



Institiúid Teicneolaíochta Chorcaí  
Cork Institute of Technology

APPROVED

<b>Awards</b>			
BEng (Hons)			
<b>Programme Code:</b>	CR_ESENT_8	<b>Mode of Delivery:</b>	Full Time, Part Time, ACCS
		<b>No. of Semesters:</b>	8
<b>NFQ Level:</b>	8		
<b>Embedded Award:</b>	No	<b>Programme Credits:</b>	240
<b>programmeReviewDate:</b>	August 2016		
<b>Department:</b>	PROCESS, ENERGY & TRANSPORT ENGINEERING		

## Programme Outcomes

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

<b>PO1</b>	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.
<b>PO2</b>	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.
<b>PO3</b>	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.
<b>PO4</b>	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.
<b>PO5</b>	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.
<b>PO6</b>	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.
<b>PO7</b>	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.
<b>PO8</b>	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	<a href="#">Creativity Innovation&amp;Teamwork</a>
ELEC6031	<a href="#">Electrical Principles 1</a>
MATH6014	<a href="#">Technological Mathematics 1</a>
INTR6012	<a href="#">Energy Resources &amp; Conversion</a>
MECH6008	<a href="#">Introductory CAD</a>
MECH6007	<a href="#">Thermofluids</a>

### Stage 1 / Semester 2

Mandatory	
Module Code	Module Title
INTR6006	<a href="#">Climate Change and Energy</a>
MECH6029	<a href="#">Mechanics</a>
MECH6040	<a href="#">Intro 3-D Parametric Modelling</a>
CHEM6001	<a href="#">Engineering Chemistry</a>
MATH6015	<a href="#">Technological Mathematics 2</a>
Elective	
Module Code	Module Title
FREE6001	<a href="#">Free Choice Module</a>
MECH6002	<a href="#">Building Services Processes</a>
BULD6010	<a href="#">Construction Technology</a>

## Stage 2 / Semester 1

Mandatory	
Module Code	Module Title
MATH6040	<a href="#">Technological Mathematics 201</a>
ENVE6002	<a href="#">Wind Energy Systems 1</a>
INTR6011	<a href="#">Sustainable Development</a>
ELEC6032	<a href="#">Electrical Principles 2</a>
SOFT6005	<a href="#">Programming Fundamentals I</a>
Elective	
Module Code	Module Title
FREE6001	<a href="#">Free Choice Module</a>
MANU6006	<a href="#">REVIT Introduction</a>
MANU6009	<a href="#">HVAC Systems</a>

## Stage 2 / Semester 2

Mandatory	
Module Code	Module Title
INTR6018	<a href="#">Microcontroller Applications</a>
MECH6033	<a href="#">Thermofluids 2</a>
MECH6030	<a href="#">Mechanics of Machines</a>
INTR6010	<a href="#">Sustainability and Transport</a>
STAT6010	<a href="#">Intro. to Probability &amp; Stats</a>
MECH6025	<a href="#">Material Science</a>

### Stage 3 / Semester 1

Mandatory	
Module Code	Module Title
MATH7020	<a href="#">Technological Mathematics 301</a>
INTR7009	<a href="#">Thermofluids 3</a>
MECH7008	<a href="#">Ocean and Hydro Energy</a>
ELEC7008	<a href="#">Energy Management</a>
CHEP8013	<a href="#">Product Design</a>
MECH8016	<a href="#">Process Automation and Control</a>

### Stage 3 / Semester 2

Mandatory	
Module Code	Module Title
BULD7002	<a href="#">Building Energy Rating</a>
MECH7019	<a href="#">Work Placement</a>
ELEC7022	<a href="#">Power Electronics</a>
INTR8020	<a href="#">Operations &amp; Project Managemen</a>

## Stage 4 / Semester 1

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

## Stage 4 / Semester 2

Mandatory	
Module Code	Module Title
INTR8017	<a href="#">Sustainability Engineering</a>
MANU8006	<a href="#">Project - realisation</a>
CIVL8008	<a href="#">Environmental &amp; Energy Eng</a>
INTR8010	<a href="#">Sensor Technology</a>
INTR7008	<a href="#">Solar Energy</a>