# ME (ELECTRICAL AND ELECTRONIC) ENGINEERING

## Programme Requirements

| Code | Title | Credits |
|---|---|---|
| **Year 1 - Engineering** | | |
| Students take **60** credits as follows: | | |
| *Core Modules* | | |
| CE1003 | Introduction to Structural and Civil Engineering | 5 |
| CE1005 | Engineering Computation and Problem Solving | 5 |
| CM1001 | Chemistry for Engineers | 5 |
| EE1007 | Introduction to Electrical and Electronic Engineering | 5 |
| MA1011 | Mathematical Methods I | 5 |
| MA1012 | Mathematical Methods II | 5 |
| ME1002 | Engineering Thermodynamics | 5 |
| NE1001 | Introduction to Energy Engineering | 5 |
| PE1003 | Introduction to Process and Chemical Engineering | 5 |
| PY1006 | Physics for Engineers II | 5 |
| PY1012 | Physics for Engineers 1 | 10 |
| **Year 2 - Electrical and Electronic Engineering** | | |
| Students take **60** credits as follows: | | |
| *Core Modules* | | |
| EG2002 | Numerical Methods and Programming | 5 |
| CE2001 | Solid and Structural Mechanics I | 5 |
| EE2011 | Digital Electronics | 5 |
| EE2012 | Linear Circuit Analysis | 5 |
| EE2013 | Non-Linear Circuit Analysis | 5 |
| EE2014 | Signals and Systems 1 | 5 |
| EE2015 | Signals and Systems 2 | 5 |
| EE2016 | Electrical Power Engineering I | 5 |
| EE2017 | Electrical Power Engineering II | 5 |
| EE2020 | Semiconductor Devices | 5 |
| MA2013 | Mathematics for Engineering | 5 |
| ST1051 | Introduction to Probability and Statistics | 5 |
| **Year 3 - Electrical and Electronic Engineering** | | |
| Students take **60** credits as follows: | | |
| *Core Modules* | | |
| EE3011 | Power Electronics & AC Machines and Systems | 5 |
| EE3012 | Electric Vehicle Energy Systems | 5 |
| EE3013 | Electromagnetic Fields for Engineers | 5 |
| EE3014 | Signal Processing | 5 |
| EE3015 | Telecommunications I | 5 |
| EE3016 | Control Engineering I | 5 |
| EE3018 | Analogue Integrated Circuits | 5 |
| EE3019 | Digital Integrated Circuits | 5 |
| EE3020 | Engineering Applications of Machine Learning | 5 |
| EE3022 | Electronic Circuit Design | 5 |
| EE3023 | Electronic Embedded Systems | 5 |
| ME3003 | Mechanical Systems | 5 |
| **Year 4 - ME Pathway Electrical and Electronic Engineering** | | |
| Students take **60** credits as follows - all listed core modules (**30** credits) in Part A and a Placement module (**30** credits) in Part B: | | |
| *Core Modules* | | |
| *Part A* | | |
| EE4002 | Control Engineering II | 5 |
| EE4010 | Electrical Power Systems | 5 |
| EE4014 | Industrial Automation and Control | 5 |
| EE4016 | Transmission Lines | 5 |
| EE4019 | Photonic Signals and Systems Application | 5 |
| EE4022 | Analogue IC Design | 5 |
| *Part B* | | |
| *Core Modules* | | |
| EE6060 | Electrical and Electronic Engineering Work Placement | 30 |
| **Year 5 - ME (Electrical and Electronic Engineering)** | | |
| Students take **60** credits as follows – all listed core modules (**30** credits) and **30** credits of elective modules: | | |
| *Core Modules* | | |
| EE6050 | ME Research Project | 20 |
| MG4052 | Management in Practice | 5 |
| MG6315 | Project Management | 5 |
| *Elective Modules* | | *30* |
| Students take a maximum of **10** credits from Group I (if not taken in Year 4) and a minimum of **20** credits from Group II: [1] | | |
| *Group I Modules* | | |
| EE4001 | Energy Systems, Power Electronics and Drives (5) | |
| EE4004 | Telecommunications II (5) | |
| EE4012 | Biomedical Systems (5) | |
| EE4023 | Digital IC Design (5) | |
| NE4008 | Photovoltaic Systems (5) | |
| *Group II Modules* | | |
| CS6506 | Programming in Python (5) | |
| CS6507 | Programming in Python with Applications (5) | |
| EE6034 | Optical Communications and Optoelectronics (5) | |
| EE6036 | Design of RF Integrated Circuits (5) | |
| EE6041 | Advanced Digital Signal Processing (5) | |
| EE6042 | Frequency Synthesizers for Wireless and Cellular Systems (5) | |
| EE6044 | Advanced Analogue IC Design (5) | |
| EE6045 | Data Converter Techniques: Circuits and Architectures (5) | |
| EE6046 | Introduction to Micro Electromechanical Systems (MEMS) (5) | |
| EE6048 | Smart Grids (5) | |
| EE6080 | Human Physiology for Engineers (5) | |
| EE6081 | Biomedical Instrumentation (5) | |
| ME6008 | Robotics (5) | |
| ME6012 | Advanced Robotics (5) | |
| **Total Credits** | | **300** |

[1] The sum of units taken from Groups I and II must equal **30** credits. A student may not study more than **20** credits from Groups I and II in Semester 1. A student may not study more than **20** credits from Groups I and II in Semester 2. Modules in Group I and Group II are offered

subject to availability and timetabling constraints. Alternative modules may be offered. The selection of any elective module is subject to meeting any pre-requisite and co-requisite requirements specified in the Book of Modules. The choice of modules is subject to the approval of the Head of Discipline of Electrical and Electronic Engineering.

## Examinations

Full details and regulations governing Examinations for each programme will be contained in the *Marks and Standards Book* and for each module in the *Book of Modules*.