

**Bachelor of Engineering (Industrial & Systems 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 <i>(Double-counted for Second Major in Innovation & Design)</i>	4
• EG2401A Engineering Professionalism	2
• ES1xxxx English ²	-
Year 1 and core modules:	
• IE1111 Industrial & Systems Engineering Principles & Practice I	6
• IE1112 Industrial & Systems Engineering Principles & Practice II	6
• MA1505 Mathematics I	4
• MA1508E Linear Algebra for Engineering	4
• PC1431 Physics IE <u>or</u> PC1432 Physics IIE	4
• CS1010E Programming Methodology	4
• ST2334 Probability & Statistics	4
• IE2100 Probability Models with Applications	4
• IE2110 Operations Research I	4
• IE2130 Quality Engineering I	4
• IE2140 Engineering Economy	4
• IE3101 Statistics for Engineering Applications	4
• IE3110R Simulation	4
ISE technical electives ³	28
ISE design and project modules:	
• EG3301R DCP Project (over 2 consecutive semesters) <i>(Double-counted for Second Major in Innovation & Design and replaces IE3100M Systems Design Project)</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 <u>or</u> EG4301A Ideas to Start-up (over 2 consecutive semesters)	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 may opt to do EG3611A (10 MCs) in lieu of EG3612 (6 MCs) and 4 MCs of technical electives.
- ⁴ EG3612 (VIP) 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).

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

Semester 1	MCs	Semester 2	MCs
IE1111 Industrial & Systems Engineering Principles & Practice I	6	IE1111 Industrial & Systems Engineering Principles & Practice II	6
MA1505 Mathematics I	4	IE2140 Engineering Economy	4
CS1010E Programming Methodology	4	MA1508E Linear Algebra for Engineering	4
PC1431 Physics IE <i>or</i> PC1432 Physics IIE	4	ST2334 Probability & Statistics	4
GET	4	GER1000 Quantitative Reasoning	4
		Group A module for Second Major (UEM)	4
Sub-total	22	Sub-total	26

Semester 3	MCs	Semester 4	MCs
IE2110 Operations Research I	4	EG3301R DCP Project (double-counted)	6
GEQ1000 Asking Questions	4	IE2100 Probability Models with Applications	4
GEH	4	IE2130 Quality Engineering I	4
ES1531 Critical Thinking & Writing (double-counted)	4	ISE Elective 1	4
Group B module for Second Major (UEM)	4	EG2401A Engineering Professionalism	2
Sub-total	20	Sub-total	20

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
IE3110R Simulation	4	ISE Elective 3	4
IE3101 Statistics for Engineering Applications	4	ISE Elective 4	4
ISE Elective 2	4	ISE Elective 5	4
		GES	4
Sub-total	18	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
ISE Elective 6	4	ISE Elective 7	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.