APPROVED

Institiúid Teicneolaíochta Chorcaí
Cork Institute of Technology

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		

programmeReviewDate:	June 2020
Department:	PROCESS, ENERGY & TRANSPORT ENGINEERING

Programme Outcomes

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

PO1	Knowledge - Breadth	
	(a)	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	
	(a)	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	
	(a)	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	
	(a)	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	
	(a)	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	
	(a)	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	
	(a)	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	
	(a)	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

Stage 1 / Semester 1

Mandatory	
Module Code	**Module Title**
CHEM6001	Engineering Chemistry
PHYS6003	Engineering Physics 1
CMOD6001	Creativity Innovation&Teamwork
BIOL6007	Biomolecules and Cells
CHEP6002	Process Principles & Design 1
MATH6005	Engineering Maths 101

Stage 1 / Semester 2

Mandatory	
Module Code	**Module Title**
MATH6031	Engineering Computing 1
CHEO6001	Organic Chemistry Fundamental
CHEP6003	Process Principles & Design 2
MATH6006	Engineering Maths 102
CHEP6001	Process Engineering Labs 1

Elective	
Module Code	**Module Title**
MANU6013	Manufacturing Technology
BIOT6015	Bioprocess Eng Principles

Stage 2 / Semester 1

Mandatory	
Module Code	**Module Title**
CHEP7003	Chemistry for Chemical Eng.
CHEP7006	Particulate Systems
CHEP7007	Process Analysis
CHEP7010	Transfer Processes
MATH7006	Engineering Mathematics 211

Elective	
Module Code	**Module Title**
CHEP6002	Process Principles & Design 1
MECH6009	Engineering Mechanics
MANU7007	Validation Science

Stage 2 / Semester 2

Mandatory	
Module Code	**Module Title**
CHEP7008	Process Eng Lab 2
CHEP8003	Biopharmaceutical Engineering
CHEP7013	Process Energy Analysis
CHEP7005	Equilibrium Separations
CHEP8009	Equipment Design

Elective	
Module Code	**Module Title**
CHEP8018	Process Modelling
CHEO6001	Organic Chemistry Fundamental
MGMT7047	Technology Transfer

Stage 3 / Semester 1

Mandatory	
Module Code	**Module Title**
CHEP7001	Bioreactor Design
CHEP8012	Mass Transfer
STAT8004	Stats & Experimental Design
CHEP8011	Fluid Properties Analysis
CHEP8005	Chemical Reactor Engineering
CHEP8013	Product Design

Stage 3 / Semester 2

Mandatory	
Module Code	**Module Title**
CHEP8015	Process Design
CHEP7009	Process Waste Management
CHEP7011	Advanced Transfer Processes
CHEP8017	Process Engineering Labs 3
CHEP8023	Chemical Process Safety
CHEP7004	Control and Instrumentation

Stage 4 / Semester 1

Mandatory	
Module Code	**Module Title**
CHEP8028	Engineering Research Project
PLAC8009	Professional Work Placement

Stage 4 / Semester 2

Mandatory	
Module Code	**Module Title**
CHEP8014	Process & Properties Analysis
CHEP8001	Advanced Chemical Engineering
CHEP8030	Chemical Eng Detailed Design
CHEP8029	Chemical Eng Design: Group
CHEP8004	Automatic Process Control

Elective	
Module Code	**Module Title**
CHEP8026	Process Technology Transfer
CHEP8019	Process Quality Management
CHEP8008	Environmental Management