

Bachelor of Computer Systems Engineering (Honours)/Bachelor of Computer Science

DATA SCIENCE MAJOR



Commencing in 2017 and 2018 only



Studying at Callaghan



This Program Plan is an enrolment guide to ensure you are on track to graduate. If at any time you wish to vary from this program plan seek prior advice from your [Academic Program Advisor](#) to ensure you remain on track.

Semester 1

Semester 2

Year 1	COMP1010 Computing Fundamentals	MATH1110 Maths for Eng, Science & Tech 1 <i>Replaces option of MATH1110 OR MATH1210</i>	ENGG1003 Introduction to Procedural Programming	SENG1110 Object Orientated Programming	ELEC1310 Introduction to Electrical Engineering	ELEC1710 Digital and Computer Electronics 1	PHYS1220 Advanced Physics 2	MATH1510 Discrete Mathematics	
Year 2	ENGG1500 Introduction to Professional Engineering	MATH1120 Maths for Eng, Science & Tech 2 <i>Replaces option of MATH1120 OR MATH1220</i>	ELEC2320 Electrical and Electronic Circuits	STAT1070 Statistics for the Sciences	SENG1050 Web Technologies	SENG1120 Data Structures	COMP1140 Database and Information Management	COMP2230 Introduction to Algorithmics	ENGG2500 Sustainable Engineering Practice <i>Previously offered in Semester 2</i>
Year 3	STAT2110 Engineering Statistics <i>Previously offered in Semester 2</i>	ELEC2720 Introduction to Embedded Computing	SENG2130 System Analysis and Design	COMP3500 Security Attacks: Analysis and Mitigation Strategies Replaces SENG2050 in 2021	ELEC2430 Circuits and Signals	COMP2240 Operating Systems	SENG2250 Computing Security	SENG2260 Human-Computer Interaction	
Year 4	ENGG3500 Managing Engineering Projects	ELEC3730 Digital and Computer Electronics 2	COMP2270 Theory of Computation	DIRECTED Computer Systems Replaced SENG3400 in 2019	DIRECTED Computer Systems Replaces ELEC3850 in 2021	ELEC3540 Analog and Digital Communications	ELEC3240 Analog Electronics	ELEC3500 Telecommunication Networks	
Year 5	ELEC4840A Final Year Project A	ELEC4720 Programmable Logic Design	COMP3350 Advanced Database	COMP3330 Machine Intelligence	ELEC4840B Final Year Project B (20 units) This course <i>must</i> be taken following ELEC4840A		COMP3340 Data Mining	ENGG4500 Engineering Complexity	

Professional Practice: Industrial Experience 12 weeks

Program Plan Key: = Core = Directed = Major = [Compulsory Program Requirement](#)

Bachelor of Computer Systems Engineering (Honours)/Bachelor of Computer Science

SOFTWARE DEVELOPMENT MAJOR

 Commencing in 2017 and 2018 only

 Studying at Callaghan



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Semester 1

Semester 2

Year 1	COMP1010 Computing Fundamentals	MATH1110 Maths for Eng, Science & Tech 1 <i>Replaces option of MATH1110 OR</i>	ENGG1003 Introduction to Procedural Programming	SENG1110 Object Orientated Programming	ELEC1310 Introduction to Electrical Engineering	ELEC1710 Digital and Computer Electronics 1	PHYS1220 Advanced Physics 2	MATH1510 Discrete Mathematics
Year 2	ENGG1500 Introduction to Professional Engineering	MATH1120 Maths for Eng, Science & Tech 2 <i>Replaces option of MATH1120 OR MATH1220</i>	ELEC2320 Electrical and Electronic Circuits	SENG2130 System Analysis and Design	SENG1050 Web Technologies	SENG1120 Data Structures	COMP1140 Database and Information Management	COMP2230 Introduction to Algorithmics
Year 3	STAT2110 Engineering Statistics <i>Previously offered in Semester 2</i>	ELEC2720 Introduction to Embedded Computing	COMP2270 Theory of Computation	COMP3500 Security Attacks: Analysis and Mitigation Strategies <i>Replaces SENG2050 in 2021</i>	ELEC2430 Circuits and Signals	COMP2240 Operating Systems	SENG2250 Computing Security	ENGG2500 Sustainable Engineering Practice <i>Previously offered in Semester 2</i>
Year 4	ENGG3500 Managing Engineering Projects	ELEC3730 Digital and Computer Electronics 2	SENG2200 Programming Languages and Paradigms	DIRECTED Computer Systems <i>Replaced SENG3400 in 2019</i>	SENG2260 Human-Computer Interaction	DIRECTED Computer Systems <i>Replaces ELEC3850 in 2021</i>	ELEC3540 Analog and Digital Communications	ELEC3240 Analog Electronics
Year 5	ELEC4840A Final Year Project A	ELEC4720 Programmable Logic Design	DIRECTED Software Development <i>Replaced INFT3100</i>	SENG3320 Software Verification and Validation	ELEC4840B Final Year Project B (20 units) <i>This course must be taken following ELEC4840A</i>	ENGG4500 Engineering Complexity	ELEC3500 Telecommunication Networks	

Professional Practice: Industrial Experience 12 weeks

Program Plan Key:  = Core  = Directed  = Major  = [Compulsory Program Requirement](#)

To be eligible to graduate make sure you have completed 400 or 410 units (10 units = 1 course unless otherwise specified) which meet the following criteria:

✓ **Core courses** – 350 units.

- Enrolment in MATH courses is based on your assumed knowledge. To find out which MATH courses you should enrol in please see the [Enrolling in Maths information](#). More information in your Program Handbook.
- *Prior to 2021*, students could choose to complete either MATH1110 and MATH1120, **OR** MATH1210 and MATH1220.
- *After 2021*, the option to do MATH1210 and MATH1220 has been removed from the program. **From 2021 onwards:** 1) if you have not yet completed MATH1210 you must complete MATH1110; and 2) if you haven't completed MATH1220 then you must complete MATH1120.

✓ **Directed courses** – 20 units

- **From 2019**, 10 units of Directed courses will count in place of **SENG3400**. If you have already completed SENG3400, please note this will count as 10 units of Engineering Directed courses. Refer to the transition document in the [Program Handbook](#) for further information.
- **From 2021**, 10 units of Directed courses will count in place of **ELEC3850**. If you have already completed ELEC3850, please note this will count as 10 units of Engineering Directed courses. Refer to the transition document in the [Program Handbook](#) for further information.

✓ **Computer Science Major** courses, either;

- Data Science - 40 units of compulsory courses
- Software Development - 30 units; including 20 units of compulsory courses and 10 units of directed courses.

✓ It is also a requirement that students complete a total of 12 weeks of [industrial experience](#).

✓ The duration of this program is 5 years full time (40 units per semester) or part time equivalent.

✓ The maximum time to complete this program is 12 years.



Some courses have assumed knowledge and/or requisites, please refer to the individual [Course Handbook](#).

The [Program Handbook](#) has valuable information on program structure and requirements, if you are intending on studying part time or varying from this program plan please seek prior advice from your [Academic Program Advisor](#).

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Directed Courses – Computer Systems

Subject to change - Please refer to the program handbook for up to date information.

Choose 10 units from the Computer Systems Directed Course List (replaced SENG3400)	ELEC3400 Signal Processing ELEC4210 Electronics Design ELEC4740 Internet of Things (<i>replaced ELEC4700</i>) SENG2200 Programming Languages and Paradigms COMP3260 Data Security COMP3340 Data Mining COMP3600 Security Standards and Practices in Industry <i>PHYS3360 Advanced Electromagnetism (no longer offered)</i>
If you have not completed ELEC3850 , choose an additional 10 units from this list.	

Directed Courses – Computer Science, Software Development Major

Subject to change - Please refer to the program handbook for up to date information.

Choose 10 units from the Software Development Directed Course List (replaced INFT3100)	INFT2150 Business Analysis COMP3260 Data Security COMP3320 Computer Graphics COMP3350 Advanced Database INFT3950 Games Design INFT3960 Games Production
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