NUS Innovation & Design Programme
College of Design and Engineering

Bachelor of Engineering (Civil Engineering) with Second Major in Innovation & Design

Cohort AY2025/2026

Course Requirements	Units
Common Curriculum	
GEA1000 Quantitative Reasoning with Data [1]	4
CS1010E Programming Methodology (or other variants) [2]	4
CDE2501 Sustainable Systems for Liveable Cities [2]	4
ES2631 Critique and Communication of Thinking and Design [2]	4
GE: Cultures and Connections [2]	4
GE: Communities and Engagement [2]	4
DTK1234 Design Thinking	4
EE2211 Introduction to Machine Learning or EE2213 Introduction to Artificial Intelligence	4
EG1311 Design and Make or EG1311BE Design and Make	4
PF1101A Project Management and Finance	4
Sub-total for Common Curriculum	**40**
Engineering Core	
MA1511 Engineering Calculus	2
MA1513 Linear Algebra with Differential Equations	2
CE2407A Uncertainty Analysis for Engineers	2
CE2407B Introduction to Numerical Methods for Engineers	2
EG2401A Engineering Professionalism	2
EG3611A Industrial Attachment or CFG2101 NUS Vacation Internship Programme [3] and EG3612 Vacation Industrial Attachment	10
Sub-total for Engineering Core	**20**
Engineering Programme Requirements	
CE1109 Structural Engineering Principles	4
CE2112 Soil Mechanics	4
CE2155 Principles of Structural Mechanics and Materials	4
CE2134 Fluid Mechanics	4
CE3115 Stability of Slopes and Earth Retention Systems	4
CE3116 Foundation Systems for Urban Infrastructure	4
CE3121 Urban Transportation Engineering	4
CE3132 Hydrology and Free Surface Flows	4
CE3155A Structural Behaviour	2
CE3155B Structural Modelling	2
CE3165 Concrete Design for Urban Infrastructure	4
CE3166 Steel Design for Urban Infrastructure	4
CE4103 Design Project	4
CE4002 Carbon Management in the Built Environment or ESE4408 Environmental Impact Assessment	4
CDE4301 Innovation & Design Capstone or CDE4301A Ideas to Start-up (over 2 consecutive semesters) [4]	8
Sub-total for Engineering Programme Requirements	**60**

(updated 27 June 2026)

Unrestricted Electives	
CDE3301 Ideas to Proof-of-Concept (over 2 consecutive semesters) [5]	12
CDE4301 Innovation & Design Capstone or CDE4301A Ideas to Start-up (over 2 consecutive semesters) [4]	4
Electives for Second Major [5]	16
Other unrestricted electives	8
Sub-total for Unrestricted Electives	**40**
Total	**160**

Notes:

[1] Students may read other approved courses for Data Literacy in lieu of GEA1000.

[2] Students may read equivalent courses in NUS College (NUSC), University Town College Programme (UTCP), and Ridge View Residential Programme (RVRC). CDE2501 fulfils GE: Singapore Studies while ES2631 fulfils GE: Critique and Expression.

[3] May be replaced by CDE2605 Undergraduate Research Opportunities Programme or CDE2605R Undergraduate Research Experience (UREx).

[4] The 12 units for CDE4301/CDE4301A are counted towards 8 units for Integrated Project while 4 units are counted as unrestricted elective.

[5] Students should clear at least one elective course from List I prior to CDE3301. Students in competition teams may enrol in CDE3301C Complex Systems Design: From Mission to Prototype in Semester 3 to Semester 4 (Year 2) or Semester 5 to Semester 6 (Year 3).

NUS Innovation & Design Programme
College of Design and Engineering

Sample study plan – JC-intake students or equivalent

(for students who opt for vacation internships)

Semester 1	Units	Semester 2	Units
CE1109 Structural Engineering Principles	4	CE2155 Principles of Structural Mechanics and Materials	4
GEA1000 Quantitative Reasoning with Data	4	CS1010E Programming Methodology	4
DTK1234 Design Thinking	4	EG1311 Design and Make or EG1311BE Design and Make	4
MA1513 Linear Algebra with Differential Equations	2	MA1511 Engineering Calculus	2
CE2407A Uncertainty Analysis for Engineers	2	CE2407B Introduction to Numerical Methods for Engineers	2
PF1101A Project Management and Finance	4	Elective 1 for Second Major (from List I)	4
Sub-total	**20**	**Sub-total**	**20**

Semester 3	Units	Semester 4	Units
CE2112 Soil Mechanics	4	CE3115 Stability of Slopes and Earth Retention Systems	4
CE2134 Fluid Mechanics	4	CE3132 Hydrology and Free Surface Flows	4
CE3155A Structural Behaviour	2	CE3166 Steel Design for Urban Infrastructure	4
CE3155B Structural Modelling	2	ES2631 Critique and Communication of Thinking and Design	4
CDE2501 Sustainable Systems for Liveable Cities	4	CDE3301 Ideas to Proof-of-Concept	6
Elective 2 for Second Major (from List I)	4		
Sub-total	**20**	**Sub-total**	**22**

Summer vacation between Semesters 4 and 5	Units
CFG2101 NUS Vacation Internship Programme	4
Sub-total	**4**

Semester 5	Units	Semester 6 – can be used for SEP	Units
CE3121 Urban Transportation Engineering	4	CE3116 Foundation Systems for Urban Infrastructure	4
CE3165 Concrete Design for Urban Infrastructure	4	CE4002 Carbon Management in the Built Environment or ESE4408 Environmental Impact Assessment	4
EE2211 Introduction to Machine Learning or EE2213 Introduction to Artificial Intelligence	4	GE	4
EG2401A Engineering Professionalism	2	GE	4
CDE3301 Ideas to Proof-of-Concept	6	UE	4
Sub-total	**20**	**Sub-total**	**20**

Summer vacation between Semesters 6 and 7	Units
EG3612 Vacation Internship Attachment	6
Sub-total	**6**

(updated 27 June 2026)

NUS Innovation & Design Programme
College of Design and Engineering

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
CE4103 Design Project	4	UE	4
Sub-total	**14**	**Sub-total**	**14**

(updated 27 June 2026)

NUS Innovation & Design Programme
College of Design and Engineering

Sample study plan – JC-intake students or equivalent
(for students who opt for vacation internships plus a specialisation)

Semester 1	Units	Semester 2	Units
CE1109 Structural Engineering Principles	4	CE2155 Principles of Structural Mechanics and Materials	4
GEA1000 Quantitative Reasoning with Data	4	CS1010E Programming Methodology	4
DTK1234 Design Thinking	4	EG1311 Design and Make or EG1311BE Design and Make	4
MA1513 Linear Algebra with Differential Equations	2	MA1511 Engineering Calculus	2
CE2407A Uncertainty Analysis for Engineers	2	CE2407B Introduction to Numerical Methods for Engineers	2
PF1101A Project Management and Finance	4	Elective 1 for Second Major (from List I)	4
Sub-total	**20**	**Sub-total**	**20**

Semester 3	Units	Semester 4	Units
CE2112 Soil Mechanics	4	CE3115 Stability of Slopes and Earth Retention Systems	4
CE2134 Fluid Mechanics	4	CE3132 Hydrology and Free Surface Flows	4
CE3155A Structural Behaviour	2	CE3166 Steel Design for Urban Infrastructure	4
CE3155B Structural Modelling	2	ES2631 Critique and Communication of Thinking and Design	4
CDE2501 Sustainable Systems for Liveable Cities	4	CDE3301 Ideas to Proof-of-Concept	6
Elective 2 for Second Major (from List I)	4		
Sub-total	**20**	**Sub-total**	**22**

Summer vacation between Semesters 4 and 5	Units
CFG2101 NUS Vacation Internship Programme	4
Sub-total	**4**

Semester 5	Units	Semester 6 – can be used for SEP	Units
CE3121 Urban Transportation Engineering	4	CE3116 Foundation Systems for Urban Infrastructure	4
CE3165 Concrete Design for Urban Infrastructure	4	CE4002 Carbon Management in the Built Environment or ESE4408 Environmental Impact Assessment	4
EE2211 Introduction to Machine Learning or EE2213 Introduction to Artificial Intelligence	4	GE	4
EG2401A Engineering Professionalism	2	GE	4
CDE3301 Ideas to Proof-of-Concept	6	Specialisation course 1	4
Sub-total	**20**	**Sub-total**	**20**

Summer vacation between Semesters 6 and 7	Units
EG3612 Vacation Internship Attachment	6
Sub-total	**6**

(updated 27 June 2026)

NUS Innovation & Design Programme
College of Design and Engineering

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
CE4103 Design Project	4	Specialisation course 4	4
Specialisation course 2	4	Specialisation course 5	4
Specialisation course 3	4		
Sub-total	**22**	**Sub-total**	**18**

(updated 27 June 2026)

NUS Innovation & Design Programme
College of Design and Engineering

Sample study plan – JC-intake students or equivalent

(for students who opt for industrial attachment)

Semester 1	Units	Semester 2	Units
CE1109 Structural Engineering Principles	4	CE2155 Principles of Structural Mechanics and Materials	4
GEA1000 Quantitative Reasoning with Data	4	CS1010E Programming Methodology	4
DTK1234 Design Thinking	4	EG1311 Design and Make or EG1311BE Design and Make	4
MA1513 Linear Algebra with Differential Equations	2	MA1511 Engineering Calculus	2
CE2407A Uncertainty Analysis for Engineers	2	CE2407B Introduction to Numerical Methods for Engineers	2
PF1101A Project Management and Finance	4	Elective 1 for Second Major (from List I)	4
Sub-total	**20**	**Sub-total**	**20**

Semester 3	Units	Semester 4	Units
CE2112 Soil Mechanics	4	CE3115 Stability of Slopes and Earth Retention Systems	4
CE2134 Fluid Mechanics	4	CE3132 Hydrology and Free Surface Flows	4
CE3155A Structural Behaviour	2	CE3166 Steel Design for Urban Infrastructure	4
CE3155B Structural Modelling	2	ES2631 Critique and Communication of Thinking and Design	4
CDE2501 Sustainable Systems for Liveable Cities	4	CDE3301 Ideas to Proof-of-Concept	6
Elective 2 for Second Major (from List I)	4		
Sub-total	**20**	**Sub-total**	**22**

Semester 5	Units	Semester 6	Units
CE3121 Urban Transportation Engineering	4	CDE4301 Innovation & Design Capstone	6
CE3165 Concrete Design for Urban Infrastructure	4	CE3116 Foundation Systems for Urban Infrastructure	4
EE2211 Introduction to Machine Learning or EE2213 Introduction to Artificial Intelligence	4	CE4002 Carbon Management in the Built Environment or ESE4408 Environmental Impact Assessment	4
EG2401A Engineering Professionalism	2	GE	4
GE	4	UE	4
CDE3301 Ideas to Proof-of-Concept	6		
Sub-total	**24**	**Sub-total**	**22**

Semester 7	Units	Semester 8	Units
CDE4301 Innovation & Design Capstone	6	EG3611A Industrial Attachment	10
Elective 3 for Second Major	4		
Elective 4 for Second Major	4		
CE4103 Design Project	4		
UE	4		
Sub-total	**22**	**Sub-total**	**10**

(updated 27 June 2026)

NUS Innovation & Design Programme
College of Design and Engineering

Sample study plan – JC-intake students or equivalent
(for students who opt for industrial attachment plus a specialisation)

Semester 1	Units	Semester 2	Units
CE1109 Structural Engineering Principles	4	CE2155 Principles of Structural Mechanics and Materials	4
GEA1000 Quantitative Reasoning with Data	4	CS1010E Programming Methodology	4
DTK1234 Design Thinking	4	EG1311 Design and Make or EG1311BE Design and Make	4
MA1513 Linear Algebra with Differential Equations	2	MA1511 Engineering Calculus	2
CE2407A Uncertainty Analysis for Engineers	2	CE2407B Introduction to Numerical Methods for Engineers	2
PF1101A Project Management and Finance	4	Elective 1 for Second Major (from List I)	4
Sub-total	**20**	**Sub-total**	**20**

Semester 3	Units	Semester 4	Units
CE2112 Soil Mechanics	4	CE3115 Stability of Slopes and Earth Retention Systems	4
CE2134 Fluid Mechanics	4	CE3132 Hydrology and Free Surface Flows	4
CE3155A Structural Behaviour	2	CE3166 Steel Design for Urban Infrastructure	4
CE3155B Structural Modelling	2	ES2631 Critique and Communication of Thinking and Design	4
CDE2501 Liveable Cities	4	CDE3301 Ideas to Proof-of-Concept	6
Elective 2 for Second Major (from List I)	4		
Sub-total	**20**	**Sub-total**	**22**

Semester 5	Units	Semester 6	Units
CE3121 Urban Transportation Engineering	4	CDE4301 Innovation & Design Capstone	6
CE3165 Concrete Design for Urban Infrastructure	4	CE3116 Foundation Systems for Urban Infrastructure	4
EE2211 Introduction to Machine Learning or EE2213 Introduction to Artificial Intelligence	4	CE4002 Carbon Management in the Built Environment or ESE4408 Environmental Impact Assessment	4
EG2401A Engineering Professionalism	2	GE	4
GE	4	Specialisation course 1	4
CDE3301 Ideas to Proof-of-Concept	6	Specialisation course 2	4
Sub-total	**24**	**Sub-total**	**26**

Semester 7	Units	Semester 8	Units
CDE4301 Innovation & Design Capstone	6	EG3611A Industrial Attachment	10
Elective 3 for Second Major	4	Specialisation course 4	4
Elective 4 for Second Major	4	Specialisation course 5	4
CE4103 Design Project	4		
Specialisation course 3	4		
Sub-total	**22**	**Sub-total**	**18**

(updated 27 June 2026)

NUS Innovation & Design Programme
College of Design and Engineering

Sample study plan – JC-intake students or equivalent

(for students in year-long NOC programmes)

Semester 1	Units	Semester 2	Units
CE1109 Structural Engineering Principles	4	CE2155 Principles of Structural Mechanics and Materials	4
GEA1000 Quantitative Reasoning with Data	4	CS1010E Programming Methodology	4
DTK1234 Design Thinking	4	EG1311 Design and Make or EG1311BE Design and Make	4
MA1513 Linear Algebra with Differential Equations	2	MA1511 Engineering Calculus	2
CE2407A Uncertainty Analysis for Engineers	2	CE2407B Introduction to Numerical Methods for Engineers	2
PF1101A Project Management and Finance	4	Elective 1 for Second Major (from List I)	4
Sub-total	**20**	**Sub-total**	**20**

Semester 3	Units	Semester 4	Units
CE2112 Soil Mechanics	4	CE3115 Stability of Slopes and Earth Retention Systems	4
CE2134 Fluid Mechanics	4	CE3132 Hydrology and Free Surface Flows	4
CE3155A Structural Behaviour	2	CE3166 Steel Design for Urban Infrastructure	4
CE3155B Structural Modelling	2	ES2631 Critique and Communication of Thinking and Design	4
CDE2501 Sustainable Systems for Liveable Cities	4	CDE3301 Ideas to Proof-of-Concept	6
Elective 2 for Second Major (from List I)	4		
Sub-total	**20**	**Sub-total**	**22**

Semester 5	Units	Semester 6 – NOC	Units
CE3121 Urban Transportation Engineering	4	NOC	
CE3165 Concrete Design for Urban Infrastructure	4		
EE2211 Introduction to Machine Learning or EE2213 Introduction to Artificial Intelligence	4		
GE	4		
CDE3301 Ideas to Proof-of-Concept	6		
Sub-total	**22**	**Sub-total**	**20**

Semester 7 – NOC	Units	Semester 8	Units
NOC		CE3116 Foundation Systems for Urban Infrastructure	4
		CE4002 Carbon Management in the Built Environment or ESE4408 Environmental Impact Assessment	4
		CE4103 Design Project	4
		GE	4
Sub-total	**20**	**Sub-total**	**16**

(updated 27 June 2026)

NUS Innovation & Design Programme
College of Design and Engineering

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

- ETP3206L Innovation & Enterprise Internship (16 units) – replaces EG3611A (10 units), EG2401A (2 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 UE (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)

(updated 27 June 2026)

NUS Innovation & Design Programme
College of Design and Engineering

Sample study plan – JC-intake students or equivalent

(for students in one-semester NOC programmes)

Semester 1	Units	Semester 2	Units
CE1109 Structural Engineering Principles	4	CE2155 Principles of Structural Mechanics and Materials	4
GEA1000 Quantitative Reasoning with Data	4	CS1010E Programming Methodology	4
DTK1234 Design Thinking	4	EG1311 Design and Make or EG1311BE Design and Make	4
MA1513 Linear Algebra with Differential Equations	2	MA1511 Engineering Calculus	2
CE2407A Uncertainty Analysis for Engineers	2	CE2407B Introduction to Numerical Methods for Engineers	2
PF1101A Project Management and Finance	4	Elective 1 for Second Major (from List I)	4
Sub-total	**20**	**Sub-total**	**20**

Semester 3	Units	Semester 4	Units
CE2112 Soil Mechanics	4	CE3115 Stability of Slopes and Earth Retention Systems	4
CE2134 Fluid Mechanics	4	CE3132 Hydrology and Free Surface Flows	4
CE3155A Structural Behaviour	2	CE3166 Steel Design for Urban Infrastructure	4
CE3155B Structural Modelling	2	ES2631 Critique and Communication of Thinking and Design	4
CDE2501 Sustainable Systems for Liveable Cities	4	CDE3301 Ideas to Proof-of-Concept	6
Elective 2 for Second Major (from List I)	4		
Sub-total	**20**	**Sub-total**	**22**

Semester 5	Units	Semester 6 – NOC	Units
CE3121 Urban Transportation Engineering	4	NOC	
CE3165 Concrete Design for Urban Infrastructure	4		
EE2211 Introduction to Machine Learning or EE2213 Introduction to Artificial Intelligence	4		
GE	4		
CDE3301 Ideas to Proof-of-Concept	6		
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
CE4103 Design Project	4	CE3116 Foundation Systems for Urban Infrastructure	4
GE	4	CE4002 Carbon Management in the Built Environment or ESE4408 Environmental Impact Assessment	4
UE	4	UE	4
Sub-total	**18**	**Sub-total**	**18**

(updated 27 June 2026)

NUS Innovation & Design Programme
College of Design and Engineering

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

- ETP3201S Innovation & Enterprise Internship (12 units) – replaces EG3611A (10 units) and EG2401A (2 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)

(updated 27 June 2026)

NUS Innovation & Design Programme
College of Design and Engineering

Sample study plan – JC-intake students or equivalent

(for students in Engineering Scholars Programme who plan to go for SEP)

Semester 1	Units	Semester 2	Units
CE1109 Structural Engineering Principles	4	CE2155 Principles of Structural Mechanics and Materials	4
GEA1000 Quantitative Reasoning with Data	4	CE2407B Introduction to Numerical Methods for Engineers	2
DTK1234 Design Thinking	4	EE2211 Introduction to Machine Learning or EE2213 Introduction to Artificial Intelligence	4
MA1513 Linear Algebra with Differential Equations	2	RVRC/UTCP course 2 (replaces GE)	4
CE2407A Uncertainty Analysis for Engineers	2	Elective 1 for Second Major (from List I)	4
PF1101A Project Management and Finance	4	CDE3301 Ideas to Proof-of-Concept	6
RVRC/UTCP course 1 (replaces GE)	4		
Sub-total	**24**	**Sub-total**	**24**

Summer vacation between Semesters 2 and 3	Units
CFG2101 NUS Vacation Internship Programme	4
Sub-total	**4**

Semester 3	Units	Semester 4 – can be used for SEP	Units
CE2112 Soil Mechanics	4	CE3115 Stability of Slopes and Earth Retention Systems	4
CE2134 Fluid Mechanics	4	CE3132 Hydrology and Free Surface Flows	4
CE3155A Structural Behaviour	2	CE3166 Steel Design for Urban Infrastructure	4
CE3155B Structural Modelling	2	RVRC/UTCP course 4 (replaces ES2631)	4
RVRC/UTCP course 3 (replaces CDE2501)	4	Elective 3 for Second Major	4
Elective 2 for Second Major (from List I)	4		
CDE3301 Ideas to Proof-of-Concept	6		
Sub-total	**26**	**Sub-total**	**20**

Summer vacation between Semesters 4 and 5	Units
EG3612 Vacation Internship Attachment	6
Sub-total	**6**

Semester 5	Units	Semester 6	Units
CDE4301 Innovation & Design Capstone or CDE4301A Ideas to Start-up	6	CDE4301 Innovation & Design Capstone or CDE4301A Ideas to Start-up	6
CE3121 Urban Transportation Engineering	4	Elective 4 for Second Major	4
CE3165 Concrete Design for Urban Infrastructure	4	CE3116 Foundation Systems for Urban Infrastructure	4
CE4103 Design Project	4	CE4002 Carbon Management in the Built Environment or ESE4408 Environmental Impact Assessment	4
EG2401A Engineering Professionalism	2	UE	4
UE	2		
Sub-total	**22**	**Sub-total**	**22**

(updated 27 June 2026)

NUS Innovation & Design Programme
College of Design and Engineering

Students are highly encouraged to complete the following courses before Semester 1 through advanced placement credits:

- CS1010E Programming Methodology (4 units)
- EG1311 Design and Make (4 units)
- MA1505 Mathematics I (4 units) – replaces MA1511 Engineering Calculus (2 units) and counted as UE (2 units)

CFG2101 may be replaced by CDE2605 Undergraduate Research Opportunities Programme or CDE2605R Undergraduate Research Experience (UREx).

(updated 27 June 2026)

NUS Innovation & Design Programme
College of Design and Engineering

Sample study plan – JC-intake students or equivalent
(for students in Engineering Scholars Programme who plan to go for one-semester NOC programmes)

Semester 1	Units	Semester 2	Units
CE1109 Structural Engineering Principles	4	CE2155 Principles of Structural Mechanics and Materials	4
GEA1000 Quantitative Reasoning with Data	4	CE2407B Introduction to Numerical Methods for Engineers	2
DTK1234 Design Thinking	4	EE2211 Introduction to Machine Learning or EE2213 Introduction to Artificial Intelligence	4
MA1513 Linear Algebra with Differential Equations	2	UE	2
CE2407A Uncertainty Analysis for Engineers	2	RVRC/UTCP course 2 (replaces GE)	4
PF1101A Project Management and Finance	4	Elective 1 for Second Major (from List I)	4
RVRC/UTCP course 1 (replaces GE)	4	CDE3301 Ideas to Proof-of-Concept	6
Sub-total	**24**	**Sub-total**	**26**

Semester 3	Units	Semester 4 – NOC	Units
CE2112 Soil Mechanics	4	NOC	
CE2134 Fluid Mechanics	4		
CE3155A Structural Behaviour	2		
CE3155B Structural Modelling	2		
RVRC/UTCP course 3 (replaces CDE2501)	4		
Elective 2 for Second Major (from List I)	4		
CDE3301 Ideas to Proof-of-Concept	6		
Sub-total	**26**	**Sub-total**	**20**

Semester 5	Units	Semester 6	Units
CDE4301 Innovation & Design Capstone or CDE4301A Ideas to Start-up	6	CDE4301 Innovation & Design Capstone or CDE4301A Ideas to Start-up	6
CE3121 Urban Transportation Engineering	4	CE3115 Stability of Slopes and Earth Retention Systems	4
CE3165 Concrete Design for Urban Infrastructure	4	CE3116 Foundation Systems for Urban Infrastructure	4
CE4103 Design Project	4	CE3132 Hydrology and Free Surface Flows	4
UE	4	CE3166 Steel Design for Urban Infrastructure	4
RVRC/UTCP course 4 (replaces ES2631)	4	CE4002 Carbon Management in the Built Environment or ESE4408 Environmental Impact Assessment	4
Sub-total	**26**	**Sub-total**	**26**

(updated 27 June 2026)

NUS Innovation & Design Programme
College of Design and Engineering

Students are highly encouraged to complete the following courses before Semester 1 through advanced placement credits:

- CS1010E Programming Methodology (4 units)
- EG1311 Design and Make (4 units)
- MA1505 Mathematics I (4 units) – replaces MA1511 Engineering Calculus (2 units) and counted as UE (2 units)

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

- ETP3201S Innovation & Enterprise Internship (12 units) – replaces EG3611A (10 units) and EG2401A (2 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)

(updated 27 June 2026)

NUS Innovation & Design Programme
College of Design and Engineering

Sample study plan – poly-intake students

Semester 1	Units	Semester 2	Units
CE1109 Structural Engineering Principles	4	CE2155 Principles of Structural Mechanics and Materials	4
GEA1000 Quantitative Reasoning with Data	4	CS1010E Programming Methodology	4
DTK1234 Design Thinking or PF1101A Project Management and Finance	4	MA1511 Engineering Calculus	2
MA1301 Introductory Mathematics * (UE)	4	CE2407B Introduction to Numerical Methods for Engineers	2
Elective 1 for Second Major (from List I)	4	CDE3301 Ideas to Proof-of-Concept	6
		Elective 2 for Second Major (from List I)	4
Sub-total	**20**	**Sub-total**	**22**

Semester 3	Units	Semester 4	Units
MA1513 Linear Algebra with Differential Equations *	2	CE3115 Stability of Slopes and Earth Retention Systems	4
CE2407A Uncertainty Analysis for Engineers *	2	CE3132 Hydrology and Free Surface Flows	4
CE2112 Soil Mechanics	4	CE3166 Steel Design for Urban Infrastructure	4
CE2134 Fluid Mechanics	4	ES2631 Critique and Communication of Thinking and Design	4
CE3155A Structural Behaviour	2	GE	4
CE3155B Structural Modelling	2	Elective 3 for Second Major	4
CDE2501 Sustainable Systems for Liveable Cities	4		
CDE3301 Ideas to Proof-of-Concept	6		
Sub-total	**26**	**Sub-total**	**24**

Semester 5	Units	Semester 6	Units
CDE4301 Innovation & Design Capstone or CDE4301A Ideas to Start-up	6	CDE4301 Innovation & Design Capstone or CDE4301A Ideas to Start-up	6
CE3121 Urban Transportation Engineering	4	CE3116 Foundation Systems for Urban Infrastructure	4
CE3165 Concrete Design for Urban Infrastructure	4	CE4002 Carbon Management in the Built Environment or ESE4408 Environmental Impact Assessment	4
EE2211 Introduction to Machine Learning or EE2213 Introduction to Artificial Intelligence	4	CE4103 Design Project	4
EG2401A Engineering Professionalism	2	Elective 4 for Second Major	4
GE	4		
Sub-total	**24**	**Sub-total**	**22**

* Students who are exempted from MA1301 can take MA1513 and CE2407A in Semester 1.

Poly-intake students with accredited diplomas will receive the following exemptions:

- DTK1234 Design Thinking (4 units) or PF1101A Project Management and Finance (4 units)
- EG1311BE Design and Make (4 units) – can be taken in any semester if not exempted
- EG3611P Industrial Attachment (10 units)
- Unrestricted electives (20 units)

(updated 27 June 2026)