

ESE Curriculum (2012 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
	GE2401 / English for Science / 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	21
Total		30

**(2) School Requirement (19 CUs)**

Course	Credit Units	Remarks
AP1201 General Physics I	3	
BCH1100 Chemistry	3	
BCH1200 Discovery in Biology	3	
CS1102 / Introduction to Computer Studies / CS1302 Introduction to Computer Programming	3	Select either CS1102 or CS1302
MA1200 / Calculus and Basic Linear Algebra I / MA1300 Enhanced Calculus and Linear Algebra I	3	Select either MA1200 or MA1300
MA1201 / Calculus and Basic Linear Algebra II / MA1301 Enhanced Calculus and Linear Algebra II	3	Select either MA1201 or MA1301
SEE1001 Seminar on Current Issues in Energy and Environment	1	

**(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 (38 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
SEE4997 Final Year Project	6

**C. Electives (15 CUs) - select at least *FIVE* 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 Hydro Power	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	
SEE4213 An Introduction to Environmental Data Analysis	3	
SEE4216 Air Pollution Measurement and Control	3	
SEE4217 Waste and Wastewater Treatment	3	
SEE4218 Water Quality Engineering	3	