NUS Innovation & Design Programme
College of Design and Engineering

Bachelor of Computing (Business Artificial Intelligence Systems) with Second Major in Innovation & Design

Cohort AY2025/2026

Course Requirements	Units
Common Curriculum	
BT1101 Introduction to Business Analytics [1]	4
CS1010A Programming Methodology [1]	4
GE: Critique and Expression [2]	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 Second Major (from List I) [3] (double-counted as Cross-disciplinary Course)	4
Sub-total for Common Curriculum	**40**
Programme Requirements	
BT2102 Database Management and Visualisation	4
CS2030 Programming Methodology II	4
CS2040 Data Structures and Algorithms	4
IS2101 Business and Technical Communication	4
IS2108 Full-stack Software Engineering for AI Solutions I	4
IS2109 AI and Machine Learning Techniques I	4
IS3103 Information Systems Leadership and Communication	4
IS4108 AI Solutioning Capstone Project	8
MA1521 Calculus for Computing	4
MA1522 Linear Algebra for Computing	4
ST2334 Probability and Statistics	4
Programme electives	20
IS4010 Industry Internship Programme or CP3880 Advanced Technology Attachment Programme or CP4101 B.Comp. Dissertation	12
Sub-total for Programme Requirements	**80**
Unrestricted Electives	
CDE3301 Ideas to Proof-of-Concept (over 2 consecutive semesters) [3]	12
CDE4301 Innovation & Design Capstone or CDE4301A Ideas to Start-up (over 2 consecutive semesters)	12
Other electives for Second Major [3]	12
Other unrestricted electives	4
Sub-total for Unrestricted Electives	**40**
Total	**160**

(updated 12 July 2025)

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Notes:

[1] Data Literacy and Digital Literacy pillars are satisfied by BT1101 and CS1010A, 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 from List I prior to CDE3301.

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Recommended semester schedule

Semester 1	Units	Semester 2	Units
CS1010A Programming Methodology	4	BT1101 Introduction to Business Analytics	4
IS1108 Digital and AI Ethics	4	CS2030 Programming Methodology II	4
MA1521 Calculus for Computing	4	IS2101 Business and Technical Communication	4
GE	4	MA1522 Linear Algebra for Computing	4
Interdisciplinary Course 1 *	4	Elective 1 for Second Major (from List I)	4
Sub-total	**20**	**Sub-total**	**20**

Semester 3	Units	Semester 4	Units
BT2102 Database Management and Visualisation	4	IS3103 Information Systems Leadership and Communication	4
CS2040 Data Structures and Algorithms	4	IS2109 AI and Machine Learning Techniques I	4
IS2108 Full-stack Software Engineering for AI Solutions I	4	GE	4
ST2334 Probability and Statistics	4	GE	4
Elective 2 for Second Major (from List I)	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	IS4010 Industry Internship Programme or CP3880 Advanced Technology Attachment Programme ^	12
Interdisciplinary Course 2	4		
Programme Elective 1	4		
Programme Elective 2	4		
GE	4		
Sub-total	**22**	**Sub-total**	**12**

Semester 7	Units	Semester 8	Units
CDE4301 Innovation & Design Capstone or CDE4301A Ideas to Start-up	6	CDE4301 Innovation & Design Capstone or CDE4301A Ideas to Start-up	6
Elective 3 for Second Major	4	Elective 4 for Second Major	4
IS4108 AI Solutioning Capstone Project	8	Programme Elective 4	4
Programme Elective 3	4	Programme Elective 5	4
		UE	4
Sub-total	**22**	**Sub-total**	**22**

* 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 IS4010/CP3880 with CP4101 in their final year.

(updated 12 July 2025)

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Recommended semester schedule

(for students in year-long NOC programmes)

Semester 1	Units	Semester 2	Units
CS1010A Programming Methodology	4	BT1101 Introduction to Business Analytics	4
IS1108 Digital and AI Ethics	4	CS2030 Programming Methodology II	4
MA1521 Calculus for Computing	4	IS2101 Business and Technical Communication	4
GE	4	MA1522 Linear Algebra for Computing	4
Interdisciplinary Course 1 *	4	Elective 1 for Second Major (from List I)	4
Sub-total	**20**	**Sub-total**	**20**

Semester 3	Units	Semester 4	Units
BT2102 Database Management and Visualisation	4	IS3103 Information Systems Leadership and Communication	4
CS2040 Data Structures and Algorithms	4	IS2109 AI and Machine Learning Techniques I	4
IS2108 Full-stack Software Engineering for AI Solutions I	4	GE	4
ST2334 Probability and Statistics	4	GE	4
Elective 2 for Second Major (from List I)	4	CDE3301 Ideas to Proof-of-Concept	6
Sub-total	**20**	**Sub-total**	**22**

Semester 5	Units	Semester 6 – NOC	Units
CDE3301 Ideas to Proof-of-Concept	6	NOC	
Interdisciplinary Course 2	4		
Programme Elective 1	4		
Programme Elective 2	4		
GE	4		
Sub-total	**22**	**Sub-total**	**20**

Semester 7 – NOC	Units	Semester 8	Units
NOC		IS4108 AI Solutioning Capstone Project	8
		Programme Elective 3	4
		Programme Elective 4	4
Sub-total	**20**	**Sub-total**	**16**

* 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).

A year-long NOC programme comprises the following courses (up to 40 units):

- ETP3206L Innovation & Enterprise Internship (12 units) – fulfils Industrial Experience Requirement (12 units) and UE (4 units)
- ETP3202L Innovation & Enterprise Case Study & Analysis (8 units) – replaces CDE4301A (8 units out of 12 units)
- ETP3203L Innovation & Enterprise Internship Practicum (8 units) – replaces CDE4301A (4 units out of 12 units) and one Level 3000 Programme Elective (4 units)
- Entrepreneurship courses (up to 8 units) – replaces Electives 3 and 4 for Second Major (students will need to complete Electives 3 and/or 4 for Second Major in NUS if they are unable to complete 8 units of entrepreneurship courses during NOC)

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Recommended semester schedule

(for students in one-semester NOC programmes)

Semester 1	Units	Semester 2	Units
CS1010A Programming Methodology	4	BT1101 Introduction to Business Analytics	4
IS1108 Digital and AI Ethics	4	CS2030 Programming Methodology II	4
MA1521 Calculus for Computing	4	IS2101 Business and Technical Communication	4
GE	4	MA1522 Linear Algebra for Computing	4
Interdisciplinary Course 1 *	4	Elective 1 for Second Major (from List I)	4
Sub-total	**20**	**Sub-total**	**20**

Semester 3	Units	Semester 4	Units
BT2102 Database Management and Visualisation	4	IS3103 Information Systems Leadership and Communication	4
CS2040 Data Structures and Algorithms	4	IS2109 AI and Machine Learning Techniques I	4
IS2108 Full-stack Software Engineering for AI Solutions I	4	GE	4
ST2334 Probability and Statistics	4	GE	4
Elective 2 for Second Major (from List I)	4	CDE3301 Ideas to Proof-of-Concept	6
Sub-total	**20**	**Sub-total**	**22**

Semester 5	Units	Semester 6 – NOC	Units
CDE3301 Ideas to Proof-of-Concept	6	NOC	
Interdisciplinary Course 2	4		
Programme Elective 1	4		
Programme Elective 2	4		
GE	4		
Sub-total	**22**	**Sub-total**	**20**

Semester 7	Units	Semester 8	Units
CDE4301 Innovation & Design Capstone or CDE4301A Ideas to Start-up	6	CDE4301 Innovation & Design Capstone or CDE4301A Ideas to Start-up	6
IS4108 AI Solutioning Capstone Project	8	Programme Elective 4	4
Programme Elective 3	4	Programme Elective 5	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).

A one-semester NOC programme comprises the following courses (up to 20 units):

- ETP3201S Innovation & Enterprise Internship (12 units) – fulfils Industrial Experience Requirement (12 units)
- ETP3204S Innovation & Enterprise Internship Practicum (Short) (4 units) – replaces Elective 3 for Second Major (4 units)
- Entrepreneurship course (4 units) – replaces Elective 4 for Second Major (4 units)

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