

ESE Curriculum (2013 Cohort - Normative 4-year Degree)

[min. no. of CUs for the award: 120]

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

| GE Requirement              |  | Credit Units |
|-----------------------------|--|--------------|
| University Requirements     | GE1401 University English  | 3            |
|                             | GE2401 / English for Science /<br>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:<br>- Area 1: Arts and Humanities<br>- Area 2: Study of Societies, Social and Business Organisations<br>- Area 3: Science and Technology | 21           |
| Total                       |  | 30           |

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

| Course  | Credit Units | Remarks                        |
|---|--------------|--------------------------------|
| AP1201 General Physics I  | 3            |                                |
| BCH1100 Chemistry   | 3            |                                |
| BCH1200 Discovery in Biology  | 3            |                                |
| CS1102 / Introduction to Computer Studies /<br>CS1302 Introduction to Computer Programming        | 3            | Select either CS1102 or CS1302 |
| MA1200 / Calculus and Basic Linear Algebra I /<br>MA1300 Enhanced Calculus and Linear Algebra I   | 3            | Select either MA1200 or MA1300 |
| MA1201 / Calculus and Basic Linear Algebra II /<br>MA1301 Enhanced Calculus and Linear Algebra II | 3            | Select either MA1201 or MA1301 |

**(3) Major Requirement (72 CUs)**

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

| Course  | Credit Units |
|---|--------------|
| MA2172 Applied Statistics for Sciences and Engineering  | 3            |
| MA2181 Mathematical Methods for Engineering             | 3            |
| SEE2001 Electromagnetic Principles for Energy Engineers | 3            |
| SEE2002 Chemical Sciences for Energy Engineers          | 4            |
| SEE2101 Thermosciences for Energy Conversion I          | 3            |
| SEE2201 Introduction to Environmental Engineering       | 3            |

**B. Major Core Courses (41 CUs)**

| Course  | Credit Units |
|---|--------------|
| SEEM4024 Project Management   | 3            |
| SEE3001 Energy and Energy-related Environmental Policy              | 3            |
| SEE3002 Energy and Energy-related Environmental Economics           | 3            |
| SEE3101 Thermosciences for Energy Conversion II                     | 4            |
| SEE3102 Power Plant Engineering                                     | 3            |
| SEE3103 Energy Efficiency for Buildings                             | 3            |
| SEE3104 Sustainable and Renewable Energy                            | 3            |
| SEE4001 Engineers in Society  | 3            |
| SEE4004 Environmental Impact Assessment for Sustainable Development | 4            |
| SEE4112 Energy Systems: Modelling and Analysis                      | 3            |
| SEE4217 Waste and Wastewater Treatment                              | 3            |
| SEE4997 Final Year Project  | 6            |

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

| Course   | Credit Units | Remarks   |
|--|--------------|---|
| SEE4111 Nuclear Energy Engineering   | 3            | Select at least three from Courses SEE4111, SEE4113, SEE4114, SEE4115, SEE4116, SEE4117, SEE4118, SEE4119 and SEE4120 |
| 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 Storage Applications                          | 3            |   |
| SEE3201 Atmospheric Science – An Introductory Survey                                   | 3            |   |
| SEE4202 Atmospheric Chemistry  | 3            |   |
| SEE4205 Design of Smart Cities and Sustainable Building                                | 3            |   |
| SEE4213 An Introduction to Environmental Data Analysis                                 | 3            |   |
| SEE4216 Combustion and Air Pollution Control   | 3            |   |
| SEE4218 Water Quality Engineering  | 3            |   |