

**Bachelor of Engineering (Environmental 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:	
• CE1101 Civil Engineering Principles & Practice	6
• ESE1102 Principles & Practice in Infrastructure & Environment	6
• MA1511 Engineering Calculus	2
• MA1512 Differential Equations for Engineering	2
• CM1502 General & Physical Chemistry for Engineers	4
• PC1431 Physics IE	4
• CE2134 Hydraulics	4
• CE2409 Computer Applications in Civil Engineering	4
• ESE1001 Environmental Engineering Fundamentals	4
• ESE2001 Environmental Processes	4
• ESE2401 Water Science & Technology	4
• ESE3101 Solid & Hazardous Waste Management	4
• ESE3201 Air Quality Management	4
• ESE3301 Environmental Microbiological Principles	4
• ESE3401 Water & Wastewater Engineering I	4
Engineering process / infrastructure engineering electives	8
EVE technical electives ^{3,5}	16
EVE design and project modules:	
• EG4301 DCP Dissertation <u>or</u> EG4301A Ideas to Start-up ³ (over 2 consecutive semesters) <i>(Double-counted for Second Major in Innovation & Design and replaces ESE4502R B.Eng. Dissertation)</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
• EG3301R DCP Project ⁵ (over 2 consecutive semesters) <i>(replaces ESE4501 Design Project)</i>	12
Sub-total for Unrestricted Elective Modules	32
Total	160

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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) in lieu of EG3611A (10 MCs).

The 12 MCs for EG4301 are mapped by 8 MCs from ESE4502R and 4 MCs from the replacement of EG3611A (10 MCs) with EG3612 (6 MCs).

Students may also 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).
- ⁵ Students in this Second Major are allowed to complete additional technical electives (4 MCs) in lieu of ESE4501 (4 MCs).

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

Semester 1	MCs	Semester 2	MCs
CE1101 Civil Engineering Principles & Practice	6	ESE1102 Principles & Practice in Infrastructure & Environment	6
MA1511 Engineering Calculus	2	CM1502 General & Physical Chemistry for Engineers	4
MA1512 Differential Equations for Engineering	2	Engineering Process / Infrastructure Engineering Elective 1	4
PC1431 Physics IE	4	Group A module for Second Major (UEM)	4
ESE1001 Environmental Engineering Fundamentals	4	GET	4
GER1000 Quantitative Reasoning	4		
Sub-total	22	Sub-total	22

Semester 3	MCs	Semester 4	MCs
ESE2001 Environmental Processes	4	EG3301R DCP Project (UEM)	6
CE2134 Hydraulics	4	ESE2401 Water Science & Technology	4
CE2409 Computer Applications in Civil Engineering	4	ESE3101 Solid & Hazardous Waste Management	4
ES1531 Critical Thinking & Writing (double-counted)	4	ESE3301 Environmental Microbiological Principles	4
Group B module for Second Major (UEM)	4	GEQ1000 Asking Questions	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
ESE3201 Air Quality Management	4	Technical Elective 1	4
ESE3401 Water and Wastewater Engineering 1	4	Technical Elective 2	4
Engineering Process / Infrastructure Engineering Elective 2	4	GES	4
		GEH	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
Technical Elective 3	4	Technical Elective 4	4
		EG2401A Engineering Professionalism	2
Sub-total	14	Sub-total	16

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

Semester 3	MCs	Semester 4	MCs
MA1301 Introductory Mathematics (in lieu of EG3612)	4	EG3301R DCP Project (UEM)	6
CE1101 Civil Engineering Principles & Practice	6	MA1511 Engineering Calculus	2
ESE2001 Environmental Processes	4	MA1512 Differential Equations for Engineering	2
GER1000 Quantitative Reasoning	4	CM1502 General & Physical Chemistry for Engineers	4
Group B module for Second Major (UEM)	4	ESE2401 Water Science & Technology	4
		Group A module for Second Major (UEM)	4
Sub-total	22	Sub-total	22

Semester 5	MCs	Semester 6	MCs
EG3301R DCP Project (UEM)	6	Engineering Process / Infrastructure Engineering Elective 1	4
PC1431 Physics IE	4	ESE3101 Solid & Hazardous Waste Management	4
CE2134 Hydraulics	4	ESE3301 Environmental Microbiological Principles	4
GET	4	GEQ1000 Asking Questions	4
GEH	4	ES1531 Critical Thinking & Writing (double-counted)	4
Sub-total	22	Sub-total	20

Semester 7	MCs	Semester 8	MCs
EG4301 DCP Dissertation (double-counted)	6	EG4301 DCP Dissertation (double-counted)	6
Innovation & Enterprise Elective 1 (UEM)	4	Innovation & Enterprise Elective 2 (UEM)	4
Engineering Process / Infrastructure Engineering Elective 2	4	Technical Elective 1	4
ESE3201 Air Quality Management	4	GES	4
ESE3401 Water and Wastewater Engineering 1	4	UEM (in lieu of EG3612)	2
Sub-total	22	Sub-total	20

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

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Notes:

1. Poly-intake students may receive the following exemptions depending on their Diploma qualification:
 - ESE1001 Environmental Engineering Fundamentals (4 MCs)
 - ESE1102 Principles & Practice in Infrastructure & Environment (6 MCs)
 - CE2409 Computer Applications in Civil Engineering (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/or other modules.