

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

**Cohort AY2021/2022**

<b>Modular Requirements</b>	<b>Modular Credits (MCs)</b>
<b>University Level Requirements <sup>1</sup></b>	
GE1: Data Literacy	4
GE2: Communities and Engagement <sup>2</sup>	4
GE3: Cultures and Connections <sup>2</sup>	4
GE4: Singapore Studies <sup>2</sup>	4
<b>Sub-total for University Level Requirements</b>	<b>16</b>
<b>Programme Requirements</b>	
CS1101S Programming Methodology <sup>1</sup>	4
CS1231S Discrete Structures	4
CS2030S Programming Methodology II	4
CS2040S Data Structures and Algorithms	4
CS2100 Computer Organisation	4
CS2103T Software Engineering <sup>3</sup>	4
CS2106 Introduction to Operating Systems	4
CS2109S Introduction to AI and Machine Learning	4
CS3230 Design and Analysis of Algorithms	4
IS1103 Ethics in Computing	4
CS2101 Effective Communication for Computing Professionals <sup>3</sup>	4
ES2660 Communicating in the Information Age <sup>1</sup>	4
MA1521 Calculus for Computing	4
MA2001 Linear Algebra I	4
ST2334 Probability and Statistics	4
One Science module <sup>4</sup>	4
Industrial Experience Requirement <sup>5</sup>	12
Computer Science Breadth and Depth modules	28
<b>Sub-total for Programme Requirements</b>	<b>104</b>
<b>Unrestricted Electives</b>	
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 <sup>5</sup> (over 2 consecutive semesters)	12
<b>Sub-total for Unrestricted Electives</b>	<b>40</b>
<b>Total</b>	<b>160</b>

Notes:

- <sup>1</sup> Digital Literacy and Critique and Expression pillars are satisfied by CS1101S and ES2660, respectively.
- <sup>2</sup> Students may read equivalent modules in USP/NUSC, UTCP, and RVRC.
- <sup>3</sup> Students taking CS2103T must take CS2101 in the same semester.
- <sup>4</sup> Refer to latest list provided by School of Computing.
- <sup>5</sup> Subject to approval from SoC, students may read EG4301/EG4301A in lieu of CP4101 BComp Dissertation 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
CS1101S Programming Methodology	4	CS2030S Programming Methodology II	4
CS1231S Discrete Structures	4	CS2040S Data Structures and Algorithms	4
IS1103 Ethics in Computing	4	CS2100 Computer Organisation	4
GE1	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
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	One Science module	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
GE2 *	4	Innovation & Enterprise Elective 2	4
GE3 *	4	CS Breadth / Depth module 1	4
GE4 *	4	CS Breadth / Depth module 2	4
		CS Breadth / Depth module 3	4
<b>Sub-total</b>	<b>18</b>	<b>Sub-total</b>	<b>20</b>

Summer vacation between Semesters 6 and 7	MCs
CP3202 Internship II	6
<b>Sub-total</b>	<b>6</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
CS Breadth / Depth module 4	4	CS Breadth / Depth module 6	4
CS Breadth / Depth module 5	4	CS Breadth / Depth module 7	4
<b>Sub-total</b>	<b>14</b>	<b>Sub-total</b>	<b>14</b>

\* 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
CS1101S Programming Methodology	4	CS2030S Programming Methodology II	4
CS1231S Discrete Structures	4	CS2040S Data Structures and Algorithms	4
IS1103 Ethics in Computing	4	CS2100 Computer Organisation	4
GE1	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
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	One Science module	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
GE2 *	4		
GE3 *	4		
GE4 *	4		
CS Breadth / Depth module 1	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
CS Breadth / Depth module 2	4	CS Breadth / Depth module 5	4
CS Breadth / Depth module 3	4	CS Breadth / Depth module 6	4
CS Breadth / Depth module 4	4	CS Breadth / Depth module 7	4
<b>Sub-total</b>	<b>22</b>	<b>Sub-total</b>	<b>22</b>

\* 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
CS1101S Programming Methodology	4	CS2030S Programming Methodology II	4
CS1231S Discrete Structures	4	CS2040S Data Structures and Algorithms	4
IS1103 Ethics in Computing	4	CS2100 Computer Organisation	4
GE1	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
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	One Science module	4
GE2	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	
GE3 *	4		
GE4 *	4		
CS Breadth / Depth module 1	4		
CS Breadth / Depth module 2	4		
<b>Sub-total</b>	<b>22</b>	<b>Sub-total</b>	<b>20</b>

Semester 7 – NOC	MCs	Semester 8	MCs
NOC		CS Breadth / Depth module 3	4
		CS Breadth / Depth module 4	4
		CS Breadth / Depth module 5	4
		CS Breadth / Depth module 6	4
		CS Breadth / Depth module 7	4
<b>Sub-total</b>	<b>20</b>	<b>Sub-total</b>	<b>20</b>

\* 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
CS1101S Programming Methodology	4	CS2030S Programming Methodology II	4
CS1231S Discrete Structures	4	CS2040S Data Structures and Algorithms	4
IS1103 Ethics in Computing	4	CS2100 Computer Organisation	4
GE1	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
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	One Science module	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	
GE2 *	4		
GE3 *	4		
GE4 *	4		
CS Breadth / Depth module 1	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
CS Breadth / Depth module 2	4	CS Breadth / Depth module 5	4
CS Breadth / Depth module 3	4	CS Breadth / Depth module 6	4
CS Breadth / Depth module 4	4	CS Breadth / Depth module 7	4
<b>Sub-total</b>	<b>18</b>	<b>Sub-total</b>	<b>18</b>

\* 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