

ESE Curriculum (2019 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 |
|--|--------------|---|
| BCH1100 Chemistry | 3 | |
| BCH1200 Discovery in Biology | 3 | |
| MA1200 / MA1300 | 3 | Calculus and Basic Linear Algebra I / Enhanced Calculus and Linear Algebra I Select either MA1200 or MA1300 |
| MA1201 / MA1301 | 3 | Calculus and Basic Linear Algebra II / Enhanced Calculus and Linear Algebra II Select either MA1201 or MA1301 |
| PHY1201 General Physics I | 3 | |
| SEE1002 Introduction to Computing for Energy and Environment | 3 | |

(3) Major Requirement (73 CUs)

A. Basic Core Courses (19 CUs)

| Course | Credit Units |
|--|--------------|
| 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)

| 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 course (not offer until further notice)

ESE Curriculum (2019 Cohort – Advanced Standing I)
[min. no. of CUs for the award: 91]

(1) Gateway Education (GE) Requirement (21 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 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 (Not required)

(3) Major Requirement (70 CUs)

A. Basic Core Courses (16 CUs)

| Course | | Credit Units |
|---------------|--|---------------------|
| 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 course (not offer until further notice)*