

**Bachelor of Computing (Computer Science)
with Minor in Innovation & Design**

Cohort AY2023/2024

Course Requirements	Units
Common Curriculum	
CS1101S Programming Methodology ¹	4
ES2660 Communicating in the Information Age ¹	4
GE: Data Literacy ²	4
GE: Communities and Engagement ²	4
GE: Cultures and Connections ²	4
GE: Singapore Studies ²	4
IS1108 Digital Ethics and Data Privacy	4
Interdisciplinary Courses ³	8
Group A course 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	4
CS2103T Software Engineering ⁴	4
CS2106 Introduction to Operating Systems	4
CS2109S Introduction to AI and Machine Learning	4
CS3230 Design and Analysis of Algorithms	4
MA1521 Calculus for Computing	4
MA1522 Linear Algebra for Computing	4
ST2334 Probability and Statistics	4
Computer Science Breadth and Depth courses ⁵	32
Sub-total for Programme Requirements	80
Unrestricted Electives	
Group B course for Minor	4
CDE3301/EG3301R Ideas to Proof-of-Concept (over 2 consecutive semesters)	12
Other unrestricted electives	24
Sub-total for Unrestricted Electives	40
Total	160

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 Minor are highly recommended to read DTK1234 Design Thinking or EG1311 Design and Make as an Interdisciplinary Course before taking the Group A course.
- ⁴ Students taking CS2103T must take CS2101 in the same semester.
- ⁵ 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.

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 Ethics and Data Privacy	4	CS2100 Computer Organisation	4
Interdisciplinary Course 1 ^	4	Group A/B course for Minor	4
Sub-total	20	Sub-total	20

Semester 3	Units	Semester 4	Units
CS2101 Effective Communication for Computing Professionals	4	CS2109S Introduction to AI and Machine Learning	4
CS2103T Software Engineering	4	CS3230 Design and Analysis of Algorithms	4
CS2106 Introduction to Operating Systems	4	ES2660 Communicating in the Information Age	4
ST2334 Probability and Statistics	4	GE	4
Group A/B course for Minor	4	CDE3301/EG3301R 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/EG3301R Ideas to Proof-of-Concept	6	CS Breadth / Depth course 1	4
Interdisciplinary Course 2	4	CS Breadth / Depth course 2	4
GE *	4	CS Breadth / Depth course 3	4
GE *	4	UE	4
GE *	4	UE	4
Sub-total	22	Sub-total	20

Semester 7	Units	Semester 8	Units
CS Breadth / Depth course 4	4	CS Breadth / Depth course 7	2
CS Breadth / Depth course 5	4	UE	4
CS Breadth / Depth course 6	4	UE	4
UE	4	UE	4
Sub-total	16	Sub-total	14

^ Students in this Minor are highly recommended to read DTK1234 Design Thinking or EG1311 Design and Make as an Interdisciplinary Course before taking the Group A course.

* Students in UTCP and RVRC will need to overload in Semesters 2 to 4 in order to clear these courses earlier.

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 Ethics and Data Privacy	4	CS2100 Computer Organisation	4
Interdisciplinary Course 1 [^]	4	Group A/B course for Minor	4
Sub-total	20	Sub-total	20

Semester 3	Units	Semester 4	Units
CS2101 Effective Communication for Computing Professionals	4	CS2109S Introduction to AI and Machine Learning	4
CS2103T Software Engineering	4	CS3230 Design and Analysis of Algorithms	4
CS2106 Introduction to Operating Systems	4	ES2660 Communicating in the Information Age	4
ST2334 Probability and Statistics	4	GE	4
Group A/B course for Minor	4	CDE3301/EG3301R Ideas to Proof-of-Concept	6
Sub-total	20	Sub-total	22

Semester 5	Units	Semester 6	Units
CDE3301/EG3301R Ideas to Proof-of-Concept	6	CP3880 Advanced Technology Attachment Programme	12
Interdisciplinary Course 2	4		
GE *	4		
GE *	4		
GE *	4		
Sub-total	22	Sub-total	12

Semester 7	Units	Semester 8	Units
CS Breadth / Depth course 1	4	CS Breadth / Depth course 4	4
CS Breadth / Depth course 2	4	CS Breadth / Depth course 5	4
CS Breadth / Depth course 3	4	UE	4
UE	4	UE	4
UE	4	UE	4
UE	4		
Sub-total	24	Sub-total	20

[^] Students in this Minor are highly recommended to read DTK1234 Design Thinking or EG1311 Design and Make as an Interdisciplinary Course before taking the Group A course.

* Students in UTCP and RVRC will need to overload in Semesters 2 to 4 in order to clear these courses earlier.

Recommended semester schedule

(for students who opt for vacation internship and not planning 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 Ethics and Data Privacy	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	CS2109S Introduction to AI and Machine Learning	4
CS2103T Software Engineering	4	CS3230 Design and Analysis of Algorithms	4
CS2106 Introduction to Operating Systems	4	ES2660 Communicating in the Information Age	4
ST2334 Probability and Statistics	4	GE	4
Interdisciplinary Course 1 ^	4	Group A/B course 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	Units	Semester 6	Units
Group A/B course for Minor	4	CDE3301/EG3301R Ideas to Proof-of-Concept	6
Interdisciplinary Course 2	4	CS Breadth / Depth course 3	4
CS Breadth / Depth course 1	4	CS Breadth / Depth course 4	4
CS Breadth / Depth course 2	4	UE	4
GE	4	UE	4
Sub-total	20	Sub-total	22

Semester 7	Units	Semester 8	Units
CDE3301/EG3301R Ideas to Proof-of-Concept	6	CS Breadth / Depth course 7	2
CS Breadth / Depth course 5	4	UE	4
CS Breadth / Depth course 6	4	UE	4
UE	4	UE	4
Sub-total	18	Sub-total	14

^ Students in this Minor are highly recommended to read DTK1234 Design Thinking or EG1311 Design and Make as an Interdisciplinary Course before taking the Group A course.

Recommended semester schedule

(for students who opt for full-semester internship and not planning 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 Ethics and Data Privacy	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	CS2109S Introduction to AI and Machine Learning	4
CS2103T Software Engineering	4	CS3230 Design and Analysis of Algorithms	4
CS2106 Introduction to Operating Systems	4	ES2660 Communicating in the Information Age	4
ST2334 Probability and Statistics	4	GE	4
Interdisciplinary Course 1 [^]	4	Group A course for Minor	4
		Group B course for Minor	4
Sub-total	20	Sub-total	24

Semester 5	Units	Semester 6	Units
CP3880 Advanced Technology Attachment Programme	12	CDE3301/EG3301R Ideas to Proof-of-Concept	6
		CS Breadth / Depth course 1	4
		CS Breadth / Depth course 2	4
		Interdisciplinary Course 2	4
		GE	4
Sub-total	12	Sub-total	22

Semester 7	Units	Semester 8	Units
CDE3301/EG3301R Ideas to Proof-of-Concept	6	CS Breadth / Depth course 5	4
CS Breadth / Depth course 3	4	UE	4
CS Breadth / Depth course 4	4	UE	4
UE	4	UE	4
UE	4	UE	4
Sub-total	22	Sub-total	20

[^] Students in this Minor are highly recommended to read DTK1234 Design Thinking or EG1311 Design and Make as an Interdisciplinary Course before taking the Group A course.