

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

**Cohort AY2022/2023**

<b>Modular Requirements</b>	<b>Modular Credits (MCs)</b>
<b>Common Curriculum</b>	
GEA1000 Quantitative Reasoning	4
CS1010E Programming Methodology	4
ES2631 Critique and Communication of Thinking and Design <sup>1</sup>	4
GE: Cultures and Connections <sup>1</sup>	4
GE: Singapore Studies <sup>1</sup>	4
GE: Communities and Engagement <sup>1</sup>	4
CDE2000 Creating Narratives	4
DTK1234 Design Thinking	4
EE2211 Introduction to Machine Learning	4
EG1311 Design and Make	4
EG2501 Liveable Cities	4
IE2141 Systems Thinking and Dynamics	4
PF1101 Fundamentals of Project Management	4
EG4301 DCP Dissertation or EG4301A Ideas to Start-up (over 2 consecutive semesters) <sup>2</sup>	8
<b>Sub-total for Common Curriculum</b>	<b>60</b>
<b>Engineering Core</b>	
MA1511 Engineering Calculus	2
MA1512 Differential Equations for Engineering	2
MA1508E Linear Algebra for Engineering	4
EG2401A Engineering Professionalism	2
EG3611A Industrial Attachment or CFG2101 NUS Vacation Internship Programme <sup>3</sup> and EG3612 Vacation Industrial Attachment	10
<b>Sub-total for Engineering Core</b>	<b>20</b>
<b>Engineering Programme Requirements</b>	
ESP1111 Engineering Principles in Action	4
ESP2111 Sensor System Electronics	4
ESP2106 Principles of Continua	4
ESP2107 Numerical Methods and Statistics	4
ESP2110 Design Project 2	4
ME2121 Engineering Thermodynamics and Heat Transfer	4
PC2130B Applied Quantum Physics	4
PC3235B Applied Solid State Physics	4
PC2020 Electromagnetics for Electrical Engineers or EE2023 Signals and Systems	4
EG3301R DCP Project (over 2 consecutive semesters) <sup>4</sup>	4
<b>Sub-total for Engineering Programme Requirements</b>	<b>40</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) <sup>4</sup>	8
EG4301 DCP Dissertation or EG4301A Ideas to Start-up (over 2 consecutive semesters) <sup>2</sup>	4

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

Other unrestricted electives	12
<b>Sub-total for Unrestricted Electives</b>	<b>40</b>
<b>Total</b>	<b>160</b>

Notes:

- <sup>1</sup> Students may read equivalent modules in USP/NUSC, UTCP, and RVRC.
- <sup>2</sup> The 12 MCs for EG4301/EG4301A are counted towards 8 MCs for the Integrated Project requirement in the Common Curriculum while 4 MCs are counted as unrestricted elective.
- <sup>3</sup> May be replaced by EG2605 Undergraduate Research Opportunities Programme.
- <sup>4</sup> The 12 MCs for EG3301R are counted towards 4 MCs for ESP3903 Major Design Project II while 8 MCs are counted as unrestricted elective.

**Recommended semester schedule – JC-intake students or equivalent**  
(for students who opt for vacation internships)

Semester 1	MCs	Semester 2	MCs
ESP1111 Engineering Principles in Action	4	ESP2111 Sensor System Electronics	4
CS1010E Programming Methodology	4	GEA1000 Quantitative Reasoning with Data	4
EG1311 Design & Make	4	DTK1234 Design Thinking	4
MA1511 Engineering Calculus	2	MA1508E Linear Algebra for Engineering	4
MA1512 Differential Equations for Engineering	2	PF1101 Fundamentals of Project Management	4
GE	4	Group A/B module for Second Major ^	4
<b>Sub-total</b>	<b>20</b>	<b>Sub-total</b>	<b>24</b>

Summer vacation between Semesters 2 and 3	MCs
CFG2101 NUS Vacation Internship Programme	4
<b>Sub-total</b>	<b>4</b>

Semester 3	MCs	Semester 4	MCs
ESP2107 Numerical Methods and Statistics	4	ESP2110 Design Project 2	4
ME2121 Engineering Thermodynamics and Heat Transfer	4	PC3235B Applied Solid State Physics	4
ES2631 Critique and Communication of Thinking and Design	4	EE2211 Introduction to Machine Learning	4
IE2141 Systems Thinking & Dynamics	4	EG2501 Liveable Cities	4
Group A/B module for Second Major	4	EG3301R DCP Project (replaces ESP3903)	6
<b>Sub-total</b>	<b>20</b>	<b>Sub-total</b>	<b>22</b>

Summer vacation between Semesters 4 and 5	MCs
EG3612 Vacation Internship Attachment	6
<b>Sub-total</b>	<b>6</b>

Semester 5	MCs	Semester 6 – can be used for SEP	MCs
EG3301R DCP Project (replaces ESP3903)	6	Innovation & Enterprise Elective 1	4
ESP2106 Principles of Continua	4	PC2130B Applied Quantum Physics	4
GE *	4	PC2020 Electromagnetics for Electrical Engineers <u>or</u> EE2023 Signals and Systems	4
GE *	4	CDE2000 Creating Narratives	4
		EG2401A Engineering Professionalism	2
<b>Sub-total</b>	<b>18</b>	<b>Sub-total</b>	<b>18</b>

Semester 7	MCs	Semester 8	MCs
EG4301 DCP Dissertation	6	EG4301 DCP Dissertation	6
Innovation & Enterprise Elective 2	4	UE	4
UE	4	UE	4
<b>Sub-total</b>	<b>14</b>	<b>Sub-total</b>	<b>14</b>

^ Students can only take EG2310 or EG2301 in this semester. Those who wish to take EG2201A (in lieu of EG2310) and EG2311/EG2606B (in lieu of EG2301) may clear both modules concurrently in Semester 3.

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

**Recommended semester schedule – JC-intake students or equivalent**  
(for students who opt for vacation internships **plus a specialisation**)

Semester 1	MCs	Semester 2	MCs
ESP1111 Engineering Principles in Action	4	ESP2111 Sensor System Electronics	4
CS1010E Programming Methodology	4	GEA1000 Quantitative Reasoning with Data	4
EG1311 Design & Make	4	DTK1234 Design Thinking	4
MA1511 Engineering Calculus	2	MA1508E Linear Algebra for Engineering	4
MA1512 Differential Equations for Engineering	2	PF1101 Fundamentals of Project Management	4
GE	4	Group A/B module for Second Major ^	4
<b>Sub-total</b>	<b>20</b>	<b>Sub-total</b>	<b>24</b>

Summer vacation between Semesters 2 and 3	MCs
CFG2101 NUS Vacation Internship Programme	4
<b>Sub-total</b>	<b>4</b>

Semester 3	MCs	Semester 4	MCs
ESP2107 Numerical Methods and Statistics	4	ESP2110 Design Project 2	4
ME2121 Engineering Thermodynamics and Heat Transfer	4	PC3235B Applied Solid State Physics	4
ES2631 Critique and Communication of Thinking and Design	4	EE2211 Introduction to Machine Learning	4
IE2141 Systems Thinking & Dynamics	4	EG2501 Liveable Cities	4
Group A/B module for Second Major	4	EG3301R DCP Project (replaces ESP3903)	6
<b>Sub-total</b>	<b>20</b>	<b>Sub-total</b>	<b>22</b>

Summer vacation between Semesters 4 and 5	MCs
EG3612 Vacation Internship Attachment	6
<b>Sub-total</b>	<b>6</b>

Semester 5	MCs	Semester 6 – can be used for SEP	MCs
EG3301R DCP Project (replaces ESP3903)	6	Innovation & Enterprise Elective 1	4
ESP2106 Principles of Continua	4	PC2130B Applied Quantum Physics	4
GE *	4	PC2020 Electromagnetics for Electrical Engineers <u>or</u> EE2023 Signals and Systems	4
GE *	4	CDE2000 Creating Narratives	4
		EG2401A Engineering Professionalism	2
<b>Sub-total</b>	<b>18</b>	<b>Sub-total</b>	<b>18</b>

Semester 7	MCs	Semester 8	MCs
EG4301 DCP Dissertation	6	EG4301 DCP Dissertation	6
Innovation & Enterprise Elective 2	4	Specialisation module 3	4
Specialisation module 1	4	Specialisation module 4	4
Specialisation module 2	4	Specialisation module 5	4
<b>Sub-total</b>	<b>18</b>	<b>Sub-total</b>	<b>18</b>

^ Students can only take EG2310 or EG2301 in this semester. Those who wish to take EG2201A (in lieu of EG2310) and EG2311/EG2606B (in lieu of EG2301) may clear both modules concurrently in Semester 3.

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

**Recommended semester schedule – JC-intake students or equivalent**  
(for students who opt for industrial attachment)

Semester 1	MCs	Semester 2	MCs
ESP1111 Engineering Principles in Action	4	ESP2111 Sensor System Electronics	4
CS1010E Programming Methodology	4	GEA1000 Quantitative Reasoning with Data	4
EG1311 Design & Make	4	DTK1234 Design Thinking	4
MA1511 Engineering Calculus	2	MA1508E Linear Algebra for Engineering	4
MA1512 Differential Equations for Engineering	2	PF1101 Fundamentals of Project Management	4
GE	4	Group A/B 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
ESP2107 Numerical Methods and Statistics	4	ESP2110 Design Project 2	4
ME2121 Engineering Thermodynamics and Heat Transfer	4	PC3235B Applied Solid State Physics	4
ES2631 Critique and Communication of Thinking and Design	4	EE2211 Introduction to Machine Learning	4
IE2141 Systems Thinking & Dynamics	4	EG2501 Liveable Cities	4
Group A/B module for Second Major	4	EG3301R DCP Project (replaces ESP3903)	6
<b>Sub-total</b>	<b>24</b>	<b>Sub-total</b>	<b>22</b>

Semester 5	MCs	Semester 6	MCs
EG3301R DCP Project (replaces ESP3903)	6	EG3611A Industrial Attachment	10
ESP2106 Principles of Continua	4		
PC2020 Electromagnetics for Electrical Engineers or EE2023 Signals and Systems	4		
EG2401A Engineering Professionalism	2		
GE *	4		
<b>Sub-total</b>	<b>20</b>	<b>Sub-total</b>	<b>10</b>

Semester 7	MCs	Semester 8	MCs
EG4301 DCP Dissertation	6	EG4301 DCP Dissertation	6
Innovation & Enterprise Elective 1	4	PC2130B Applied Quantum Physics	4
Innovation & Enterprise Elective 2	4	CDE2000 Creating Narratives	4
GE *	4	UE	4
UE	4	UE	4
<b>Sub-total</b>	<b>22</b>	<b>Sub-total</b>	<b>22</b>

^ Students can only take EG2310 or EG2301 in this semester. Those who wish to take EG2201A (in lieu of EG2310) and EG2311/EG2606B (in lieu of EG2301) may clear both modules concurrently in Semester 3.

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

**Recommended semester schedule – JC-intake students or equivalent**  
(for students who opt for industrial attachment **plus a specialisation**)

Semester 1	MCs	Semester 2	MCs
ESP1111 Engineering Principles in Action	4	ESP2111 Sensor System Electronics	4
CS1010E Programming Methodology	4	GEA1000 Quantitative Reasoning with Data	4
EG1311 Design & Make	4	DTK1234 Design Thinking	4
MA1511 Engineering Calculus	2	MA1508E Linear Algebra for Engineering	4
MA1512 Differential Equations for Engineering	2	PF1101 Fundamentals of Project Management	4
GE	4	Group A/B module for Second Major ^	4
<b>Sub-total</b>	<b>20</b>	<b>Sub-total</b>	<b>24</b>

Semester 3	MCs	Semester 4	MCs
ESP2107 Numerical Methods and Statistics	4	ESP2110 Design Project 2	4
ME2121 Engineering Thermodynamics and Heat Transfer	4	PC3235B Applied Solid State Physics	4
ES2631 Critique and Communication of Thinking and Design	4	EE2211 Introduction to Machine Learning	4
IE2141 Systems Thinking & Dynamics	4	EG2501 Liveable Cities	4
Group A/B module for Second Major	4	EG3301R DCP Project (replaces ESP3903)	6
<b>Sub-total</b>	<b>20</b>	<b>Sub-total</b>	<b>22</b>

Semester 5	MCs	Semester 6	MCs
EG3301R DCP Project (replaces ESP3903)	6	EG3611A Industrial Attachment	10
ESP2106 Principles of Continua	4	Specialisation module 1	4
PC2020 Electromagnetics for Electrical Engineers or EE2023 Signals and Systems	4		
EG2401A Engineering Professionalism	2		
GE *	4		
GE *	4		
<b>Sub-total</b>	<b>24</b>	<b>Sub-total</b>	<b>14</b>

Semester 7	MCs	Semester 8	MCs
EG4301 DCP Dissertation	6	EG4301 DCP Dissertation	6
Innovation & Enterprise Elective 1	4	PC2130B Applied Quantum Physics	4
Innovation & Enterprise Elective 2	4	CDE2000 Creating Narratives	4
Specialisation module 2	4	Specialisation module 4	4
Specialisation module 3	4	Specialisation module 5	4
<b>Sub-total</b>	<b>22</b>	<b>Sub-total</b>	<b>22</b>

^ Students can only take EG2310 or EG2301 in this semester. Those who wish to take EG2201A (in lieu of EG2310) and EG2311/EG2606B (in lieu of EG2301) may clear both modules concurrently in Semester 3.

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

**Recommended semester schedule – JC-intake students or equivalent**

(for students in year-long NOC programmes)

Semester 1	MCs	Semester 2	MCs
ESP1111 Engineering Principles in Action	4	ESP2111 Sensor System Electronics	4
CS1010E Programming Methodology	4	GEA1000 Quantitative Reasoning with Data	4
EG1311 Design & Make	4	DTK1234 Design Thinking	4
MA1511 Engineering Calculus	2	MA1508E Linear Algebra for Engineering	4
MA1512 Differential Equations for Engineering	2	PF1101 Fundamentals of Project Management	4
GE	4	Group A/B module for Second Major ^	4
<b>Sub-total</b>	<b>20</b>	<b>Sub-total</b>	<b>24</b>

Semester 3	MCs	Semester 4	MCs
ESP2107 Numerical Methods and Statistics	4	ESP2110 Design Project 2	4
ME2121 Engineering Thermodynamics and Heat Transfer	4	PC3235B Applied Solid State Physics	4
ES2631 Critique and Communication of Thinking and Design	4	EE2211 Introduction to Machine Learning	4
IE2141 Systems Thinking & Dynamics	4	EG2501 Liveable Cities	4
Group A/B module for Second Major	4	EG3301R DCP Project (replaces ESP3903)	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 (replaces ESP3903)	6	NOC	
ESP2106 Principles of Continua	4		
PC2020 Electromagnetics for Electrical Engineers or EE2023 Signals and Systems	4		
GE *	4		
<b>Sub-total</b>	<b>18</b>	<b>Sub-total</b>	<b>20</b>

Semester 7 – NOC	MCs	Semester 8	MCs
NOC		PC2130B Applied Quantum Physics	4
		CDE2000 Creating Narratives	4
		GE *	4
		UE	4
<b>Sub-total</b>	<b>20</b>	<b>Sub-total</b>	<b>16</b>

^ Students can only take EG2310 or EG2301 in this semester. Those who wish to take EG2201A (in lieu of EG2310) and EG2311/EG2606B (in lieu of EG2301) may clear both modules concurrently in Semester 3.

\* 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) – replaces EG3611A (10 MCs) and EG2401A (2 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 – JC-intake students or equivalent**  
(for students in one-semester NOC programmes)

Semester 1	MCs	Semester 2	MCs
ESP1111 Engineering Principles in Action	4	ESP2111 Sensor System Electronics	4
CS1010E Programming Methodology	4	GEA1000 Quantitative Reasoning with Data	4
EG1311 Design & Make	4	DTK1234 Design Thinking	4
MA1511 Engineering Calculus	2	MA1508E Linear Algebra for Engineering	4
MA1512 Differential Equations for Engineering	2	PF1101 Fundamentals of Project Management	4
GE	4	Group A/B module for Second Major ^	4
<b>Sub-total</b>	<b>20</b>	<b>Sub-total</b>	<b>24</b>

Semester 3	MCs	Semester 4	MCs
ESP2107 Numerical Methods and Statistics	4	ESP2110 Design Project 2	4
ME2121 Engineering Thermodynamics and Heat Transfer	4	PC3235B Applied Solid State Physics	4
ES2631 Critique and Communication of Thinking and Design	4	EE2211 Introduction to Machine Learning	4
IE2141 Systems Thinking & Dynamics	4	EG2501 Liveable Cities	4
Group A/B module for Second Major	4	EG3301R DCP Project (replaces ESP3903)	6
<b>Sub-total</b>	<b>24</b>	<b>Sub-total</b>	<b>22</b>

Semester 5	MCs	Semester 6 – NOC	MCs
EG3301R DCP Project (replaces ESP3903)	6	NOC	
ESP2106 Principles of Continua	4		
PC2020 Electromagnetics for Electrical Engineers or EE2023 Signals and Systems	4		
GE *	4		
<b>Sub-total</b>	<b>18</b>	<b>Sub-total</b>	<b>20</b>

Semester 7	MCs	Semester 8	MCs
EG4301 DCP Dissertation	6	EG4301 DCP Dissertation	6
GE *	4	PC2130B Applied Quantum Physics	4
UE	4	CDE2000 Creating Narratives	4
UE	4	UE	4
<b>Sub-total</b>	<b>18</b>	<b>Sub-total</b>	<b>18</b>

^ Students can only take EG2310 or EG2301 in this semester. Those who wish to take EG2201A (in lieu of EG2310) and EG2311/EG2606B (in lieu of EG2301) may clear both modules concurrently in Semester 3.

\* 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) – replaces EG3611A (10 MCs) and EG2401A (2 MCs)
- TR3204 Entrepreneurship Practicum (4 MCs) – replaces Innovation & Enterprise Elective 1
- Entrepreneurship course (4 MCs) – replaces Innovation & Enterprise Elective 2



**Recommended semester schedule – JC-intake students or equivalent**  
(for students in Engineering Scholars Programme)

Semester 1	MCs	Semester 2	MCs
ESP1111 Engineering Principles in Action	4	ESP2111 Sensor System Electronics	4
ESP2107 Numerical Methods and Statistics	4	GEA1000 Quantitative Reasoning with Data	4
MA1511 Engineering Calculus	2	DTK1234 Design Thinking	4
MA1512 Differential Equations for Engineering	2	PF1101 Fundamentals of Project Management	4
RC4 module 1 (replaces GE)	4	RC4 module 2 (replaces GE)	4
Group B module for Second Major	4	EG3301R DCP Project (replaces ESP3903)	6
UE (or IE2141 Systems Thinking & Dynamics if not in RC4)	4		
<b>Sub-total</b>	<b>24</b>	<b>Sub-total</b>	<b>26</b>

Semester 3	MCs	Semester 4 – NOC	MCs
ESP2106 Principles of Continua	4	NOC	
ME2121 Engineering Thermodynamics and Heat Transfer	4		
RC4 module 3 (replaces GE)	4		
EG3301R DCP Project (replaces ESP3903)	6		
Group A module for Second Major	4		
UE	4		
<b>Sub-total</b>	<b>26</b>	<b>Sub-total</b>	<b>20</b>

Semester 5	MCs	Semester 6	MCs
EG4301 DCP Dissertation	6	EG4301 DCP Dissertation	6
RC4 module 4 (replaces ES2631 Critique and Communication of Thinking and Design)	4	ESP2110 Design Project 2	4
EE2211 Introduction to Machine Learning	4	PC3235B Applied Solid State Physics	4
EG2501 Liveable Cities	4	PC2130B Applied Quantum Physics	4
PC2020 Electromagnetics for Electrical Engineers or EE2023 Signals and Systems	4	CDE2000 Creating Narratives	4
UE	4	UE	4
<b>Sub-total</b>	<b>26</b>	<b>Sub-total</b>	<b>26</b>

Students must complete the following modules before Semester 1 through advanced placement credits:

- CS1010E Programming Methodology (4 MCs)
- MA1508E Linear Algebra for Engineering (4 MCs) – using MA2001 Linear Algebra
- EG1311 Design & Make (4 MCs)

A one-semester NOC programme comprises the following modules:

- TR3202S Start-up Internship Programme (12 MCs) – replaces EG3611A (10 MCs) and EG2401A (2 MCs)
- TR3204 Entrepreneurship Practicum (4 MCs) – replaces Innovation & Enterprise Elective 1
- Entrepreneurship course (4 MCs) – replaces Innovation & Enterprise Elective 2

Students who are not going on NOC must read EG2101 Pathways to Engineering Leadership in lieu of EG2401A.

**Recommended semester schedule – poly-intake students**

(for students who are not required to take MA1301)

Semester 1	MCs	Semester 2	MCs
ESP1111 Engineering Principles in Action	4	ESP2111 Sensor System Electronics	4
CS1010E Programming Methodology	4	GEA1000 Quantitative Reasoning with Data	4
MA1511 Engineering Calculus	2	MA1508E Linear Algebra for Engineering	4
MA1512 Differential Equations for Engineering	2	PF1101 Fundamentals of Project Management	4
GE	4	EG3301R DCP Project (replaces ESP3903)	6
Group A/B module for Second Major ^	4		
<b>Sub-total</b>	<b>20</b>	<b>Sub-total</b>	<b>22</b>

Semester 3	MCs	Semester 4	MCs
ESP2107 Numerical Methods and Statistics	4	ESP2110 Design Project 2	4
ME2121 Engineering Thermodynamics and Heat Transfer	4	PC2130B Applied Quantum Physics	4
ES2631 Critique and Communication of Thinking and Design	4	PC3235B Applied Solid State Physics	4
IE2141 Systems Thinking & Dynamics	4	PC2020 Electromagnetics for Electrical Engineers <u>or</u> EE2023 Signals and Systems	4
EG3301R DCP Project (replaces ESP3903)	6	EE2211 Introduction to Machine Learning	4
Group A/B module for Second Major	4	EG2501 Liveable Cities	4
<b>Sub-total</b>	<b>26</b>	<b>Sub-total</b>	<b>24</b>

Semester 5	MCs	Semester 6	MCs
EG4301 DCP Dissertation	6	EG4301 DCP Dissertation	6
Innovation & Enterprise Elective 1	4	Innovation & Enterprise Elective 2	4
ESP2106 Principles of Continua	4	CDE2000 Creating Narratives	4
GE	4	EG2401A Engineering Professionalism	2
		GE	4
<b>Sub-total</b>	<b>18</b>	<b>Sub-total</b>	<b>20</b>

^ Students are recommended to take EG2201A in this semester. Those who wish to take EG2310 (in lieu of EG2201A) should take EG2301/EG2311/EG2606B in Semester 1 and EG2310 in Semester 2.

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

- DTK1234 Design Thinking (4 MCs)
- EG1311 Design & Make (4 MCs)
- EG3611A Industrial Attachment (10 MCs)
- Unrestricted elective modules (20 MCs)

**Recommended semester schedule – poly-intake students**  
(for students who are required to take MA1301)

Semester 1	MCs	Semester 2	MCs
ESP1111 Engineering Principles in Action	4	ESP2111 Sensor System Electronics	4
CS1010E Programming Methodology	4	GEA1000 Quantitative Reasoning with Data	4
MA1301 Introductory Mathematics (UEM)	4	MA1508E Linear Algebra for Engineering	4
GE	4	PF1101 Fundamentals of Project Management	4
Group A/B module for Second Major ^	4	EG3301R DCP Project (replaces ESP3903)	6
<b>Sub-total</b>	<b>20</b>	<b>Sub-total</b>	<b>22</b>

Semester 3	MCs	Semester 4	MCs
ESP2107 Numerical Methods and Statistics	4	ESP2110 Design Project 2	4
ME2121 Engineering Thermodynamics and Heat Transfer	4	PC2130B Applied Quantum Physics	4
MA1511 Engineering Calculus	2	PC3235B Applied Solid State Physics	4
MA1512 Differential Equations for Engineering	2	PC2020 Electromagnetics for Electrical Engineers <i>or</i> EE2023 Signals and Systems	4
ES2631 Critique and Communication of Thinking and Design	4	EE2211 Introduction to Machine Learning	4
EG3301R DCP Project (replaces ESP3903)	6	EG2501 Liveable Cities	4
Group A/B module for Second Major	4		
<b>Sub-total</b>	<b>26</b>	<b>Sub-total</b>	<b>24</b>

Semester 5	MCs	Semester 6	MCs
EG4301 DCP Dissertation	6	EG4301 DCP Dissertation	6
Innovation & Enterprise Elective 1	4	Innovation & Enterprise Elective 2	4
IE2141 Systems Thinking & Dynamics	4	CDE2000 Creating Narratives	4
ESP2106 Principles of Continua	4	EG2401A Engineering Professionalism	2
GE	4	GE	4
<b>Sub-total</b>	<b>22</b>	<b>Sub-total</b>	<b>20</b>

^ Students are recommended to take EG2201A in this semester. Those who wish to take EG2310 (in lieu of EG2201A) should take EG2301/EG2311/EG2606B in Semester 1 and EG2310 in Semester 2.

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

- DTK1234 Design Thinking (4 MCs)
- EG1311 Design & Make (4 MCs)
- EG3611A Industrial Attachment (10 MCs)
- Unrestricted elective modules (20 MCs)