hangarau kai hei whakaea i tētahi take hangarau motuhake	2	6
91776	Hangarau 2.7	Te whakaputa i tētahi hua hangarau kākahu hei whakaea i tētahi take hangarau motuhake	2	6

Revised achievement standards

Business > Business Operations and Development > Business Studies

ID	MoE Ref	Title	Level	Credit
90846	Bus 2.4	Conduct market research for a new or existing product	2	3

Engineering and Technology> Technology > Design and Visual Communication

ID	MoE Ref	Title	Level	Credit
91337	DVC 2.30	Use visual communication techniques to generate design ideas	2	3
91338	DVC 2.31	Produce working drawings to communicate technical details of a design	2	4
91339	DVC 2.32	Produce instrumental perspective projection drawings to communicate design ideas	2	3

Engineering and Technology> Technology > Digital Technologies

ID	MoE Ref	Title	Level	Credit
91367	DigiTech 2.40	Demonstrate understanding of advanced concepts relating to managing shared information within information systems	2	3
91371	DigiTech 2.44	Demonstrate understanding of advanced concepts from computer science	2	4

Engineering and Technology> Technology > Generic Technology

ID	MoE Ref	Title	Level	Credit
91354	GenTech 2.1	Undertake brief development to address an issue	2	4
91355	GenTech 2.2	Select and use planning tools to manage the development of an outcome	2	4
91356	GenTech 2.3	Develop a conceptual design for an outcome	2	6
91357	GenTech 2.4	Undertake effective development to make and trial a prototype	2	6
91358	GenTech 2.5	Demonstrate understanding of how technological modelling supports risk management	2	4
91359	GenTech 2.6	Demonstrate understanding of the role of material evaluation in product development	2	4
91360	GenTech 2.7	Demonstrate understanding of redundancy and reliability in technological systems	2	4
91363	GenTech 2.10	Demonstrate understanding of sustainability in design	2	4

Appendix

Development of Hangarau Level 2 Achievement Standards

Process of aligning standards with Te Marautanga o Aotearoa (TMoA)

The process of aligning achievement standards with Te Marautanga o Aotearoa (TMoA) was informed by a series of audits across all learning areas conducted by Māori-medium subject specialists. After determining the extent to which the existing achievement standards met the Whāinga Paetae (achievement objectives) within the Hangarau learning area of TMoA, two options were identified:

- translating the Technology standards into te reo Māori; or
- developing a unique set of Hangarau achievement standards.

Developing a unique set of Hangarau standards was deemed to best reflect the Whāinga Paetae within the Hangarau learning area of TMoA. It acknowledges the importance and value of mātauranga Māori, offering students the opportunity to be assessed against a set of standards derived from a Māori perspective. It also offers teachers in senior secondary Māori-medium settings an alternative set of standards to assess their students against and encourages the growth of kaihangarau (Māori technologists).

A panel consisting of subject specialists working in wharekura was convened by the Ministry of Education to develop the new achievement standards. They developed seven Hangarau-specific achievement standards at Level 2 (AS91770 –AS91776 – Han 2.1-2.7) to align with the Whāinga Paetae within the Level 7 Ngā Āhuatanga o te Hangarau (Concepts of Technology) and Te Whakaharatau Hangarau (Technological Practice) strands of the Hangarau learning area of TMoA. These standards reflect the essence of Hangarau, with its emphasis on mātauranga Māori.

The existing standards derived from the NZC that met the Whāinga Paetae within TMoA were also identified and revised to reflect this. One Business Studies achievement standard (90846 – Business Studies 2.4), eight Generic Technology achievement standards (91354-91360 & 91363 – Generic Technology 2.1-2.7 & 2.10), three Design and Visual Technology achievement standards (91337-91339 – DVC 2.30-2.32), and two Digital Technologies achievement standards (91367 & 91371 – DT 2.40 & 2.44) were amended to show that they also derive from TMoA Whāinga Paetae.

Conditions of Assessment have been developed to assist in the interpretation of achievement standards and the development of teaching and learning programmes.

Addressing duplication

The Hangarau standards were compared in detail with the Technology standards to ensure that there was no duplication.

In addition, the Business Studies, Generic Technology, Design and Visual Technology, and Digital Technologies achievement standards were compared against the Whāinga Paetae in TMoA. Where they were found to align with the TMoA Whāinga Paetae, they were revised to note this.

Addressing credit parity

The credits allocated to the standards reflect the time required for the teaching and learning involved.

External and internal assessment

The mode of assessment for each standard best reflects the teaching and learning involved for each standard.

Internal assessment was considered the most appropriate mode for all the Hangarau standards.

What has changed (summary)?

Seven Hangarau-specific achievement standards (AS91770-AS91776 – Han 2.1-2.7) have been written reflecting the knowledge base, skills and understandings of Hangarau that can be achieved by ākonga at Level 7 of Te Marautanga o Aotearoa.

The set of standards has been written to ensure that generic skills, knowledge and understandings are assessed in a Hangarau context. They are complemented by English-medium Technology standards. Skills include:

- brief development
- using planning tools
- understanding design
- understanding modelling and the relation of structure of materials to function
- understanding the role of other disciplines
- understanding the interaction between an outcome and the people and environment it is located in.

Achievement standards 2.1–2.3 (AS91770–AS91772) follow the technological process while achievement standards 2.4–2.7 (AS91773–AS91776) relate to the production of a technological outcome. The benefit of this is that students are able to follow the complete process from start to finish and gain credit for each step.

Hangarau 2.1 Te whakaputa tauāki hei whakaea i tētahi take hangarau motuhake (AS91770) requires students to produce a brief to address a technological issue of significance to the community.

Hangarau 2.2 Te whakatakoto tikanga hei whakaea i tētahi take hangarau motuhake (AS91771) requires students to lay out a plan to address a technological issue of significance to the community.

Hangarau 2.3 Te whakaputa hoahoa hei whakaea i tētahi take hangarau motuhake (AS91772) requires students to produce a design to address a technological issue of significance to the community.

Hangarau 2.4 Te whakaputa i tētahi hua hangarau rorohiko hei whakaea i tētahi take hangarau motuhake (AS91773) requires students to produce a technological outcome relating to computers to address a technological issue of significance to the community.

Hangarau 2.5 Te whakaputa i tētahi hua hangarau hanganga hei whakaea i tētahi take hangarau motuhake (AS91774) requires students to produce a technological outcome relating to hard materials to address a technological issue of significance to the community.

Hangarau 2.6 Te whakaputa i tētahi hua hangarau kai hei whakaea i tētahi take hangarau motuhake (AS91775) requires students to produce a technological outcome relating to food to address a technological issue of significance to the community.

Hangarau 2.7 Te whakaputa i tētahi hua hangarau kākahu hei whakaea i tētahi take hangarau motuhake (AS91776) requires students to produce a technological outcome relating to clothing to address a technological issue of significance to the community.