BE (Hons) Software Engineering (AK3751)
Study Plan 2025

This (old structure) Study Plan applies only to students who began the BE Hons programme prior to 2024.

Notes:
- Once you have made your selections, go to My AUT to complete your enrolment.
- S1 = Semester 1, S2 = Semester 2
- Prerequisite courses are shown in brackets after each course. **Please ensure you have completed all necessary prerequisite courses before you enrol for a course.**
- For enrolment queries or issues, please email your Academic Administrator (e: _engineer@aut.ac.nz_).
- **Course level** is the first digit of the numeric part of the alphanumerical code (E.g., ENGE**5**00 is a level **5** course).

YEAR 1 (for students who commenced BE Hons studies prior to 2024)		
ENGE500	Introduction to Sustainable Engineering Design	S1
ENGE501	Engineering Mathematics I	S1
ENME502	Engineering Materials I	S2
ENSE504	Introduction to Computing	_Discontinued_ Enrol in **COMP500 Programming Concepts and Techniques** (S1, S2, SS) instead if repeat is required
ENEL515	Electrical Principles A	_Discontinued_ ▪ If failed ENEL515 or ENEL516, take **ENGE504 Electrical Engineering Fundamentals** (S1 or S2) ▪ If failed both ENEL515 and ENEL516, take ENGE504 (S1) and **ENEL500 Analogue Devices and Systems** (S2)
ENEL516	Electrical Principles B	
ENME510	Mechanical Principles A	_Discontinued_ ▪ If failed ENME510 or ENME511, take **ENGE503 Engineering Mechanics** (S1) ▪ If failed both ENME510 and ENME511, take ENGE503 (S1) and **ENME500 Introduction to Thermofluids and Energy** (S2)
ENME511	Mechanical Principles B	

YEAR 2		
ENSE602	OOP for Engineers (ENGE504 or COMP500)	S1, S2
COMP508	Database System Design	S1, S2
MINOR 1	Minor Elective 1	S1
MINOR 2	Minor Elective 2	S1
ENSE600	Software Construction (ENSE602)	S1, S2
COMP604	Operating Systems (ENSE602/COMP503 or COMP504)	S1, S2
COMP610	Data Structures and Algorithms (ENSE602)	S1, S2
ENGE602	Mathematics for Software Engineering (ENGE501)	_Discontinued_ ▪ If failed ENGE602 and ENGE706 is not yet completed, then take **ENGE601 Eng Math 2** and **ENSE704 Software Engineering Math** instead of ENGE602 and ENGE706.

YEAR 3 *Students must have completed all Year 1 courses*					
ENSE601	Software Team Project (ENSE600)	S1	ENSE701	Contemporary Issues in Software Engineering (COMP603/COMP610/ENSE600)	S2
COMP716	Highly Secure Systems (ENGE501 & COMP610)	S1	ENGE600	Engineering Management I	S2
ENGE706	Mathematics for Software Engineering II (ENGE602)	S1	MINOR 4	Minor Elective 4	S2
MINOR 3	Minor Elective 3	S1	Level 8	Level 8 Elective	S2

YEAR 4 *Students must have completed all Year 1 and Year 2 courses*					
ENSE891	Industrial Project (Software) Part A (ENSE601)	S1 or S2	ENSE892	Industrial Project (Software) Part B	S1 or S2
ENSE803	Formal Specification and Design (ENGE702 or ENGE706)	S1	ENGE701	Engineering Management II (ENGE600)	S2
COMP822	Human Computer Interaction	S1	ENSE810	Embedded Software Engineering	S2
Level 8	Elective	S1	Level 8	Elective	S2
ENGE888	Engineering Work Experience	S1, S2	ENGE888 Will commence at 360 pts, completion of ENGE888 is compulsory to graduate and no credits will be offered for this course		

LEVEL 8 ELECTIVES					
INFS803	Cloud Computing	S1	COMP806	Software Architecture	S2
COMP809	Data Mining and Machine Learning	S1	COMP810	Datawarehousing & Big Data	S2
COMP814	Text Mining	S1	COMP813	Artificial Intelligence	S2
COMP820	Video and Image Processing	S1	COMP826	Mobile System Development	S2
COMP822*	Human-Computer Interaction	S1	ENSE810*	Embedded Software Engineering (ENEL712)	S2
COMP838	Deep Learning	S1	COMP821	Information Security	S2
ENGE808	Advanced Measuring Systems	S1	*core course depending on year of enrolment		
ENSE807	Digital Signal Processing (ENSE601 or ENEL712)	S1			
ENEL809	Digital Control (ENEL702)	S1			

Plus: completion of **ENGE888 Engineering Work Experience** (enrol in either S1 or S2)

- No fees or credits are attached to this course
- Must be completed in order to graduate
- Send the approval form to the Work Experience Coordinator (martin.stommel@aut.ac.nz) for your work to be considered/approved prior to commencement of work
- Complete 800 hours of work
- Submit a 4500-5000 word report through Canvas (email engineer@aut.ac.nz when you are ready to submit the report so you can be enrolled or if you have any questions)

Minor options

Please select one minor pathway from the list below. Please be aware that the combination of minor courses must be from the same minor pathway. You will not be able to enrol yourself online, please email engineer@aut.ac.nz to request enrolment in your minor course(s).

Software Development Minor
S1: COMP718, COMP719(none), COMP721(COMP603 or ENSE600)
S2: COMP611(COMP610)

Data Science Minor
S1: COMP615(COMP517), COMP616(MATH503 or ENGE501), COMP701(COMP500 or ENSE504), COMP717((COMP500 or ENSE504) and (60pts at level 6))
S2: COMP517(none), STAT603(ENGE501), COMP723(none)

Networks and Cybersecurity Minor
S1: COMP504(none), COMP609(COMP504), ENEL611(COMP504), COMP718(none)
S2: COMP504(none), COMP607(~~COMP501~~ waived), COMP714(COMP609), COMP715(ENEL611), COMP729(COMP504)

Digital Services Minor
S1: COMP718(none), COMP728(none), INFS502(none), INFS603(none), INFS604(none), INFS704(none)
S2: INFS502(none), COMP607(~~COMP501~~ waived), COMP728(none), INFS603(none), INFS604(none), INFS605(none)

Artificial Intelligence Minor
S1: COMP615*****(COMP517), COMP701(COMP500) COMP717*****((COMP500 or ENSE504) and (60pts at level 6))
S2: COMP517*(none), COMP700(none)

***** If both COMP615 and COMP717 are unavailable, COMP616 can be taken as approved alternative to avoid delays in the study plan.

Computer Science Minor
S1: COMP717((COMP500 or ENSE504) and (60pts at level 6))
S2: COMP611(COMP610), COMP612(ENGE501) and (COMP603 or ENSE600 or COMP610), COMP700(none), COMP711(COMP610 or COMP613 or ENGE706), COMP712(COMP603 or ENSE600),
** Approved alternative: COMP504(S1+S2, none), COMP701(S1, COMP500 or ENSE504)

* Prerequisite course that would be counted as a minor elective
** Alternative course approved by academic advisor

Definitions/colour highlighting:
Minor = List of courses under a common theme, highlighted in green below
Minor elective = course from a minor list, highlighted in blue below
Purple = Permission by academic advisor
(Black) = Prerequisite course

Rules:
- Each student needs to select exactly one minor. No mixing of minors: All four minor electives must be from the same minor.
- The four minor electives must include at least one level 7 course and at most one level 5 course.
- Core courses from the major do not count as minor elective and are left out from this list.

Long course titles

Artificial Intelligence Minor:
- COMP517 Data Analysis
- COMP615 Foundations of Data Science
- COMP700 Text and Vision Intelligence
- COMP701 Nature Inspired Computing
- COMP717 Artificial Intelligence

Computer Science Minor:
- COMP606 Foundations of Information Science
- COMP611 Algorithm Design and Analysis
- COMP612 Computer Graphics Programming
- COMP700 Text and Vision Intelligence
- COMP711 Theory of Computation
- COMP712 Programming Languages
- COMP713 Distributed and Mobile Systems
- COMP717 Artificial Intelligence

Data Science Minor:
- COMP517 Data Analysis
- COMP615 Foundations of Data Science
- COMP616 Statistics for Data Science (co-taught with STAT604)
- COMP701 Nature Inspired Computing
- COMP717 Artificial Intelligence
- STAT603 Forecasting
- COMP723 Data Mining and Knowledge Engineering

Digital Services:
- COMP607 Information Security Technologies
- COMP718 Information Security Management
- COMP728 Internet of Things and Applications
- INFS502 Digital Services in Information Technology
- INFS603 Needs Analysis, Acquisition and Training
- INFS604 Service Modelling
- INFS605 Microservices
- INFS704 Service Innovation and Design

Networks and Cybersecurity:
- COMP504 Networks and Internet
- COMP609 Network and System Administration
- COMP607 Information Security Technologies
- COMP611 Algorithm Design and Analysis
- COMP714 Advanced Network Technologies
- COMP715 Network Security
- COMP718 Information Security Management
- COMP729 Enterprise Networks
- ENEL611 Computer Network Applications

Software Development:
- COMP611 Algorithm Design and Analysis
- COMP713 Distributed and Mobile Systems
- COMP721 Web Development
- COMP719 Applied Human Computer Interaction