

**Bachelor of Computing (Information Security)  
with Second Major in Innovation & Design**

**Cohort AY2022/2023**

<b>Modular Requirements</b>	<b>Modular Credits (MCs)</b>
<b>Common Curriculum</b>	
CS1010 Programming Methodology <sup>1</sup>	4
GE: Critique and Expression <sup>2</sup>	4
GE: Communities and Engagement <sup>2</sup>	4
GE: Cultures and Connections <sup>2</sup>	4
GE: Data Literacy <sup>2</sup>	4
GE: Singapore Studies <sup>2</sup>	4
IS1108 Digital Ethics and Data Privacy	4
Interdisciplinary Modules <sup>3</sup>	8
Group A module for Second Major <sup>3</sup> (double-counted as Cross-disciplinary Module)	4
<b>Sub-total for Common Curriculum</b>	<b>40</b>
<b>Programme Requirements</b>	
CS1231S Discrete Structures	4
CS2040C Data Structures and Algorithms	4
CS2100 Computer Organisation	4
CS2101 Effective Communication for Computing Professionals <sup>4</sup>	4
CS2105 Introduction to Computer Networks	4
CS2106 Introduction to Operating Systems	4
CS2107 Introduction to Information Security	4
CS2113T Software Engineering & Object-Oriented Programming <sup>4</sup>	4
CS3235 Computer Security	4
IS4231 Information Security Management	4
MA1521 Calculus for Computing	4
MA2001 Linear Algebra I	4
ST2334 Probability and Statistics	4
IFS4205 Information Security Capstone Project or CS4238 Computer Security Practice and IFS4103 Penetration Testing Practice	8
Programme electives	12
Computing modules <sup>5</sup>	12
<b>Sub-total for Programme Requirements</b>	<b>84</b>
<b>Unrestricted Electives</b>	
Group B module for Second Major	4
Group C modules for Second Major (Innovation & Enterprise electives)	8
EG3301R DCP Project (over 2 consecutive semesters)	12
EG4301 DCP Dissertation or EG4301A Ideas to Start-up (over 2 consecutive semesters)	12
<b>Sub-total for Unrestricted Electives</b>	<b>36</b>
<b>Total</b>	<b>168</b>

**Innovation & Design Programme**  
**NUS College of Design and Engineering**

Notes:

- <sup>1</sup> Digital Literacy is satisfied by CS1010.
- <sup>2</sup> Students may read equivalent modules in USP/NUSC, UTCP, and RVRC.
- <sup>3</sup> Students in this Second Major are highly recommended to read DTK1234 Design Thinking or EG1311 Design and Make as an Interdisciplinary Module before taking the Group A module.
- <sup>4</sup> Students taking CS2113T must take CS2101 in the same semester.
- <sup>5</sup> Students are required to satisfy at least 6 MCs of Industrial Experience Requirement. Those with CAP 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)

Semester 1	MCs	Semester 2	MCs
MA1521 Calculus for Computing	4	MA2001 Linear Algebra I	4
CS1010 Programming Methodology	4	ST2334 Probability and Statistics	4
CS1231S Discrete Structures	4	CS2040C Data Structures and Algorithms	4
IS1108 Digital Ethics and Data Privacy	4	CS2100 Computer Organisation	4
Interdisciplinary Module 1 ^	4	Group A module for Second Major	4
<b>Sub-total</b>	<b>20</b>	<b>Sub-total</b>	<b>20</b>

Semester 3	MCs	Semester 4	MCs
CS2105 Introduction to Computer Networks	4	CS2101 Effective Communication for Computing Professionals	4
CS2106 Introduction to Operating Systems	4	CS2113T Software Engineering & Object-Oriented Programming	4
CS2107 Introduction to Information Security	4	CS3235 Computer Security	4
GE	4	GE	4
Group B module for Second Major	4	EG3301R DCP Project	6
<b>Sub-total</b>	<b>20</b>	<b>Sub-total</b>	<b>22</b>

Summer vacation between Semesters 4 and 5	MCs
CP3200 Internship	6
<b>Sub-total</b>	<b>6</b>

Semester 5	MCs	Semester 6 – can be used for SEP	MCs
EG3301R DCP Project	6	Innovation & Enterprise Elective 1	4
IFS4205 Information Security Capstone Project	8	Innovation & Enterprise Elective 2	4
GE *	4	Computing module	4
GE *	4	Interdisciplinary Module 2	4
		GE *	4
<b>Sub-total</b>	<b>22</b>	<b>Sub-total</b>	<b>20</b>

Semester 7	MCs	Semester 8	MCs
EG4301 DCP Dissertation or EG4301A Ideas to Start-up	6	EG4301 DCP Dissertation or EG4301A Ideas to Start-up	6
IS4231 Information Security Management	4	Programme elective 2	4
Computing module	2	Programme elective 3	4
Programme elective 1	4		
<b>Sub-total</b>	<b>16</b>	<b>Sub-total</b>	<b>14</b>

^ Students in this Second Major are highly recommended to read DTK1234 Design Thinking or EG1311 Design and Make as an Interdisciplinary Module before taking the Group A module.

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

**Recommended semester schedule**

(for students who opt for full-semester internship)

Semester 1	MCs	Semester 2	MCs
MA1521 Calculus for Computing	4	MA2001 Linear Algebra I	4
CS1010 Programming Methodology	4	ST2334 Probability and Statistics	4
CS1231S Discrete Structures	4	CS2040C Data Structures and Algorithms	4
IS1108 Digital Ethics and Data Privacy	4	CS2100 Computer Organisation	4
Interdisciplinary Module 1 ^	4	Group A module for Second Major	4
<b>Sub-total</b>	<b>20</b>	<b>Sub-total</b>	<b>20</b>

Semester 3	MCs	Semester 4	MCs
CS2105 Introduction to Computer Networks	4	CS2101 Effective Communication for Computing Professionals	4
CS2106 Introduction to Operating Systems	4	CS2113T Software Engineering & Object-Oriented Programming	4
CS2107 Introduction to Information Security	4	CS3235 Computer Security	4
GE	4	GE	4
Group B module for Second Major	4	EG3301R DCP Project	6
<b>Sub-total</b>	<b>20</b>	<b>Sub-total</b>	<b>22</b>

Semester 5	MCs	Semester 6	MCs
EG3301R DCP Project	6	CP3880 Advanced Technology Attachment Programme	12
IFS4205 Information Security Capstone Project	8		
GE *	4		
GE *	4		
<b>Sub-total</b>	<b>22</b>	<b>Sub-total</b>	<b>12</b>

Semester 7	MCs	Semester 8	MCs
EG4301 DCP Dissertation or EG4301A Ideas to Start-up	6	EG4301 DCP Dissertation or EG4301A Ideas to Start-up	6
Innovation & Enterprise Elective 1	4	Innovation & Enterprise Elective 2	4
IS4231 Information Security Management	4	Interdisciplinary Module 2	4
Programme elective 1	4	Programme elective 2	4
GE *	4	Programme elective 3	4
<b>Sub-total</b>	<b>22</b>	<b>Sub-total</b>	<b>22</b>

^ Students in this Second Major are highly recommended to read DTK1234 Design Thinking or EG1311 Design and Make as an Interdisciplinary Module before taking the Group A module.

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

### Recommended semester schedule

(for students in year-long NOC programmes)

Semester 1	MCs	Semester 2	MCs
MA1521 Calculus for Computing	4	MA2001 Linear Algebra I	4
CS1010 Programming Methodology	4	ST2334 Probability and Statistics	4
CS1231S Discrete Structures	4	CS2040C Data Structures and Algorithms	4
IS1108 Digital Ethics and Data Privacy	4	CS2100 Computer Organisation	4
Interdisciplinary Module 1 ^	4	Group A module for Second Major	4
<b>Sub-total</b>	<b>20</b>	<b>Sub-total</b>	<b>20</b>

Semester 3	MCs	Semester 4	MCs
CS2105 Introduction to Computer Networks	4	CS2101 Effective Communication for Computing Professionals	4
CS2106 Introduction to Operating Systems	4	CS2113T Software Engineering & Object-Oriented Programming	4
CS2107 Introduction to Information Security	4	CS3235 Computer Security	4
GE	4	GE	4
GE	4	EG3301R DCP Project	6
Group B module for Second Major	4		
<b>Sub-total</b>	<b>24</b>	<b>Sub-total</b>	<b>22</b>

Semester 5	MCs	Semester 6 – NOC	MCs
EG3301R DCP Project	6	NOC	
IFS4205 Information Security Capstone Project	8		
IS4231 Information Security Management	4		
GE *	4		
<b>Sub-total</b>	<b>22</b>	<b>Sub-total</b>	<b>20</b>

Semester 7 – NOC	MCs	Semester 8	MCs
NOC		Interdisciplinary Module 2	4
		Programme elective 1	4
		Programme elective 2	4
		Programme elective 3	4
		GE *	4
<b>Sub-total</b>	<b>20</b>	<b>Sub-total</b>	<b>20</b>

^ Students in this Second Major are highly recommended to read DTK1234 Design Thinking or EG1311 Design and Make as an Interdisciplinary Module before taking the Group A module.

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

A year-long NOC programme comprises the following modules:

- TR3201N Entrepreneurship Practicum (8 MCs) – replaces EG4301A (4 MCs out of 12 MCs) and UE (4 MCs)
- TR3202N Start-up Internship Programme (12 MCs) – fulfils Industrial Experience Requirement (12 MCs)
- TR3203N Start-up Case Study and Analysis (8 MCs) – replaces EG4301A (8 MCs out of 12 MCs)
- Entrepreneurship courses (up to 12 MCs) – replaces Innovation & Enterprise electives (up to 8 MCs) while the rest are counted as UE

**Recommended semester schedule**  
(for students in one-semester NOC programmes)

Semester 1	MCs	Semester 2	MCs
MA1521 Calculus for Computing	4	MA2001 Linear Algebra I	4
CS1010 Programming Methodology	4	ST2334 Probability and Statistics	4
CS1231S Discrete Structures	4	CS2040C Data Structures and Algorithms	4
IS1108 Digital Ethics and Data Privacy	4	CS2100 Computer Organisation	4
Interdisciplinary Module 1 ^	4	Group A module for Second Major	4
<b>Sub-total</b>	<b>20</b>	<b>Sub-total</b>	<b>20</b>

Semester 3	MCs	Semester 4	MCs
CS2105 Introduction to Computer Networks	4	CS2101 Effective Communication for Computing Professionals	4
CS2106 Introduction to Operating Systems	4	CS2113T Software Engineering & Object-Oriented Programming	4
CS2107 Introduction to Information Security	4	CS3235 Computer Security	4
GE	4	GE	4
Group B module for Second Major	4	EG3301R DCP Project	6
<b>Sub-total</b>	<b>20</b>	<b>Sub-total</b>	<b>22</b>

Semester 5	MCs	Semester 6 – NOC	MCs
EG3301R DCP Project	6	NOC	
IFS4205 Information Security Capstone Project	8		
GE *	4		
GE *	4		
<b>Sub-total</b>	<b>22</b>	<b>Sub-total</b>	<b>20</b>

Semester 7	MCs	Semester 8	MCs
EG4301 DCP Dissertation or EG4301A Ideas to Start-up	6	EG4301 DCP Dissertation or EG4301A Ideas to Start-up	6
IS4231 Information Security Management	4	Interdisciplinary Module 2	4
Programme elective 1	4	Programme elective 2	4
GE *	4	Programme elective 3	4
<b>Sub-total</b>	<b>18</b>	<b>Sub-total</b>	<b>18</b>

^ Students in this Second Major are highly recommended to read DTK1234 Design Thinking or EG1311 Design and Make as an Interdisciplinary Module before taking the Group A module.

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

A one-semester NOC programme comprises the following modules:

- TR3202S Start-up Internship Programme (12 MCs) – fulfils Industrial Experience Requirement (12 MCs)
- TR3204 Entrepreneurship Practicum (4 MCs) – replaces Innovation & Enterprise Elective 1
- Entrepreneurship course (4 MCs) – replaces Innovation & Enterprise Elective 2