

APPROVED

Bachelor of Engineering (Honours) in Chemical and Biopharmaceutical Engineering
Faculty of Engineering & Science

Award Class					
Awards					
BEng (Hons)					
Programme Code	CR_ECPEN_8	Mode of Delivery	Full Time	No. of Semesters	8
NFQ Level	8	Embedded Award	No	Programme Credits	240
Next Review Date					
Review Type				Date	
Programmatic Review				01/06/2020	
Department	PROCESS, ENERGY & TRANSPORT ENGINEERING				

Programme Outcomes

Upon successful completion of this programme the graduate will be able to demonstrate... :

#	PO Domains	Programme Learning Outcome
PO1	Knowledge - Breadth	knowledge and understanding of the principles of chemical and biopharmaceutical engineering and their underpinning mathematics and sciences; an understanding of the interfaces with the natural sciences; the ability to use this knowledge to achieve effective engineering solutions.
PO2	Knowledge - Kind	the ability to analyse chemical and biopharmaceutical processes, to apply current theories into the behaviour of these processes, and to interpret the application of chemical, bio-transformation and bio-processing science to the commercial production of chemical, pharmaceutical and biologically-active products.
PO3	Skill - Range	the ability to design chemical, biochemical, pharmaceutical and process plants from conceptual design through to commissioning and operation, to develop processes to achieve a desired product taking account of safety, environmental and economic issues, to manage chemical and process plant including staff and to manage projects to design and commission new or existing plant.
PO4	Skill - Selectivity	the ability to address an unstructured problem, and execute work which requires critical evaluation and decision making skills; the ability to develop and evaluate alternatives for a particular operation based on production specifications, safety, environmental and economic criteria.
PO5	Competence - Context	the ability to combine technical and other skills to define a problem, identify constraints, and employ creativity, innovation, and design, and to implement solutions using mathematics, science and associated chemical engineering principles.
PO6	Competence - Role	the ability to work alone, as a member of a team or a team leader; the ability to communicate verbally, in writing or using ICT systems; the ability to manage a project through all stages addressing safety, environmental and economic issues; the ability to manage production facilities.
PO7	Competence - Learning to Learn	the ability to use creative and critical powers to make choices and decisions in areas of uncertainty, apply chemical engineering methods to the analysis of complex systems, synthesise and integrate new information to create systems for process, equipment and product design, and take responsibility for their own learning.
PO8	Competence - Insight	an appreciation of the need for high ethical and professional standards; a recognition of the priorities and role of sustainable development; an ability to analyse the interaction of process, product and plant with the environment ensuring that appropriate standards of safety and environmental concern are integral to all activities.

Semester Schedules

Year 1 / Semester 1

Mandatory				
Code	Title	Module Coordinator	Version	Credits
BIOL6007	Biomolecules and Cells	Brigid Lucey	3	5
CMOD6001	Creativity Innovation&Teamwork	MARESE BERMINGHAM	3	5
CHEM6001	Engineering Chemistry	Donagh OMahony	5	5
MATH6005	Engineering Maths 101	David Goulding	5	5
PHYS6003	Engineering Physics 1	Donagh OMahony	3	5
CHEP6002	Process Principles & Design 1	Michael J. O Mahony	5	5

Year 1 / Semester 2

Mandatory				
Code	Title	Module Coordinator	Version	Credits
MATH6031	Engineering Computing 1	David Goulding	2	5
MATH6006	Engineering Maths 102	David Goulding	5	5
CHEO6001	Organic Chemistry Fundamental	Donagh OMahony	4	5
CHEP6001	Process Engineering Labs 1	Michael J. O Mahony	4	5
CHEP6003	Process Principles & Design 2	Michael J. O Mahony	5	5

Elective				
Code	Title	Module Coordinator	Version	Credits
BIOT6015	Bioprocess Eng Principles	Michael J. O Mahony	1	5
MANU6013	Manufacturing Technology	Michael J. O Mahony	2	5

Year 2 / Semester 1

Mandatory				
<i>Code</i>	<i>Title</i>	<i>Module Coordinator</i>	<i>Version</i>	<i>Credits</i>
CHEP7003	Chemistry for Chemical Eng.	Donagh OMahony	2	5
MATH7006	Engineering Mathematics 211	David Goulding	5	5
CHEP7006	Particulate Systems	Michael J. O Mahony	5	5
CHEP7007	Process Analysis	Michael J. O Mahony	3	5
CHEP7010	Transfer Processes	Michael J. O Mahony	4	5
Elective				
<i>Code</i>	<i>Title</i>	<i>Module Coordinator</i>	<i>Version</i>	<i>Credits</i>
MECH6009	Engineering Mechanics	DES WALSH	4	5
CHEP6002	Process Principles & Design 1	Michael J. O Mahony	5	5
MANU7007	Validation Science	Michael J. O Mahony	6	5

Year 2 / Semester 2

Mandatory				
<i>Code</i>	<i>Title</i>	<i>Module Coordinator</i>	<i>Version</i>	<i>Credits</i>
CHEP8003	Biopharmaceutical Engineering	Michael J. O Mahony	4	5
CHEP7005	Equilibrium Separations	Michael J. O Mahony	5	5
CHEP8009	Equipment Design	Michael J. O Mahony	7	5
CHEP7013	Process Energy Analysis	Michael J. O Mahony	1	5
CHEP7008	Process Eng Lab 2	Michael J. O Mahony	4	5
Elective				
<i>Code</i>	<i>Title</i>	<i>Module Coordinator</i>	<i>Version</i>	<i>Credits</i>
CHEO6001	Organic Chemistry Fundamental	Donagh OMahony	4	5
		Michael J. O		

CHEP8018	<u>Process Modelling</u>	Mahony	2	5
MGMT7047	<u>Technology Transfer</u>	Michael J. O Mahony	2	5

Year 3 / Semester 1

Mandatory				
<i>Code</i>	<i>Title</i>	<i>Module Coordinator</i>	<i>Version</i>	<i>Credits</i>
CHEP7001	<u>Bioreactor Design</u>	Michael J. O Mahony	3	5
CHEP8005	<u>Chemical Reactor Engineering</u>	Michael J. O Mahony	4	5
CHEP8011	<u>Fluid Properties Analysis</u>	Michael J. O Mahony	2	5
CHEP8012	<u>Mass Transfer</u>	Michael J. O Mahony	3	5
CHEP8013	<u>Product Design</u>	Michael J. O Mahony	3	5
STAT8004	<u>Stats & Experimental Design</u>	David Goulding	2	5

Year 3 / Semester 2

Mandatory				
<i>Code</i>	<i>Title</i>	<i>Module Coordinator</i>	<i>Version</i>	<i>Credits</i>
CHEP7011	<u>Advanced Transfer Processes</u>	Michael J. O Mahony	4	5
CHEP8023	<u>Chemical Process Safety</u>	Michael J. O Mahony	3	5
CHEP7004	<u>Control and Instrumentation</u>	Michael J. O Mahony	4	5
CHEP8015	<u>Process Design</u>	Michael J. O Mahony	3	5
CHEP8017	<u>Process Engineering Labs 3</u>	Michael J. O Mahony	2	5
CHEP7009	<u>Process Waste Management</u>	Michael J. O Mahony	3	5

Year 4 / Semester 1

Mandatory				
<i>Code</i>	<i>Title</i>	<i>Module Coordinator</i>	<i>Version</i>	<i>Credits</i>
CHEP8028	<u>Engineering Research Project</u>	Michael J. O Mahony	2	15
PLAC8009	<u>Professional Work Placement</u>	Michael J. O Mahony	3	15

Year 4 / Semester 2

Mandatory				
<i>Code</i>	<i>Title</i>	<i>Module Coordinator</i>	<i>Version</i>	<i>Credits</i>
CHEP8001	<u>Advanced Chemical Engineering</u>	Michael J. O Mahony	3	5
CHEP8004	<u>Automatic Process Control</u>	Michael J. O Mahony	5	5
CHEP8029	<u>Chemical Eng Design: Group</u>	Michael J. O Mahony	1	5
CHEP8030	<u>Chemical Eng Detailed Design</u>	Michael J. O Mahony	2	5
CHEP8014	<u>Process & Properties Analysis</u>	Michael J. O Mahony	3	5

Elective				
<i>Code</i>	<i>Title</i>	<i>Module Coordinator</i>	<i>Version</i>	<i>Credits</i>
CHEP8008	<u>Environmental Management</u>	Michael J. O Mahony	3	5
MATH8010	<u>Multivariable Calculus</u>	David Goulding	3	5
CHEP8019	<u>Process Quality Management</u>	Michael J. O Mahony	3	5
CHEP8026	<u>Process Technology Transfer</u>	Michael J. O Mahony	3	5

