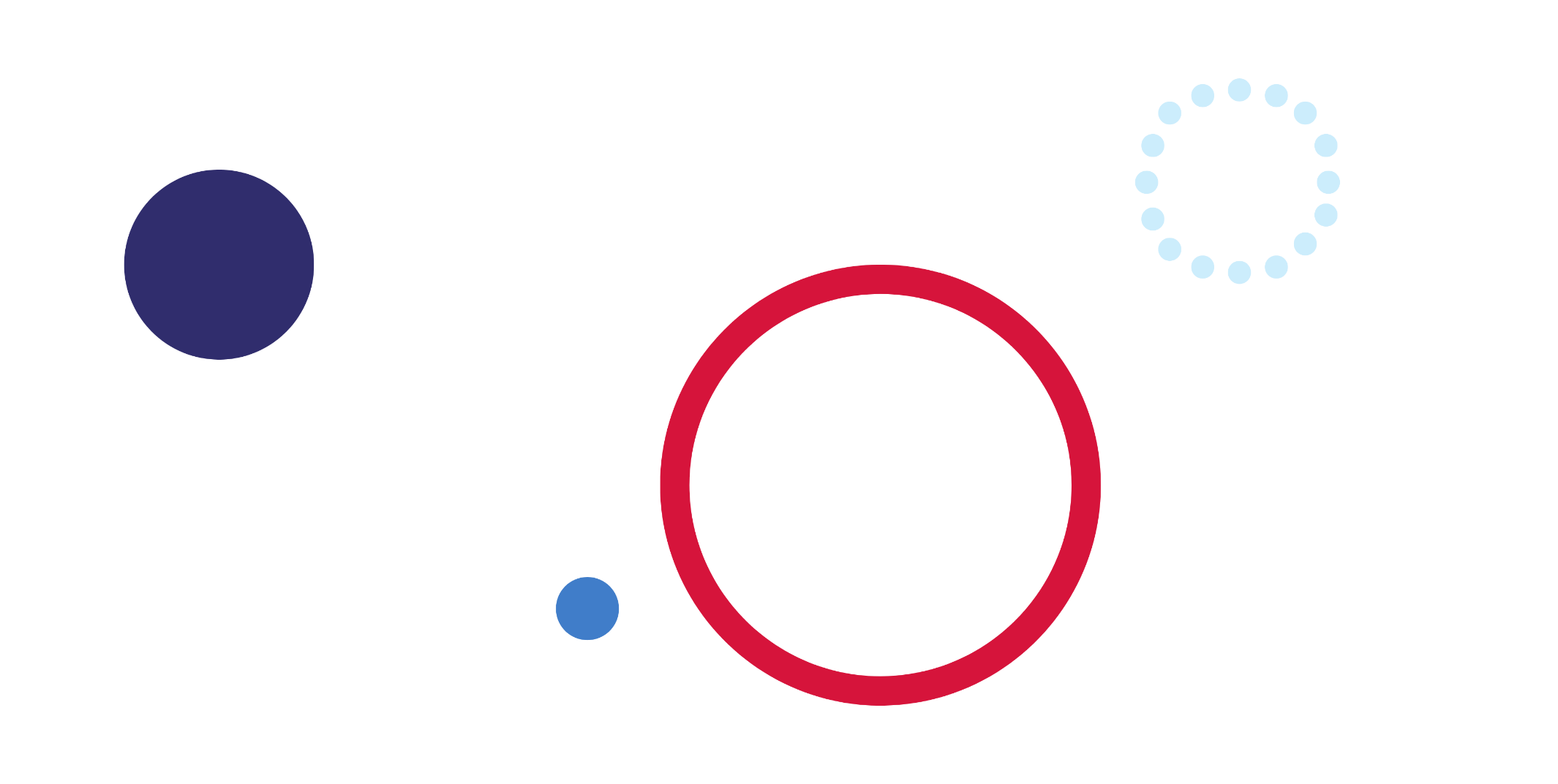
# Stage 5 Computing Technology 7-10 (200 hours): Sample scope and sequence



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## Rationale

All NSW public schools need to plan curriculum and develop teaching programs consistent with the *Education Act 1990* (NSW) and the NSW Education Standards Authority (NESA) syllabuses and credentialing requirements.

Scope and sequences form part of the ongoing documentation or evidence schools maintain to comply with the department’s policy, policy standards, and registration requirements.

Developing a robust scope and sequence has many benefits and may help teachers and schools to:

* promote high expectations for student learning
* identify opportunities for explicit teaching
* create opportunities for students to receive feedback on their learning
* systematically plan for and undertake assessment
* collect and use data to monitor achievements and identify gaps in learning
* differentiate curriculum delivery to meet the needs of students at different levels of achievement
* collaborate with other teachers to plan for quality teaching and learning.

This resource has been developed to assist teachers in NSW Department of Education schools to create learning that is contextualised to their classroom. It can be used as a basis for the teacher’s own program, assessment, or scope and sequence, or be used as an example of how the new curriculum could be implemented. The resource has suggested timeframes that may need to be adjusted by the teacher to meet the needs of their students.

## Stage 5 Computing Technology 7-10 (200 hours): sample scope and sequence

Table – Computing Technology 200-hour scope and sequence

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Duration | Learning overview | Outcomes | Skills | Assessment |
| Semester 1 | **Enterprise Information Systems:**  **Analysing data**  Students develop knowledge of how innovation has affected data collection in the evolution of computing technology.  Students research how data is stored, transmitted and secured in digital systems and how information is communicated in a range of contexts including data visualisation.  Students develop knowledge to acquire, represent, analyse and visualise simple and structured data. | **CT5-DPM-01** – applies iterative processes to define problems and plan, design, develop and evaluate computing  **CT5-EVL-01** – understands how innovation, enterprise and automation have inspired the evolution of computing technology  **CT5-DAT-01** – explains how data is stored, transmitted and secured in digital systems and how information is communicated in a range of contexts  **CT5-COM-01** – communicates ideas, processes and solutions using appropriate media  **CT5-THI-01** – applies computational, design and systems thinking to the development of computing  **CT5-DAT-02** – acquires, represents, analyses and visualises simple and structured data | Students develop skills in designing, planning and creating data for analysing in Enterprise Information Systems software.  Students complete a project that collects, stores, organises, analyses and presents data.  Students use spreadsheets, databases and presentation software to demonstrate the importance of data analysis.  Students apply computational, design and systems thinking to the development of computing solutions. | **Assessment 1**  Researching analysing data careers task  **Assessment 2**  Analysing data project |
| Semester 2 | **Software development:**  **Building mechatronic and automated systems**  Students explore a range of mechatronic and automated systems in the real-world to appreciate their development and complexity.  Students develop knowledge and apply iterative processes to define problems and plan, design, develop and evaluate computing solutions.  Students develop understanding of how innovation, enterprise and automation have inspired the evolution of mechatronic and automated systems. | **CT5-DPM-01** – applies iterative processes to define problems and plan, design, develop and evaluate computing solutions  **CT5-COL-01** – manages, documents and explains individual and collaborative work practices  **CT5-EVL-01** – understands how innovation, enterprise and automation have inspired the evolution of computing technology  **CT5-OPL-01** – designs, produces and evaluates algorithms and implements them in a general-purpose and/or object-oriented programming language  **CT5-THI-01** – applies computational, design and systems thinking to the development of computing solutions | Students work collaboratively to build and program a functioning model project and document its development including testing and evaluation.  Students apply computational, design and systems thinking to the development of computing solutions.  Students design, produce and evaluate algorithms and implement them in a general-purpose and/or object-oriented programming language. | **Assessment 3**  Mechatronic and automated systems research task  **Assessment 4**  Mechatronic and automated systems project - model and documentation |
| Semester 3 | **Software development:**  **Creating games and simulations**  Students select and apply safe, secure and responsible practices in the ethical use of gaming and simulation technology.  Students develop skills in communicating ideas, processes and solutions using appropriate media.  Students develop knowledge and apply iterative processes to define problems and plan, design, develop and evaluate computing solutions.  Students develop understanding of how innovation, enterprise and automation have inspired the evolution of games and simulations. | **CT5-SAF-01** – selects and applies safe, secure and responsible practices in the ethical use of data and computing technology  **CT5-DPM-01** – applies iterative processes to define problems and plan, design, develop and evaluate computing solutions  **CT5-COL-01** – manages, documents and explains individual and collaborative work practices  **CT5-EVL-01** – understands how innovation, enterprise and automation have inspired the evolution of computing technology  **CT5-COM-01** – communicates ideas, processes and solutions using appropriate media  **CT5-OPL-01** – designs, produces and evaluates algorithms and implements them in a general-purpose and/or object-oriented programming language  **CT5-THI-01** – applies computational, design and systems thinking to the development of computing solutions  **CT5-DES-01** – designs and creates user interfaces and the user experience | Students work individually to design and program a game and/or simulation and document its development including testing and evaluation.  Students apply computational, design and systems thinking to the development of computing solutions.  Students design, produce and evaluate algorithms and implement them in a general-purpose and/or object-oriented programming language. | **Assessment 5**  Creating games and simulations research task  **Assessment 6**  Creating games and simulations project and documentation |
| Semester 4 | **Enterprise Information Systems: Designing for user experience**  Students design and create user interfaces and the user experience.  Students develop knowledge of how innovation has affected user experiences in the evolution of computing technology.  Students select and apply safe, secure and responsible practices in the ethical use of data and computing technology.  Students develop knowledge and apply iterative processes to define problems and plan, design, develop and evaluate computing solutions. | **CT5-SAF-01** – selects and applies safe, secure and responsible practices in the ethical use of data and computing technology  **CT5-DPM-01** – applies iterative processes to define problems and plan, design, develop and evaluate computing  **CT5-COL-01** – manages, documents and explains individual and collaborative work practices  **CT5-DAT-01** – explains how data is stored, transmitted and secured in digital systems and how information is communicated in a range of contexts  **CT5-COM-01** – communicates ideas, processes and solutions using appropriate media  **CT5-THI-01** – applies computational, design and systems thinking to the development of computing  **CT5-DAT-02** – acquires, represents, analyses and visualises simple and structured data  **CT5-DES-01** – designs and creates user interfaces and the user experience | Students develop skills in communicating ideas, processes and solutions using Enterprise Information Systems software.  Students complete a project that allows them to design and create user interfaces and the user experience.  Students apply computational, design and systems thinking to the development of computing solutions. | **Assessment 7**  Designing for user experience project planning and documentation task  **Assessment 8**  Designing for user experience project |

Outcomes and other elements of syllabus references in this document are from the [NSW Computing Technology 7-10 Syllabus (2022)](https://curriculum.nsw.edu.au/syllabuses/computing-technology-7-10-2022) © NSW Education Standards Authority (NESA) for and on behalf of the Crown in right of the State of New South Wales, 2022.

## Support and alignment

**Resource evaluation and support:** All curriculum resources are prepared through a rigorous process. Resources are periodically reviewed as part of our ongoing evaluation plan to ensure currency, relevance, and effectiveness. For additional support or advice contact the TAS (Technological and Applied Studies) curriculum team by emailing TAS[@det.nsw.edu.au](mailto:Science7-12@det.nsw.edu.au).

**Alignment to system priorities and/or needs:** [School Excellence Policy](https://education.nsw.gov.au/policy-library/policies/pd-2016-0468), [School Success Model](https://education.nsw.gov.au/public-schools/school-success-model/school-success-model-explained)

**Alignment to the School Excellence Framework:** This resource supports the [School Excellence Framework](https://education.nsw.gov.au/teaching-and-learning/school-excellence-and-accountability/sef-evidence-guide/resources/about-sef) elements of curriculum (curriculum provision, teaching and learning programs) and effective classroom practice (lesson planning).

**Alignment to Australian Professional Teaching Standards:** This resource supports teachers to address [Australian Professional Teaching Standards](https://educationstandards.nsw.edu.au/wps/portal/nesa/teacher-accreditation/meeting-requirements/the-standards/proficient-teacher) 2.2.2, 3.2.2.

**Consulted with:** Curriculum and Reform

**NSW syllabus:** Computing Technology 7-10

**Syllabus outcomes:** CT5-SAF-01, CT5-DPM-01, CT5-COL-01, CT5-EVL-01, CT5-DAT-01, CT5-COM-01, CT5-OPL-01, CT5-THI-01, CT5-DAT-02, CT5-DES-01.

**Author:** TAS Curriculum Secondary Learners

**Publisher:** State of NSW, Department of Education

**Resource:** Scope and sequence

**Related resources:** Further resources to support Stage 5 and Computing Technology can be found on the [TAS curriculum page](https://education.nsw.gov.au/teaching-and-learning/curriculum/tas).

**Professional learning:** Relevant professional learning is available through the TAS statewide staffroom.

**Universal Design for Learning:** [Universal Design for Learning planning tool](https://education.nsw.gov.au/teaching-and-learning/learning-from-home/teaching-at-home/teaching-and-learning-resources/universal-design-for-learning). Support the diverse learning needs of students using inclusive teaching and learning strategies.

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## Evidence base

These sources have been consulted when developing this resource.

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NESA (NSW Education Standards Authority) (2022) ‘[Advice on scope and sequences](https://www.educationstandards.nsw.edu.au/wps/portal/nesa/k-10/understanding-the-curriculum/programming/advice-on-scope-and-sequences)’*, Programming*, NESA website, accessed 3 February 2023.

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Wiliam D (2013) ‘[Assessment: The bridge between teaching and learning](https://www.researchgate.net/publication/258423377_Assessment_The_bridge_between_teaching_and_learning)’, Voices from the Middle, 21(2):15–20, accessed 3 February 2023.

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