

ESE Curriculum (2020 Cohort - Normative 4-year Degree)

[min. no. of CUs for the award: 121]

**(1) Gateway Education (GE) Requirement (30 CUs)**

GE Requirement		Credit Units
University Requirements	GE1401 University English	3
	GE2410 English for Engineering	3
	GE1501 Chinese Civilisation – History and Philosophy	3
Distributional Requirements	A minimum of 3 credit units from each of the three distributional areas below: - Area 1: Arts and Humanities - Area 2: Study of Societies, Social and Business Organisations - Area 3: Science and Technology	12
School-specified Requirements	MNE2016 Engineering Graphics	3
	SEE1003 Introduction to Sustainable Energy and Environmental Engineering	3
	SEE3002 Energy and Environmental Economics	3
Total		30

**(2) School Requirement (18 CUs)**

Course	Credit Units	Remarks
CHEM1200 Discovery in Biology	3	
CHEM1300 Principles of General Chemistry	3	
MA1200 / MA1300 Calculus and Basic Linear Algebra I / Enhanced Calculus and Linear Algebra I	3	Select either MA1200 or MA1300
MA1201 / MA1301 Calculus and Basic Linear Algebra II / Enhanced Calculus and Linear Algebra II	3	Select either MA1201 or MA1301
PHY1201 General Physics I	3	
SEE1002 Introduction to Computing for Energy and Environment	3	
SEE4000 Professional Development	0	

**(3) Major Requirement (73 CUs)**

**A. Basic Core Courses (19 CUs)**

<b>Course</b>	<b>Credit Units</b>
MA2181 Mathematical Methods for Engineering	3
SEE2001 Electromagnetic Principles for Energy Engineers	3
SEE2002 Chemical Sciences for Energy and Environmental Engineers	4
SEE2003 Introduction to Energy and Environmental Data Analysis	3
SEE2101 Engineering Thermofluids I	3
SEE2201 Fundamentals of Environmental Engineering	3

**B. Major Core Courses (42 CUs)**

<b>Course</b>	<b>Credit Units</b>
SEEM4024 Project Management	3
SEE3001 Energy and Environmental Policy	3
SEE3003 Climate Change and Adaptation Strategies	3
SEE3101 Engineering Thermofluids II	4
SEE3102 Power Plant Engineering	3
SEE3103 Energy Efficiency for Buildings	3
SEE3104 Sustainable and Renewable Energy	3
SEE4001 Engineers in Society	1
SEE4003 Energy and Environmental Engineering Laboratory	3
SEE4004 Environmental Impact Assessment for Sustainable Development	4
SEE4112 Sustainable Engineering Systems: Modelling and Analysis	3
SEE4217 Waste and Wastewater Treatment Engineering	3
SEE4997 Final Year Project	6

C. Electives (12 CUs) - *select at least **FOUR** courses from the following list*

Course	Credit Units	Remarks
SDSC3002 Data Mining	3	Select at least three from Courses SDSC3002, SEE4111, SEE4113, SEE4114, SEE4115, SEE4116, SEE4117, SEE4118, SEE4119, SEE4120 and SEE4121
SEE4111 Nuclear Energy Engineering	3	
SEE4113 Nanotechnology in Energy Conversion and Storage: Concepts and Creative Science	3	
SEE4114 Bioenergy Engineering: Principles and Applications	3	
SEE4115 Energy Catalysis and Reaction Engineering	3	
SEE4116 Energy and Carbon Auditing	3	
SEE4117 Solar Energy Engineering	3	
SEE4118 Wind and Marine Energy	3	
SEE4119 Electrical Energy Conversion	3	
SEE4120 Materials Engineering for Energy Applications	3	
SEE4121 Gas Engineering	3	Select at least one from Courses SEE3201, SEE3204*, SEE3205, SEE4202, SEE4205, SEE4216 and SEE4218
SEE3201 Atmospheric Science – An Introductory Survey	3	
SEE3204* Urban Sustainability	3	
SEE3205 Urban Sustainability	3	
SEE4202 Atmospheric Chemistry	3	
SEE4205 Design of Smart Cities and Sustainable Building	3	
SEE4216 Combustion and Air Pollution Control	3	
SEE4218 Water and Water Resource Engineering	3	

\*SEE3204 is a summer course (not offer until further notice)

**ESE Curriculum (2020 Cohort – Advanced Standing I)**  
**[min. no. of CUs for the award: 91]**

**(1) Gateway Education (GE) Requirement (21 CUs)**

<b>GE Requirement</b>		<b>Credit Units</b>
University Requirements	GE1401 University English	3
	GE2410 English for Engineering	3
	GE1501 Chinese Civilisation – History and Philosophy	3
Distributional Requirements	A minimum of 6 credit units from two of the three distributional areas below: - Area 1: Arts and Humanities - Area 2: Study of Societies, Social and Business Organisations - Area 3: Science and Technology	6
School-specified Requirements	MNE2016 Engineering Graphics	3
	SEE3002 Energy and Environmental Economics	3
Total		21

**(2) School Requirement (0 CU)**

<b>Course</b>	<b>Credit Unit</b>
SEE4000 Professional Development	0

**(3) Major Requirement (70 CUs)**

**A. Basic Core Courses (16 CUs)**

<b>Course</b>	<b>Credit Units</b>
MA2181 Mathematical Methods for Engineering	3
SEE2001 Electromagnetic Principles for Energy Engineers	3
SEE2002 Chemical Sciences for Energy and Environmental Engineers	4
SEE2101 Engineering Thermofluids I	3
SEE2201 Fundamentals of Environmental Engineering	3

**B. Major Core Courses (42 CUs)**

Course	Credit Units
SEEM4024 Project Management	3
SEE3001 Energy and Environmental Policy	3
SEE3003 Climate Change and Adaptation Strategies	3
SEE3101 Engineering Thermofluids II	4
SEE3102 Power Plant Engineering	3
SEE3103 Energy Efficiency for Buildings	3
SEE3104 Sustainable and Renewable Energy	3
SEE4001 Engineers in Society	1
SEE4003 Energy and Environmental Engineering Laboratory	3
SEE4004 Environmental Impact Assessment for Sustainable Development	4
SEE4112 Sustainable Engineering Systems: Modelling and Analysis	3
SEE4217 Waste and Wastewater Treatment Engineering	3
SEE4997 Final Year Project	6

**C. Electives (12 CUs) - select at least *FOUR* courses from the following list**

Course	Credit Units	Remarks
SDSC3002 Data Mining	3	Select at least three from Courses SDSC3002, SEE4111, SEE4113, SEE4114, SEE4115, SEE4116, SEE4117, SEE4118, SEE4119, SEE4120 and SEE4121
SEE4111 Nuclear Energy Engineering	3	
SEE4113 Nanotechnology in Energy Conversion and Storage: Concepts and Creative Science	3	
SEE4114 Bioenergy Engineering: Principles and Applications	3	
SEE4115 Energy Catalysis and Reaction Engineering	3	
SEE4116 Energy and Carbon Auditing	3	
SEE4117 Solar Energy Engineering	3	
SEE4118 Wind and Marine Energy	3	
SEE4119 Electrical Energy Conversion	3	
SEE4120 Materials Engineering for Energy Applications	3	
SEE4121 Gas Engineering	3	
SEE3201 Atmospheric Science – An Introductory Survey	3	Select at least one from Courses SEE3201, SEE3204*, SEE3205, SEE4202, SEE4205, SEE4216 and SEE4218
SEE3204* Urban Sustainability	3	
SEE3205 Urban Sustainability	3	
SEE4202 Atmospheric Chemistry	3	
SEE4205 Design of Smart Cities and Sustainable Building	3	
SEE4216 Combustion and Air Pollution Control	3	
SEE4218 Water and Water Resource Engineering	3	

\*SEE3204 is a summer semester course (not offered until further notice)