



Institiúid Teicneolaíochta Chorcaí
Cork Institute of Technology

APPROVED

Awards
BEng (Hons)

Programme Code:	CR_ESENT_8
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Mode of Delivery:	Full Time, Part Time, ACCS
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No. of Semesters:	8
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NFQ Level:	8
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Embedded Award:	No
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Programme Credits:	240
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programmeReviewDate:	March 2022
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Department:	PROCESS, ENERGY & TRANSPORT ENGINEERING
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Field of Study:	Mechanical Engineering
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Programme Outcomes

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

PO1	Knowledge - Breadth
	(a) A broad based knowledge and understanding of mathematics, the physical sciences, ICT, design processes and methodologies and industrial practices relevant to Sustainable Energy Engineering.
PO2	Knowledge - Kind
	(a) A detailed knowledge and understanding of the application of mathematical and scientific methods to Sustainable Energy problems, whilst comprehending that mathematics and the engineering sciences are built on relatively few basic concepts and involving powerful unifying principles.
PO3	Skill - Range
	(a) Apply and modify mathematical and scientific tools and techniques to solve complex sustainable energy problems through data collection, modelling, analysis, design, simulation, communication and management with creativity, imagination and confidence.
PO4	Skill - Selectivity
	(a) The ability to select, evaluate and apply appropriate engineering, technological and management aids to design and implement a system, component or process to meet specified needs in complex and unfamiliar situations.
PO5	Competence - Context
	(a) An understanding of the diverse nature and the social context of energy engineering; appreciate the impact of engineering solutions in a global, contemporary, societal, commercial and environmental context; exhibit professionalism, whilst having the confidence and independence to apply existing knowledge to new and unfamiliar problems.
PO6	Competence - Role
	(a) An ability to act in teams and in a multi-disciplinary fashion, set and implement work objectives and priorities, exercise leadership over technical or other personnel where required; recognise, interpret and apply appropriate regulations and ethical considerations.
PO7	Competence - Learning to Learn
	(a) An awareness of the current boundaries of the various specialist areas in Sustainable Energy and to have sufficient academic training, confidence and discipline to broaden and deepen own knowledge base through further study, research and professional development.
PO8	Competence - Insight
	(a) A recognition of their obligations to society, the profession and the environment by being familiar with the expectations and standards inherent in professional codes of conduct, and by realising the interconnectivities between technology, society and global sustainability.

Semester Schedules

Stage 1 / Semester 1

Mandatory	
Module Code	Module Title
CMOD6001	Creativity Innovation&Teamwork
ELEC6031	Electrical Principles 1
MATH6014	Technological Mathematics 1
INTR6006	Climate Change and Energy
MECH6009	Engineering Mechanics
MECH6003	CAD with Design

Stage 1 / Semester 2

Mandatory	
Module Code	Module Title
MECH6040	Intro 3-D Parametric Modelling
CHEM6001	Engineering Chemistry
MATH6015	Technological Mathematics 2
INTR6012	Energy Resources & Conversion
MECH6007	Thermofluids

Elective	
Module Code	Module Title
FREE6001	Free Choice Module
MECH6002	Building Services Processes
BULD6010	Construction Technology

Stage 2 / Semester 1

Mandatory	
Module Code	Module Title
MATH6040	Technological Mathematics 201
ENVE6002	Wind Energy Systems 1
INTR6011	Sustainable Development
SOFT6005	Programming Fundamentals 1
INTR6010	Sustainability and Transport
Elective	
Module Code	Module Title
MANU6006	REVIT Introduction
MANU6009	HVAC Systems
ELEC6031	Electrical Principles 1
FREE6001	Free Choice Module

Stage 2 / Semester 2

Mandatory	
Module Code	Module Title
INTR6018	Microcontroller Applications
MECH6033	Thermofluids 2
MECH6030	Mechanics of Machines
STAT6010	Intro. to Probability & Stats
ELEC6032	Electrical Principles 2
Elective	
Module Code	Module Title
MECH6025	Material Science
INTR6012	Energy Resources & Conversion

Stage 3 / Semester 1

Mandatory	
Module Code	Module Title
MATH7020	Technological Mathematics 301
INTR7009	Thermofluids 3
MECH7008	Ocean and Hydro Energy
ELEC7008	Energy Management
CHEP8013	Product Design
MECH8016	Process Automation and Control

Stage 3 / Semester 2

Mandatory	
Module Code	Module Title
BULD7002	Building Energy Rating
MECH7019	Work Placement
ELEC7022	Power Electronics
INTR8020	Operations & Project Managemen

Stage 4 / Semester 1

Mandatory	
Module Code	Module Title
INTR8021	Energy Systems Modelling
ELEC8015	RE in Power Systems
MANU8005	Project - Initial Research
CHEP8025	Process Thermal Energy Network
MANU8002	Automation Systems
Elective	
Module Code	Module Title
MECH8014	Mechatronics System Design
MECH8015	Ocean Energy Conversion
FREE6001	Free Choice Module
MGMT8020	Technology Entrepreneurship
MECH8026	Building Energy Compliance

Stage 4 / Semester 2

Mandatory	
Module Code	Module Title
INTR8017	Sustainability Engineering
MANU8006	Project - realisation
CIVL8008	Environmental & Energy Eng
INTR8010	Sensor Technology
INTR7008	Solar Energy