NUS Innovation & Design Programme
College of Design and Engineering

Bachelor of Computing (Artificial Intelligence) with Minor in Innovation & Design

Cohort AY2025/2026

Course Requirements	Units
Common Curriculum	
CS1101S Programming Methodology [1]	4
ES2660 Communicating in the Information Age [1]	4
GE: Data Literacy	4
GE: Communities and Engagement [2]	4
GE: Cultures and Connections [2]	4
GE: Singapore Studies [2]	4
IS1108 Digital and AI Ethics	4
Interdisciplinary Courses [3]	8
Elective 1 for Minor [3] (double-counted as Cross-disciplinary Course)	4
Sub-total for Common Curriculum	**40**
Programme Requirements	
CS1231S Discrete Structures	4
CS2030S Programming Methodology II	4
CS2040S Data Structures and Algorithms	4
CS2100 Computer Organisation	4
CS2101 Effective Communication for Computing Professionals	4
CS2109S Introduction to AI and Machine Learning	4
CS2251 Optimization and Regression	4
CS3230 Design and Analysis of Algorithms	4
CS3263 Foundations of Artificial Intelligence	4
CS3264 Foundations of Machine Learning	4
CS3268 Responsible AI: from Algorithms to Impact	4
CS4243 Computer Vision and Pattern Recognition or CS4248 Natural Language Processing	4
MA1521 Calculus for Computing	4
MA1522 Linear Algebra for Computing	4
ST2334 Probability and Statistics	4
Artificial Intelligence Breadth and Depth courses [4]	20
Sub-total for Programme Requirements	**80**
Unrestricted Electives	
CDE3301 Ideas to Proof-of-Concept (over 2 consecutive semesters) [3]	12
Elective 2 for Minor [3]	4
Other unrestricted electives	24
Sub-total for Unrestricted Electives	**40**
Total	**160**

(updated 12 July 2025)

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Notes:

[1] Digital Literacy and Critique and Expression pillars are satisfied by CS1101S and ES2660, respectively.

[2] Students may read equivalent courses in NUS College (NUSC), University Town College Programme (UTCP), and Ridge View Residential Programme (RVRC).

[3] Students in this Second Major are highly recommended to read DTK1234 Design Thinking or EG1311 Design and Make as an Interdisciplinary Course if they are planning to read CDE2300 Product Design and Innovation or CDE2310 Fundamentals of Systems Design, respectively. DTK1234 should be read before CDE2300 and EG1311 before CDE2310.

Students should clear at least one elective course prior to CDE3301.

[4] Students are required to satisfy at least 6 units of Industrial Experience Requirement. Those with GPA of 4.00 or higher may opt to replace Industry Experience Requirement with CP4101 B.Comp. Dissertation.

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Recommended semester schedule

(for students who opt for vacation internship and may want to upgrade to a Second Major)

Semester 1	Units	Semester 2	Units
MA1521 Calculus for Computing	4	MA1522 Linear Algebra for Computing	4
CS1101S Programming Methodology	4	CS2030S Programming Methodology II	4
CS1231S Discrete Structures	4	CS2040S Data Structures and Algorithms	4
IS1108 Digital and AI Ethics	4	CS2100 Computer Organisation	4
Interdisciplinary Course 1 *	4	Elective 1 for Minor	4
Sub-total	**20**	**Sub-total**	**20**

Semester 3	Units	Semester 4	Units
CS2101 Effective Communication for Computing Professionals	4	CS3263 Foundations of Artificial Intelligence	4
CS2109S Introduction to AI and Machine Learning	4	CS3264 Foundations of Machine Learning	4
ST2334 Probability and Statistics	4	ES2660 Communicating in the Information Age	4
GE	4	GE	4
Elective 2 for Minor	4	CDE3301 Ideas to Proof-of-Concept	6
Sub-total	**20**	**Sub-total**	**22**

Summer vacation between Semesters 4 and 5	Units
CP3200 Internship	6
Sub-total	**6**

Semester 5	Units	Semester 6 – can be used for SEP	Units
CDE3301 Ideas to Proof-of-Concept	6	CS4243 Computer Vision and Pattern Recognition or CS4248 Natural Language Processing	4
CS2251 Optimization and Regression	4	Interdisciplinary Course 2	4
CS3230 Design and Analysis of Algorithms	4	UE	4
GE	4	UE	4
GE	4	UE	4
Sub-total	**22**	**Sub-total**	**20**

Semester 7	Units	Semester 8	Units
CS3268 Responsible AI: from Algorithms to Impact	4	AI Breadth / Depth course 3	4
AI Breadth / Depth course 1	4	AI Breadth / Depth course 4	2
AI Breadth / Depth course 2	4	UE	4
UE	4	UE	4
Sub-total	**16**	**Sub-total**	**14**

* Students are highly recommended to read DTK1234 Design Thinking or EG1311 Design and Make as an Interdisciplinary Course if they are planning to read CDE2300 Product Design and Innovation or CDE2310 Fundamentals of Systems Design as Elective 1 for the Second Major (which can be double-counted as Cross-disciplinary Course).

(updated 12 July 2025)

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Recommended semester schedule

(for students who opt for full-semester internship and may want to upgrade to a Second Major)

Semester 1	Units	Semester 2	Units
MA1521 Calculus for Computing	4	MA1522 Linear Algebra for Computing	4
CS1101S Programming Methodology	4	CS2030S Programming Methodology II	4
CS1231S Discrete Structures	4	CS2040S Data Structures and Algorithms	4
IS1108 Digital and AI Ethics	4	CS2100 Computer Organisation	4
Interdisciplinary Course 1 *	4	Elective 1 for Minor	4
Sub-total	**20**	**Sub-total**	**20**

Semester 3	Units	Semester 4	Units
CS2101 Effective Communication for Computing Professionals	4	CS3263 Foundations of Artificial Intelligence	4
CS2109S Introduction to AI and Machine Learning	4	CS3264 Foundations of Machine Learning	4
ST2334 Probability and Statistics	4	ES2660 Communicating in the Information Age	4
GE	4	GE	4
Elective 2 for Minor	4	CDE3301 Ideas to Proof-of-Concept	6
Sub-total	**20**	**Sub-total**	**22**

Semester 5	Units	Semester 6	Units
CDE3301 Ideas to Proof-of-Concept	6	CP3880 Advanced Technology Attachment Programme ^	12
CS2251 Optimization and Regression	4		
CS3230 Design and Analysis of Algorithms	4		
GE	4		
GE	4		
Sub-total	**22**	**Sub-total**	**12**

Semester 7	Units	Semester 8	Units
CS3268 Responsible AI: from Algorithms to Impact	4	AI Breadth / Depth course 1	4
CS4243 Computer Vision and Pattern Recognition or CS4248 Natural Language Processing	4	AI Breadth / Depth course 2	4
Interdisciplinary Course 2	4	UE	4
UE	4	UE	4
UE	4	UE	4
UE	4		
Sub-total	**24**	**Sub-total**	**20**

* Students are highly recommended to read DTK1234 Design Thinking or EG1311 Design and Make as an Interdisciplinary Course if they are planning to read CDE2300 Product Design and Innovation or CDE2310 Fundamentals of Systems Design as Elective 1 for the Second Major (which can be double-counted as Cross-disciplinary Course).

^ Students with GPA of 4.00 or higher after completing 112 units may opt to replace CP3880 with CP4101 in their final year.

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Semester 1	Units	Semester 2	Units
MA1521 Calculus for Computing	4	MA1522 Linear Algebra for Computing	4
CS1101S Programming Methodology	4	CS2030S Programming Methodology II	4
CS1231S Discrete Structures	4	CS2040S Data Structures and Algorithms	4
IS1108 Digital and AI Ethics	4	CS2100 Computer Organisation	4
GE	4	GE	4
Sub-total	**20**	**Sub-total**	**20**

Semester 3	Units	Semester 4	Units
CS2101 Effective Communication for Computing Professionals	4	CS3263 Foundations of Artificial Intelligence	4
CS2109S Introduction to AI and Machine Learning	4	CS3264 Foundations of Machine Learning	4
ST2334 Probability and Statistics	4	ES2660 Communicating in the Information Age	4
GE	4	GE	4
Interdisciplinary Course 1 *	4	Elective 1 for Minor	4
Sub-total	**20**	**Sub-total**	**20**

Summer vacation between Semesters 4 and 5	Units
CP3200 Internship	6
Sub-total	**6**

Semester 5 – can be used for SEP	Units	Semester 6	Units
Elective 2 for Minor	4	CDE3301 Ideas to Proof-of-Concept	6
CS2251 Optimization and Regression	4	CS4243 Computer Vision and Pattern Recognition or CS4248 Natural Language Processing	4
CS3230 Design and Analysis of Algorithms	4	UE	4
Interdisciplinary Course 2	4	UE	4
UE	4		
Sub-total	**20**	**Sub-total**	**18**

Semester 7	Units	Semester 8	Units
CDE3301 Ideas to Proof-of-Concept	6	AI Breadth / Depth course 3	4
CS3268 Responsible AI: from Algorithms to Impact	4	AI Breadth / Depth course 4	2
AI Breadth / Depth course 1	4	UE	4
AI Breadth / Depth course 2	4	UE	4
		UE	4
Sub-total	**18**	**Sub-total**	**18**

* Students are highly recommended to read DTK1234 Design Thinking or EG1311 Design and Make as an Interdisciplinary Course if they are planning to read CDE2300 Product Design and Innovation or CDE2310 Fundamentals of Systems Design as Elective 1 for the Second Major (which can be double-counted as Cross-disciplinary Course).

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CS1231S Discrete Structures	4	CS2040S Data Structures and Algorithms	4
IS1108 Digital and AI Ethics	4	CS2100 Computer Organisation	4
GE	4	GE	4
Sub-total	**20**	**Sub-total**	**20**

Semester 3	Units	Semester 4	Units
CS2101 Effective Communication for Computing Professionals	4	CS3263 Foundations of Artificial Intelligence	4
CS2109S Introduction to AI and Machine Learning	4	CS3264 Foundations of Machine Learning	4
ST2334 Probability and Statistics	4	ES2660 Communicating in the Information Age	4
GE	4	GE	4
Interdisciplinary Course 1 *	4	Elective 1 for Minor	4
		Elective 2 for Minor	4
Sub-total	**20**	**Sub-total**	**24**

Semester 5	Units	Semester 6	Units
CP3880 Advanced Technology Attachment Programme ^	12	CDE3301 Ideas to Proof-of-Concept	6
		CS4243 Computer Vision and Pattern Recognition or CS4248 Natural Language Processing	4
		Interdisciplinary Course 2	4
		UE	4
		UE	4
Sub-total	**12**	**Sub-total**	**22**

Semester 7	Units	Semester 8	Units
CDE3301 Ideas to Proof-of-Concept	6	AI Breadth / Depth course 1	4
CS2251 Optimization and Regression	4	AI Breadth / Depth course 2	4
CS3230 Design and Analysis of Algorithms	4	UE	4
CS3268 Responsible AI: from Algorithms to Impact	4	UE	4
UE	4	UE	4
Sub-total	**22**	**Sub-total**	**20**

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