Innovation & Design Programme
Faculty of Engineering

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

Cohorts 2017/2018 and 2018/2019

Modular Requirements	Modular Credits (MCs)
University Level Requirements	
General education modules:	
• Quantitative Reasoning (GER1000)	4
• Thinking & Expression (GET)	4
• Human Cultures (GEH)	4
• Singapore Studies (GES)	4
• Asking Questions (GEQ1000)	4
Sub-total for University Level Requirements	**20**
Programme Requirements	
Faculty requirements:	
• ES1531 Critical Thinking & Writing [1] *(Double-counted for Second Major in Innovation & Design)*	4
• EG2401A Engineering Professionalism	2
• ES1xxxx English [2]	-
Year 1 and core modules:	
• EG1111/EE1111 Engineering Principles & Practice I	6
• EG1112/EE1112 Engineering Principles & Practice II	6
• MA1511 Engineering Calculus	2
• MA1512 Differential Equations for Engineering	2
• MA1508E Linear Algebra for Engineering	4
• IT1007 Introduction to Programming with Python & C	4
• PC2020 Electromagnetics for Electrical Engineers	4
• EE2012 Analytical Methods in Electrical & Computer Engineering	4
• EE2023 Signals & Systems	4
• EE2026 Digital Design	4
• EE2027 Electronic Circuits	4
• EE2028 Microcontroller Programming & Interfacing	4
• EE2033 Integrated Systems Lab	4
EE outer core electives	12
EE technical electives (at least 8 MCs of depth electives) [3]	20
EE design and project modules:	
• EG3301R DCP Project (over 2 consecutive semesters) *(Double-counted for Second Major in Innovation & Design and replaces EE4002D Design Capstone and EE3031 Innovation & Enterprise I)*	12
EG3612 Vacation Internship Programme (VIP) [3, 4]	6
Sub-total for Programme Requirements	**108**
Unrestricted Elective Modules (UEM)	
• Group A module for Second Major	4
• Group B module for Second Major	4
• Group C modules for Second Major – Innovation & Enterprise electives	12
• EG4301 DCP Dissertation or EG4301A Ideas to Start-up (over 2 consecutive semesters)	12
Sub-total for Unrestricted Elective Modules	**32**
Total	**160**

(updated 20 November 2018)

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Notes:

[1] Students in USP, UTRP, and RVRC may read an equivalent module (e.g. ES1501X Academic Expository Writing) in lieu of EG1531.

[2] Students who have not passed or been exempted from the Qualifying English Test at the point of admission will have to read ES1000 and/or ES1103. ES1103 carries 4 MCs which may be counted as UEM.

[3] Students in this Second Major are allowed to complete EG3612 (6 MCs) plus one technical elective (4 MCs) in lieu of EG3611A (10 MCs).

Students may also opt to do EG3611A (10 MCs) in lieu of EG3612 (6 MCs) and 4 MCs of technical electives.

[4] EG3612 is optional for poly-intake students and those in the following special programmes: double degree programmes (DDP), concurrent degree programmes (CDP), Chemical Sciences Programme (CSP), and Global Engineering Programme (GEP).

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Recommended semester schedule for Cohorts 2017/2018 and 2018/2019 – JC-intake students or equivalent

Semester 1	MCs	Semester 2	MCs
MA1511 Engineering Calculus	2	MA1508E Linear Algebra for Engineering	4
MA1512 Differential Equations for Engineering	2	EG1112 Engineering Principles & Practice II	6
IT1007 Introduction to Programming with Python & C	4	EE2026 Digital Design	4
EG1111 Engineering Principles & Practice I	6	GEQ1000 Asking Questions	4
GER1000 Quantitative Reasoning	4	ES1531 Critical Thinking & Writing (double-counted)	4
GET	4	Group A module for Second Major (UEM)	4
Sub-total	**22**	**Sub-total**	**26**

Semester 3	MCs	Semester 4	MCs
EE2012 Analytical Methods in ECE	4	EG3301R DCP Project (double-counted)	6
EE2027 Electronic Circuits	4	EE2023 Signals & Systems	4
EE2028 Microcontroller Programming & Interfacing	4	PC2020 Electromagnetics for Electrical Engineers	4
GEH	4	GES	4
Group B module for Second Major (UEM)	4		
Sub-total	**20**	**Sub-total**	**18**

Summer vacation between Semesters 4 and 5	MCs
EG3612 Vacation Internship Programme	6
Sub-total	**6**

Semester 5	MCs	Semester 6	MCs
EG3301R DCP Project (double-counted)	6	Innovation & Enterprise Elective 1 (UEM)	4
EE2033 Integrated Systems Lab	4	Outer Core Elective 3	4
Outer Core Elective 1	4	Technical Elective 1	4
Outer Core Elective 2	4	Technical Elective 2	4
EG2401A Engineering Professionalism	2	Technical Elective 3	4
Sub-total	**20**	**Sub-total**	**20**

Semester 7	MCs	Semester 8	MCs
EG4301 DCP Dissertation (UEM)	6	EG4301 DCP Dissertation (UEM)	6
Innovation & Enterprise Elective 2 (UEM)	4	Innovation & Enterprise Elective 3 (UEM)	4
Technical Elective 4	4	Technical Elective 5	4
Sub-total	**14**	**Sub-total**	**14**

Note:

The Group A module for Second Major may be completed in Semester 4 if students do not wish to overload in Semester 2.

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Recommended semester schedule for Cohorts 2017/2018 and 2018/2019 – poly-intake students

(for students who intend to complete in 6 semesters and are exempted from Group A module for Second Major)

Semester 3	MCs	Semester 4	MCs
MA1301 Introductory Mathematics (in lieu of EG3612)	4	EG3301R DCP Project (double-counted)	6
PC1222 Fundamentals of Physics II (in lieu of EG3612)	4	MA1511 Engineering Calculus	2
IT1007 Introduction to Programming with Python & C	4	MA1512 Differential Equations for Engineering	2
EE2026 Digital Design	4	EE2027 Electronic Circuits	4
Group B module for Second Major (UEM)	4	EE2028 Microcontroller Programming & Interfacing	4
		GER1000 Quantitative Reasoning	4
Sub-total	**20**	**Sub-total**	**22**

Semester 5	MCs	Semester 6	MCs
EG3301R DCP Project (double-counted)	6	Innovation & Enterprise Elective 1 (UEM)	4
MA1508E Linear Algebra for Engineering	4	EE2012 Analytical Methods in ECE	4
EE2023 Signals & Systems	4	EE2033 Integrated Systems Lab	4
PC2020 Electromagnetics for Electrical Engineers	4	Outer Core Elective 1	4
GEQ1000 Asking Questions	4	Outer Core Elective 2	4
GET	4	GES	4
Sub-total	**26**	**Sub-total**	**24**

Semester 7	MCs	Semester 8	MCs
EG4301 DCP Dissertation (UEM)	6	EG4301 DCP Dissertation (UEM)	6
Innovation & Enterprise Elective 2 (UEM)	4	Innovation & Enterprise Elective 3 (UEM)	4
Outer Core Elective 3	4	Technical Elective 3	4
Technical Elective 1	4	Technical Elective 4	4
Technical Elective 2	4	Technical Elective 5	4
GEH	4	EG2401A Engineering Professionalism	2
Sub-total	**26**	**Sub-total**	**24**

Notes:

1. Poly-intake students may receive the following exemptions depending on their Diploma qualification:
   - EG1111 Engineering Principles & Practice I (6 MCs)
   - EG1112 Engineering Principles & Practice II (6 MCs)
   - ES1531 Critical Thinking & Writing (4 MCs)
   - Unrestricted elective modules (20 MCs)

2. Poly-intake students may be exempted from Group A module for Second Major (4 MCs) and/or one Innovation & Enterprise elective (4 MCs) depending on their Diploma qualification. These would be included as part of the 20 MCs of exemptions for unrestricted elective modules.

3. EG3612 (VIP) is not compulsory for poly-intake students. The 6 MCs for VIP may be fulfilled by MA1301 (4 MCs) and PC1222 (4 MCs) and/or other technical elective modules.

4. The Group B module for Second Major may be completed in Semester 5 or Semester 7 if students cannot overload in Semester 3.

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Recommended semester schedule for Cohorts 2017/2018 and 2018/2019 – poly-intake students

(for students who intend to complete in 7 semesters and are exempted from Group A module for Second Major)

Semester 3	MCs	Semester 4	MCs
MA1301 Introductory Mathematics (in lieu of EG3612)	4	EG3301R DCP Project (double-counted)	6
PC1222 Fundamentals of Physics II (in lieu of EG3612)	4	MA1511 Engineering Calculus	2
IT1007 Introduction to Programming with Python & C	4	MA1512 Differential Equations for Engineering	2
EE2026 Digital Design	4	EE2027 Electronic Circuits	4
Group B module for Second Major (UEM)	4	EE2028 Microcontroller Programming & Interfacing	4
		GER1000 Quantitative Reasoning	4
Sub-total	**20**	**Sub-total**	**22**

Semester 5	MCs	Semester 6	MCs
EG3301R DCP Project (double-counted)	6	EE2012 Analytical Methods in ECE	4
MA1508E Linear Algebra for Engineering	4	EE2033 Integrated Systems Lab	4
EE2023 Signals & Systems	4	Outer Core Elective 1	4
PC2020 Electromagnetics for Electrical Engineers	4	GEH	4
GEQ1000 Asking Questions	4	GET	4
Sub-total	**22**	**Sub-total**	**20**

Semester 7	MCs	Semester 8	MCs
EG4301 DCP Dissertation (UEM)	6	EG4301 DCP Dissertation (UEM)	6
Innovation & Enterprise Elective 1 (UEM)	4	Innovation & Enterprise Elective 2 (UEM)	4
Outer Core Elective 2	4	Technical Elective 1	4
Outer Core Elective 3	4	Technical Elective 2	4
GES	4		
Sub-total	**22**	**Sub-total**	**18**

Semester 9	MCs
Innovation & Enterprise Elective 3 (UEM)	4
Technical Elective 3	4
Technical Elective 4	4
Technical Elective 5	4
EG2401A Engineering Professionalism	2
Sub-total	**18**

Notes:

1. Poly-intake students may receive the following exemptions depending on their Diploma qualification:
   - EG1111 Engineering Principles & Practice I (6 MCs)
   - EG1112 Engineering Principles & Practice II (6 MCs)
   - ES1531 Critical Thinking & Writing (4 MCs)
   - Unrestricted elective modules (20 MCs)

(updated 20 November 2018)

2. Poly-intake students may be exempted from Group A module for Second Major (4 MCs) and/or one Innovation & Enterprise elective (4 MCs) depending on their Diploma qualification. These would be included as part of the 20 MCs of exemptions for unrestricted elective modules.

3. EG3612 (VIP) is not compulsory for poly-intake students. The 6 MCs for VIP may be fulfilled by MA1301 (4 MCs) and PC1222 (4 MCs) and/or other technical elective modules.

4. The Group B module for Second Major may be completed in Semester 5 or Semester 7 if students cannot overload in Semester 3.