

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

Cohort AY2021/2022

Modular Requirements	Modular Credits (MCs)
University Level Requirements ¹	
GE1: Data Literacy	4
GE2: Communities and Engagement ²	4
GE3: Cultures and Connections ²	4
GE4: Singapore Studies ²	4
GE5: Critique and Expression ²	4
Sub-total for University Level Requirements	20
Programme Requirements	
CS1010 Programming Methodology ¹	4
CS1231S Discrete Structures	4
CS2040C Data Structures and Algorithms	4
CS2100 Computer Organisation	4
CS2101 Effective Communication for Computing Professionals ³	4
CS2102 Database Systems	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 ³	4
CS3235 Computer Security	4
IS1103 Ethics in Computing	4
IS3103 Information Systems Leadership and Communication	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 breadth modules	8
Industrial Experience Requirement ⁴	12
Sub-total for Programme Requirements	108
Unrestricted Electives	
Group A module for Second Major	4
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 ⁴ (over 2 consecutive semesters)	12
Sub-total for Unrestricted Electives	40
Total	168

Notes:

- ¹ Digital Literacy is satisfied by CS1010.
- ² Students may read equivalent modules in USP/NUSC, UTCP, and RVRC.
- ³ Students taking CS2113T must take CS2101 in the same semester.

(updated 16 June 2022)

Innovation & Design Programme
NUS College of Design and Engineering

- ⁴ Subject to approval from SoC, students may read EG4301/EG4301A in lieu of CP4101 BComp Dissertation (or vice-versa) which can be used to fulfil the Industrial Experience Requirement for students with CAP of 4.00 or higher.

Recommended semester schedule

(for students who opt for vacation internships)

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
IS1103 Ethics in Computing	4	CS2100 Computer Organisation	4
GE1	4	GE2	4
Sub-total	20	Sub-total	20

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
Group A module for Second Major	4	GE3	4
Group B module for Second Major	4	EG3301R DCP Project	6
Sub-total	20	Sub-total	22

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

Semester 5	MCs	Semester 6 – can be used for SEP	MCs
EG3301R DCP Project	6	Innovation & Enterprise Elective 1	4
CS2102 Database Systems	4	Innovation & Enterprise Elective 2	4
IS3103 Information Systems Leadership and Communication	4	Computing breadth 1	4
IFS4205 Information Security Capstone Project	8	GE4 *	4
		GE5 *	4
Sub-total	22	Sub-total	20

Summer vacation between Semesters 6 and 7	MCs
CP3202 Internship II	6
Sub-total	6

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 breadth 2	4	Programme elective 3	4
Programme elective 1	4		
Sub-total	18	Sub-total	14

* 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 industrial attachment)

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
IS1103 Ethics in Computing	4	CS2100 Computer Organisation	4
GE1	4	GE2	4
Sub-total	20	Sub-total	20

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
Group A module for Second Major	4	EG3301R DCP Project	6
Group B module for Second Major	4	GE4	4
GE3	4	GE5	4
Sub-total	24	Sub-total	26

Semester 5	MCs	Semester 6	MCs
EG3301R DCP Project	6	CP3880 Advanced Technology Attachment Programme	12
CS2102 Database Systems	4		
IS3103 Information Systems Leadership and Communication	4		
IFS4205 Information Security Capstone Project	8		
Sub-total	22	Sub-total	12

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	Programme elective 1	4
Computing breadth 1	4	Programme elective 2	4
Computing breadth 2	4	Programme elective 3	4
Sub-total	22	Sub-total	22

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
IS1103 Ethics in Computing	4	CS2100 Computer Organisation	4
GE1	4	GE2	4
Sub-total	20	Sub-total	20

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
Group A module for Second Major	4	EG3301R DCP Project	6
Group B module for Second Major	4	GE4	4
GE3	4	GE5	4
Sub-total	24	Sub-total	26

Semester 5	MCs	Semester 6 – NOC	MCs
EG3301R DCP Project	6	NOC	
CS2102 Database Systems	4		
IS3103 Information Systems Leadership and Communication	4		
IFS4205 Information Security Capstone Project	8		
IS4231 Information Security Management	4		
Sub-total	26	Sub-total	20

Semester 7 – NOC	MCs	Semester 8	MCs
NOC		Computing breadth 1	4
		Programme elective 1	4
		Programme elective 2	4
		Programme elective 3	4
Sub-total	20	Sub-total	16

A year-long NOC programme comprises the following modules:

- TR3201N Entrepreneurship Practicum (8 MCs) – replaces EG4301A (4 MCs out of 12 MCs) and one Computing breadth module (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
IS1103 Ethics in Computing	4	CS2100 Computer Organisation	4
GE1	4	GE2	4
Sub-total	20	Sub-total	20

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
Group A module for Second Major	4	EG3301R DCP Project	6
Group B module for Second Major	4	GE4	4
GE3	4	GE5	4
Sub-total	24	Sub-total	26

Semester 5	MCs	Semester 6 – NOC	MCs
EG3301R DCP Project	6	NOC	
CS2102 Database Systems	4		
IS3103 Information Systems Leadership and Communication	4		
IFS4205 Information Security Capstone Project	8		
Sub-total	22	Sub-total	20

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 1	4
Computing breadth 1	4	Programme elective 2	4
Computing breadth 2	4	Programme elective 3	4
Sub-total	18	Sub-total	18

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