

APPROVED



Institiúid Teicneolaíochta Chorcaí
Cork Institute of Technology

Awards			
BSc (Hons)			
Programme Code:	CR_SESST_8	Mode of Delivery:	Full Time, Part Time, ACCS
		No. of Semesters:	8
NFQ Level:	8		
Embedded Award:	No	Programme Credits:	240
programmeReviewDate:	September 2023		
Department:	PHYSICAL SCIENCES		

Programme Outcomes

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

PO1	Knowledge - Breadth
	(a) Demonstrate a detailed knowledge and understanding of the principles of physical sciences and their application coupled with knowledge of mathematics, analytical chemistry, instrumentation, information and communication technologies, environmental data integrity and security, regulations and their application within environmental monitoring and sustainability sectors
PO2	Knowledge - Kind
	(a) Understand the advantages, limitations, inherent assumptions and range of applicability of specific scientific and other principles, together with their potential for development in environmental science and sustainable technology.
PO3	Skill - Range
	(a) Investigate and analyse problems using appropriate tools such as statistics, data processing and database management; advanced computing and networking skills; demonstrate the effective oral and written communication skills necessary to construct, evaluate and present solutions.
PO4	Skill - Selectivity
	(a) Address technical issues in a structured manner using data analysis and consultation; design scientific studies, including experimentation, to test formulated hypotheses and draw appropriate conclusions.
PO5	Competence - Context
	(a) Demonstrate an awareness of the need to consider a range of environmental management options and analysis tools and select, design or develop, debate and present practical solutions within regulatory and ethical frameworks.
PO6	Competence - Role
	(a) Work professionally, individually and as a member of an interdisciplinary team, or as a technical team leader; participate in the preparation of project specifications, plan and manage a project from initiation to handover.
PO7	Competence - Learning to Learn
	(a) Participate in appropriate research activities as part of a research team in order to develop state of knowledge; critically approach academic literature and other sources of information; recognise the importance and the need for, and an ability to engage in, life-long learning.
PO8	Competence - Insight
	(a) Critically analyse and be able to contribute appropriate strategies and solutions to resolve environmental problems as part of a team; recognise the role of the scientist in the development of environmental science and sustainable technology.

Semester Schedules

Stage 1 / Semester 1

Mandatory	
Module Code	Module Title
CMOD6001	Creativity Innovation&Teamwork
MATH6060	Maths for Physical Sciences
CHEM6002	Chemical Principles
PHYS6011	Introduction to Physics
OCCH6002	Laboratory Practices
ENVI6003	Green Team Project

Stage 1 / Semester 2

Mandatory	
Module Code	Module Title
PHYS6042	Fundamental Physics
ENVI6002	Environmental Instrumentation
CHEM6013	Physical Chemistry Principles
MATH6019	Technological Maths 2 & Maple
CHEO6001	Organic Chemistry Fundamental

Elective	
Module Code	Module Title
FREE6001	Free Choice Module
BIOT6001	Introduction to Biotechnology
INTR6006	Climate Change and Energy

Stage 2 / Semester 1

Mandatory	
Module Code	Module Title
CHEA6001	Analytical Chemistry
PHYS6021	Mechanics and Electromagnetism
STAT6014	Intro Stats for Phys. Sc.
PHYS6038	Water Quality Instrumentation
PHYS6008	Instrument Measurement
Elective	
Module Code	Module Title
PHYS7029	Smart Sensor Instrumentation
FREE6001	Free Choice Module

Stage 2 / Semester 2

Mandatory	
Module Code	Module Title
STAT7009	Inferential Statistics
PHYS6043	Environmental Physics
PHYS6022	Photonics and Optics
CHEA6002	Analytical Chemical Techniques
PHYS7020	Thermo and Fluid Physics
Elective	
Module Code	Module Title
FREE6001	Free Choice Module
CHEM6008	Quality & Validation
CHEM6005	Industrial Chemistry

Stage 3 / Semester 1

Mandatory	
Module Code	Module Title
PHYS7017	Air Quality Instrumentation
EPRO7003	Green Auditing
CHEA7004	Analytical Practice & Protocol
MATH7025	Environmental Mathematics
PHYS7031	Material Physics and Design
Elective	
Module Code	Module Title
FREE6001	Free Choice Module
ENVI8006	Environmental GTS

Stage 3 / Semester 2

Mandatory	
Module Code	Module Title
PHYS7019	Work Placement/Project (ext)
PHYS7030	Instrumentation Electronics
CHEA7003	Environmental Analysis
PHYS7018	Methodological Research

Stage 4 / Semester 1

Mandatory	
Module Code	Module Title
ENVI8003	Air Quality
STAT8014	Environmental Statistics
PHYS8007	System Modelling & Simulation
INTR8009	Engineering Project Management
PHYS8010	Sustainable & Renewable Energy
Elective	
Module Code	Module Title
PHYS8017	Process Analytical Technology
STAT8013	Chemometrics

Stage 4 / Semester 2

Mandatory	
Module Code	Module Title
CHEP7009	Process Waste Management
ENVI8004	Water Quality
PHYS8026	Project
Elective	
Module Code	Module Title
CHEA8003	Analytical & Regulatory Stds.
PHYS8006	Networking & Computer Security