

NCEA Digital Technologies and Hangarau Matihiko Remote Learning and Assessment

NZQA has considered the impacts of the Covid-19 virus on teaching, learning and assessment programmes for NCEA Digital Technologies and Hangarau Matihiko. This document includes guidance for both internal and external Digital Technologies and Hangarau Matihiko Achievement Standards.

General Guidance

Students will need access to a computer and appropriate software. Students may need access to an Internet connection.

If students have an Internet connection, there are a number of options for collaborative working available to them. For example, they may be able to use video conferencing or the facilities of a cloud-based platform, or a learning management system.

Care must be taken when students are interacting on-line to ensure their safety.

There may be issues around access and equity for some students, which you will need to consider in your programme planning.

Supporting evidence

Evidence can be gathered in a number of ways. In many cases the evidence will be apparent in the outcome that the student has created. This may be supplemented with succinct notes, for example to provide supporting evidence of where and why choices have been made.

Short videos and screencasts can also provide suitable evidence. Again, succinct notes may provide supporting evidence of student thinking.

Students should be encouraged to keep written evidence short and to the point.

Digital Technologies and Hangarau Matihiko Matrix

KEY: A colour-coding system to categorise standards according to the advice in this document.

Green	These standards are suitable for remote teaching, learning and assessment.
Blue	Teachers can facilitate assessment against these standards by remote learning with guidance (refer to General Guidance above).
Red	These standards present significant problems for remote teaching, learning and assessment.

Domain	Level 1	Level 2	Level 3
Digital Technologies	<p>AS91877 1.1 Develop a proposal for a digital outcome</p> <p>Teaching and learning towards assessment of this standard requires access to information sources for research. Feedback could be gathered by interacting with other students, using a poll, for example.</p> <p>3 credits Internal</p>	<p>AS91890 2.1 Conduct an inquiry to propose a digital technologies outcome</p> <p>Teaching and learning towards assessment of this standard requires access to information sources for research.</p> <p>6 credits Internal</p>	<p>AS91900 3.1 Conduct a critical inquiry to propose a digital technologies outcome</p> <p>Teaching and learning towards assessment of this standard requires access to information sources for research. For suitable topics, some data could be gathered by interacting with other students, using a poll, for example.</p> <p>6 credits Internal</p>

Domain	Level 1	Level 2	Level 3
Digital Technologies	<p>AS91878 1.2</p> <p>Develop a design for a digital outcome</p> <p>Teaching and learning towards assessment of this standard requires access to information sources for research. Feedback could be gathered by interacting with other students, using a poll, for example.</p> <p>3 credits Internal</p>	<p>AS91891 2.2</p> <p>Apply conventions to develop a design for a digital technologies outcome</p> <p>Students may be able to gain feedback on their designs using collaboration software (video or otherwise). Students could collect and annotate video evidence.</p> <p>3 credits Internal</p>	<p>AS91901 3.2</p> <p>Apply user experience methodologies to develop a design for a digital technologies outcome</p> <p>Students may be able to test their designs using collaboration software (video or otherwise). Students could collect and annotate video evidence.</p> <p>3 credits Internal</p>
Digital Technologies	<p>AS91879 1.3</p> <p>Develop a digital outcome to manage data</p> <p>Where students have access to the appropriate database software, this is suitable for remote learning and assessment.</p> <p>4 credits Internal</p>	<p>AS91892 2.3</p> <p>Use advanced techniques to develop a database</p> <p>Where students have access to the appropriate database software, this is suitable for remote learning and assessment.</p> <p>4 credits Internal</p>	<p>AS91902 3.3</p> <p>Use complex techniques to develop a database.</p> <p>Where students have access to the appropriate database software, this is suitable for remote learning and assessment.</p> <p>4 credits Internal</p>

Domain	Level 1	Level 2	Level 3
Digital Technologies	<p>AS91880 1.4</p> <p>Develop a digital media outcome</p> <p>Where students have access to the appropriate software, this is suitable for remote learning and assessment.</p> <p style="text-align: right;">4 credits Internal</p>	<p>AS91893 2.4</p> <p>Use advanced techniques to develop a digital media outcome</p> <p>Where students have access to the appropriate software, this is suitable for remote learning and assessment.</p> <p style="text-align: right;">4 credits Internal</p>	<p>AS91903 3.4</p> <p>Use complex techniques to develop a digital media outcome</p> <p>Where students have access to the appropriate software, this is suitable for remote learning and assessment.</p> <p style="text-align: right;">4 credits Internal</p>
Digital Technologies	<p>AS91881 1.3</p> <p>Develop an electronics outcome</p> <p>This standard requires students to construct a functional combination of hardware and software.</p> <p>It is suggested that this standard be assessed once students have safe access to suitable materials, equipment and tools.</p> <p style="text-align: right;">6 credits Internal</p>	<p>AS91894 2.3</p> <p>Use advanced techniques to develop an electronics outcome</p> <p>This standard requires students to develop a functional electronics outcome.</p> <p>It is suggested that this standard be assessed once students have safe access to suitable materials, equipment and tools.</p> <p style="text-align: right;">6 credits Internal</p>	<p>AS91904 3.3</p> <p>Use complex techniques to develop an electronics outcome</p> <p>This standard requires students to construct a functional electronics outcome.</p> <p>It is suggested that this standard be assessed once students have safe access to suitable materials, equipment and tools.</p> <p style="text-align: right;">6 credits Internal</p>

Domain	Level 1	Level 2	Level 3
Digital Technologies	<p>AS91882 1.6</p> <p>Develop a computer system</p> <p>This standard requires students to install and configure hardware, software and peripherals.</p> <p>It is suggested that this standard be assessed once students have safe access to suitable materials, equipment and tools.</p> <p>4 credits Internal</p>	<p>AS91895 2.6</p> <p>Use advanced techniques to develop a network</p> <p>The standard requires students to install and configure hardware (including peripherals) and software.</p> <p>It is suggested that this standard be assessed once students have safe access to suitable materials, equipment and tools.</p> <p>4 credits Internal</p>	<p>AS91905 3.6</p> <p>Use complex techniques to develop a network</p> <p>This standard requires students to construct a network physically.</p> <p>It is suggested that this standard be assessed once students have safe access to suitable materials, equipment and tools.</p> <p>4 credits Internal</p>
Digital Technologies	<p>AS91883 1.7</p> <p>Develop a computer program</p> <p>Where students have access to the appropriate software, this is suitable for remote learning and assessment.</p> <p>4 credits Internal</p>	<p>AS91896 2.7</p> <p>Use advanced programming techniques to develop a computer program</p> <p>Where students have access to the appropriate software, this is suitable for remote learning and assessment.</p> <p>6 credits Internal</p>	<p>AS91906 3.7</p> <p>Use complex programming techniques to develop a computer program</p> <p>Where students have access to the appropriate software, this is suitable for remote learning and assessment.</p> <p>6 credits Internal</p>

Domain	Level 1	Level 2	Level 3
Digital Technologies	<p>AS91884 1.8</p> <p>Use basic iterative processes to develop a digital outcome</p> <p>Students may be able to test their outcomes using collaboration software (video or otherwise). Students could collect and annotate video evidence.</p> <p>4 credits Internal</p>	<p>AS91897 2.8</p> <p>Use advanced processes to develop a digital technologies outcome</p> <p>Students may be able to test their outcomes using collaboration software (video or otherwise). Students could collect and annotate video evidence.</p> <p>6 credits Internal</p>	<p>AS91907 3.8</p> <p>Use complex processes to develop a digital technologies outcome</p> <p>Students may be able to test their outcomes using collaboration software (video or otherwise). Students could collect and annotate video evidence.</p> <p>6 credits Internal</p>
Digital Technologies	<p>AS91885 1.9</p> <p>Demonstrate understanding of searching and sorting algorithms</p> <p>Students could collect and annotate video evidence to show that they can carry out an algorithm accurately.</p> <p>3 credits Internal</p>	<p>AS91898 2.9</p> <p>Demonstrate understanding of a computer science concept</p> <p>Teaching and learning towards assessment of this standard is suitable remotely. The current Assessment Specifications will continue to apply.</p> <p>3 credits External</p>	<p>AS91908 3.9</p> <p>Analyse an area of computer science</p> <p>Teaching and learning towards assessment of this standard is suitable remotely. The current Assessment Specifications will continue to apply.</p> <p>3 credits External</p>

Domain	Level 1	Level 2	Level 3
Digital Technologies	<p>AS91886 1.10</p> <p>Demonstrate understanding of human computer interaction</p> <p>Teaching and learning towards assessment of this standard is suitable remotely. The current Assessment Specifications will continue to apply.</p> <p>3 credits External</p>	<p>AS91899 2.10</p> <p>Present a summary of developing a digital outcome</p> <p>Teaching and learning towards assessment of this standard is suitable remotely. The current Assessment Specifications will continue to apply.</p> <p>Depending on the outcome chosen (for example an electronics outcome) the candidates must have produced it within the last 12 months. Schools should encourage students to produce one where the digital component is easily recognized, and the development process can be easily discussed and summarised.</p> <p>3 credits External</p>	<p>AS91909 3.10</p> <p>Present a reflective analysis of developing a digital outcome</p> <p>Teaching and learning towards assessment of this standard is suitable remotely. The current Assessment Specifications will continue to apply.</p> <p>Depending on the outcome chosen (for example an electronics outcome) the candidates must have produced it within the last 12 months. Schools should encourage students to produce one where the digital component is easily recognized, and the development process can be reflectively analysed.</p> <p>3 credits External</p>
Digital Technologies	<p>AS91887 1.11</p> <p>Demonstrate understanding of compression coding for a chosen media type</p> <p>Teaching and learning towards assessment of this standard is suitable remotely. The current Assessment Specifications will continue to apply.</p> <p>3 credits External</p>		<p>AS91632 3.40</p> <p>Demonstrate understanding of complex concepts of information systems in an organisation</p> <p>Teaching and learning towards assessment of this standard is suitable remotely. The current Assessment Specifications will continue to apply.</p> <p>4 credits External</p>

Domain	Level 1	Level 2	Level 3
Digital Technologies			<p>AS91633 3.41 Implement complex procedures to develop a relational database embedded in a specified digital outcome</p> <p>Where students have access to the appropriate software, this is suitable for remote learning and assessment.</p> <p>6 credits Internal</p>
Digital Technologies			<p>AS91634 3.42 Demonstrate understanding of complex concepts of digital media</p> <p>Where students have access to the appropriate software, this is suitable for remote learning and assessment.</p> <p>4 credits Internal</p>

Domain	Level 1	Level 2	Level 3
Digital Technologies			<p>AS91635 3.43 Implement complex procedures to produce a specified digital media outcome</p> <p>Where students have access to the appropriate software, this is suitable for remote learning and assessment.</p> <p>4 credits Internal</p>
Digital Technologies			<p>AS91636 3.44 Green Demonstrate understanding of areas of computer science</p> <p>Teaching and learning towards assessment of this standard is suitable remotely. The current Assessment Specifications will continue to apply.</p> <p>4 credits External</p>

Domain	Level 1	Level 2	Level 3
Digital Technologies			<p>AS91637 3.46 Develop a complex computer program for a specified task</p> <p>Where students have access to the appropriate software, this is suitable for remote learning and assessment.</p> <p>4 credits Internal</p>
Digital Technologies			<p>AS91638 3.47 Demonstrate understanding of complex concepts used in the design and construction of electronic environments.</p> <p>Teaching and learning towards assessment of this standard is suitable remotely. The current Assessment Specifications will continue to apply.</p> <p>Bullet points 3 and 4 in the standard refer to both hardware and software. Practical work would certainly add to the candidate understanding. Suitable online case study material should be available.</p> <p>4 credits External</p>

Domain	Level 1	Level 2	Level 3
Digital Technologies			<p data-bbox="1529 193 2125 331">AS91639 3.48 Implement complex interfacing procedures in a specified electronic environment</p> <p data-bbox="1529 379 2125 443">This standard requires students to construct a functional electronics outcome.</p> <p data-bbox="1529 507 2125 603">It is suggested that this standard be assessed once students have safe access to suitable materials, equipment and tools.</p> <p data-bbox="1529 651 2125 676">4 credits Internal</p>
Digital Technologies			<p data-bbox="1529 699 2125 837">AS91640 3.49 Implement complex techniques in constructing a specified complex electronic and embedded system</p> <p data-bbox="1529 885 2125 949">This standard requires students to construct a functional electronics outcome.</p> <p data-bbox="1529 1013 2125 1109">It is suggested that this standard be assessed once students have safe access to suitable materials, equipment and tools.</p> <p data-bbox="1529 1157 2125 1182">4 credits Internal</p>

Domain	Level 1	Level 2	Level 3
Digital Technologies			<p data-bbox="1529 193 2125 300">AS91641 3.50 Demonstrate understanding of wide area network technologies</p> <p data-bbox="1529 344 2049 451">Where students have access to the appropriate software, this is suitable for remote learning and assessment.</p> <p data-bbox="1529 647 2125 673">4 credits Internal</p>
Digital Technologies			<p data-bbox="1529 695 2125 802">AS91642 3.51 Demonstrate understanding of wide area network technologies</p> <p data-bbox="1529 847 2112 906">This standard requires students to work with a physical network.</p> <p data-bbox="1529 967 2089 1058">It is suggested that this standard be assessed once students have safe access to suitable materials, equipment and tools.</p> <p data-bbox="1529 1110 2125 1136">4 credits Internal</p>