

**Bachelor of Engineering (Engineering Science)
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 <i>(Double-counted for Second Major in Innovation & Design)</i>	4
• EG2401A Engineering Professionalism	2
• ES1xxxx English ²	-
Year 1 and core modules:	
• EG1111 Engineering Principles & Practice I	6
• ESP1104A Sensor System Electronics	6
• MA1507 Advanced Calculus	4
• MA1508E Linear Algebra for Engineering	4
• MA2501 Differential Equations & Applications	4
• CS1010E Programming Methodology	4
• PC1433 Mechanics & Waves	4
• PC2130B Applied Quantum Physics	4
• PC2133 Applied Solid State Physics	4
• PC2020 Electromagnetics for Electrical Engineers	4
• ESP2106 Principles of Continua	4
• ESP2107 Numerical Methods & Statistics	4
• ME2121 Engineering Thermodynamics	4
ESP technical electives (specialisation modules) ³	24
ESP design and project modules:	
• ESP2110 Design Project 2	4
• EG4301 DCP Dissertation <u>or</u> EG4301A Ideas to Start-up (over 2 consecutive semesters) <i>(Double-counted for Second Major in Innovation & Design and replaces ESP4901 Research Project)</i>	12
EG3612 Vacation Internship Programme (VIP)	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
• EG3301R DCP Project ³ (over 2 consecutive semesters) <i>(replaces ESP3902 Major Design Project I and ESP3903 Major Design Project II)</i>	12
Sub-total for Unrestricted Elective Modules	32
Total	160

Innovation & Design Programme
Faculty of Engineering

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 additional technical electives (8 MCs) in lieu of ESP3902 (4 MCs) and ESP3903 (4 MCs).

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

Semester 1	MCs	Semester 2	MCs
EG1111 Engineering Principles & Practice I	6	ESP1104A Sensor System Electronics	6
MA1507 Advanced Calculus	4	MA1508E Linear Algebra for Engineering	4
PC1433 Mechanics & Waves	4	GER1000 Quantitative Reasoning	4
CS1010E Programming Methodology	4	GEQ1000 Asking Questions	4
GET	4	ES1531 Critical Thinking & Writing (double-counted)	4
		Group A module for Second Major (UEM)	4
Sub-total	22	Sub-total	26

Semester 3	MCs	Semester 4	MCs
MA2501 Differential Equations and Applications	4	EG3301R DCP Project (UEM)	6
ESP2106 Principles of Continua	4	PC2130B Applied Quantum Physics	4
ESP2107 Numerical Methods & Statistics	4	PC2133 Applied Solid State Physics	4
GEH	4	PC2020 Electromagnetics for Electrical Engineers	4
Group B module for Second Major (UEM)	4	ESP2110 Design Project 2	4
Sub-total	20	Sub-total	22

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 (UEM)	6	Innovation & Enterprise Elective 1 (UEM)	4
Technical Elective 1	4	ME2121 Engineering Thermodynamics	4
Technical Elective 2	4	Technical Elective 3	4
GES	4	Technical Elective 4	4
		Technical Elective 5	4
Sub-total	18	Sub-total	20

Semester 7	MCs	Semester 8	MCs
EG4301 DCP Dissertation (double-counted)	6	EG4301 DCP Dissertation (double-counted)	6
Innovation & Enterprise Elective 2 (UEM)	4	Innovation & Enterprise Elective 3 (UEM)	4
EG2401A Engineering Professionalism	2	Technical Elective 6	4
Sub-total	12	Sub-total	14

Note:

The Group A module for Second Major may be completed in Semester 4 or Semester 6 if students do not wish to overload in Semester 2.