

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. Please refer to the new (refreshed) Study Plan if you are a student who started 2024 onwards.

Notes:

- Once you have made your selections, go to MyAUT to complete your enrolment.
- S1 = Semester 1, S2 = Semester 2, SS = Summer School
- Pre-requisite papers are shown in brackets after each paper. **Please ensure you have completed all necessary pre-requisite courses before you enroll 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 alphanumeric code (E.g., ENGE500 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	<i>Discontinued</i> Enrol in COMP500 Programming Concepts and Techniques (S1, S2, SS) instead if repeat is required
ENEL515	Electrical Principles A	<i>Discontinued</i> ▪ 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	<i>Discontinued</i> ▪ 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)	<i>Discontinued</i> ▪ 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 papers

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 papers

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

LEVEL 8 ELECTIVES

INFS803 (FULL)	Cloud Computing (FULL)	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
COMP821	Information Security	S1	ENSE810*	Embedded Software Engineering (ENEL712)	S2
COMP822*	Human-Computer Interaction	S1			
COMP838	Deep Learning				
ENGE808	Advanced Measuring Systems	S1	*core paper depending on year of enrolment		
ENEL809	Digital Control (ENEL702)	S1			
ENSE807	Digital Signal Processing (ENSE601 or ENEL712)	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 paper(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_(COMP504 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_(COMP504 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 papers under a common theme, highlighted in green below

Minor elective = paper from a minor list, highlighted in blue below

Purple = Permission by academic advisor

(Black) = Prerequisite paper

Rules:

- Each student needs to select exactly one minor. No mixing of minors: All four minor electives must be from the same minor pathway
- The four minor electives must include at least one level 7 paper and at most one level 5 paper
- Core papers 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