

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

Cohort 2016/2017

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 (or equivalent) <i>(Double-counted for Second Major in Innovation & Design)</i>	4
• ES2331 Communicating Engineering ¹	4
• EG2401 Engineering Professionalism	3
• ES1xxxx English ²	-
Year 1 and core modules:	
• MLE1111 Foundations of Materials Science & Engineering I	4
• MLE1112 Foundations of Materials Science & Engineering II	4
• MA1506 Mathematics II	4
• PC1432 Physics IIE	4
• CS1010E Programming Methodology	4
• CM1501 Organic Chemistry for Engineers	4
• MLE2101 Introduction to Structure of Materials	4
• MLE2102 Thermodynamics & Phase Diagrams	3
• MLE2103 Phase Transformation & Kinetics	3
• MLE2104 Mechanical Properties of Materials	4
• MLE2105 Electronic Properties of Materials	3
• MLE2111 Materials Properties Laboratory	3
• MLE3101 Materials Characterization Laboratory	4
• MLE3111 Materials Properties & Processing Laboratory	3
MLE technical electives ^{3,5}	
Level 2000/3000 electives	18
Level 4000/5000 electives	20
MLE design and project modules:	
• MLE3103 Materials Design & Selection	4
• EG4301 DCP Project <u>or</u> EG4301A Ideas to Start-up (over 2 consecutive semesters) <i>(Double-counted for Second Major in Innovation & Design and replaces MLE4101 BEng Dissertation)</i>	12
EG3612 Vacation Internship Programme (VIP) ^{3,4}	6
Sub-total for Programme Requirements	122
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 ⁵ (over 2 consecutive semesters) <i>(replaces MLE4102 Design Project)</i>	12
Sub-total for Unrestricted Elective Modules	32
Total	174

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 and/or ES2331.
- 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 additional technical electives (6 MCs) in lieu of EG3611 (12 MCs).

Students may also opt to do EG3611 (12 MCs) in lieu of EG3612 (6 MCs) and 6 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).
- ⁵ Students in this Second Major are allowed to complete additional technical electives (4 MCs) in lieu of MLE4102 (4 MCs).