# ME (PROCESS AND CHEMICAL) 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 - Process and Chemical Engineering** | | |
| Students take **60** credits as follows: | | |
| *Core Modules* | | |
| EG2001 | Engineering Mechanics with Transform Methods | 5 |
| EG2002 | Numerical Methods and Programming | 5 |
| CE2001 | Solid and Structural Mechanics I | 5 |
| CE2003 | Fluids I | 5 |
| CM2010 | Introduction to Organic Chemistry for Process and Chemical Engineers | 5 |
| PE2003 | Heat Transfer | 5 |
| PE2004 | Communication and Ethics in Engineering | 5 |
| PE2005 | Introduction to Biochemical Engineering | 5 |
| PE2008 | Phase Equilibrium and Mass Transfer | 5 |
| PE2009 | Chemical Reaction Engineering | 5 |
| PE2013 | Data Analysis for Process and Product Development | 5 |
| PE2014 | Experimental Methods in Chemical Engineering | 5 |
| **Year 3 - Process and Chemical Engineering** | | |
| Students take **60** credits as follows – all listed core modules (**55** credits) and **5** credits of elective modules: | | |
| *Core Modules* | | |
| CM3029 | Organic Chemistry II for Process and Chemical Engineering | 5 |
| CM3030 | Intermediate Stereochemistry, Reactivity and Mechanisms in Organic Chemistry | 5 |
| PE3001 | Applied Thermodynamics and Fluid Mechanics | 5 |
| PE3002 | Unit Operations and Particle Technology | 5 |
| PE3003 | Phase Equilibrium and Mass Transfer | 5 |
| PE3005 | Process Equipment; Design, Integrity & Materials | 5 |
| PE3007 | Process Dynamics and Control | 5 |
| PE3011 | Sustainability and Environmental Protection I | 5 |
| PE3014 | Food and Bioprocess Engineering | 5 |
| PE3015 | Process Safety | 5 |
| PE3016 | Process Design and Feasibility Analysis | 5 |
| *Elective Modules* [1] | | |
| Students take modules to the value of **5** credits from the following: | | 5 |
| NE3002 | Energy in Buildings | |
| PE3009 | Pharmaceutical Engineering | |
| **Year 4 - ME Pathway Process and Chemical 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: | | |
| *Part A* | | |
| *Core Modules* | | |
| PE4007 | Mechanical Design of Process Equipment | 5 |
| PE4016 | Pharmaceutical Process Validation | 5 |
| PE4050 | Design Project | 15 |
| NE3003 | Sustainable Energy | 5 |
| or PE4010 | BioPharmaceutical Engineering | |
| *Part B* | | |
| *Core Modules* | | |
| PE6060 | ME Work Placement | 30 |
| **Year 5 - ME (Process and Chemical Engineering)** | | |
| Students take **60** credits as follows – all listed core modules (**45** credits) and **15** credits of elective modules: | | |
| *Core Modules* | | |
| NE6015 | Data Analytics for Engineering | 5 |
| PE6030 | Industrial Process Safety; Applications and Control Systems | 5 |
| PE6033 | Sustainability and Environmental Protection II | 5 |
| PE6035 | Complex Separation Processes | 5 |
| PE6039 | Manufacturing Excellence in the Bioprocessing Industries | 5 |
| PE6050 | ME Research Project | 20 |
| NE6004 | Sustainability, Bioenergy and Circular Economy Systems | 5 |
| PE6032 | Pharmaceutical Industry Advances and Developments | 5 |
| *Elective Modules* [1] | | |
| Students take modules to the value of **5** credits as follows: | | 5 |
| MG4052 | Management in Practice (5) | |
| or PE4002 | Optimisation and Continuous Process Improvement (5) | |
| **Total Credits** | | **300** |

[1] Some modules may be pre-requisites for elective modules in subsequent years. While there is no upper limit on the number of students who may take a particular elective module, modules may be withdrawn if there are insufficient entrants.

## 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*.