

Module Title:	Engineering Science II
Language of Instruction:	English
Credits:	5
NFQ Level:	6
Module Delivered In	1 programme(s)
Teaching & Learning Strategies:	- Lectures - Laboratory practicals - Private study
Module Aim:	This module aims to further develop students understanding of the fundamental principles and applications of engineering science and to develop practical laboratory skills in chemistry.
Learning Outcomes	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	Have a basic knowledge and understanding of chemistry and biology as applied to civil engineering.
LO2	Understand & describe the basic scientific laws of fluids at rest (i.e. static pressure, buoyancy, hydrostatic forces on immersed surfaces etc. - performing tests and interpreting results) and apply the basic scientific laws of fluids at rest.
LO3	Explain the theory behind practical experiments carried out in the laboratory. Apply scientific procedures, including recording and analysing experimental data. Demonstrate an understanding of the principles behind basic laboratory instruments.
Pre-requisite learning	
Module Recommendations	
<i>This is prior learning (or a practical skill) that is recommended before enrolment in this module.</i>	
No recommendations listed	
Incompatible Modules	
<i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module.</i>	
No incompatible modules listed	
Co-requisite Modules	
No Co-requisite modules listed	
Requirements	
<i>This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.</i>	
No requirements listed	

Module Content & Assessment

Indicative Content
Motion (a) Motion, displacement, velocity, speed, acceleration, (b) Newton's laws of motion, (c) Equations of motion
Properties of a Section (a) Centroid and Centre of gravity (b) Moment of Inertia
Fluids in Equilibrium (a) Density, capillary action, surface tension (b) Measurement of Pressure (c) Hydrostatic Forces on Surface (d) Buoyancy
Chemistry (a) pH (b) Periodic Table of Elements (c) Nitrogen Compounds - Nitrates, Ammonia (d) Hardness - Lime (e) Conductivity
Biology (a) Flora – Trees, plants (b) Fauna – mammals, fish (c) Microbiology– pathogens, algae, protozoa
Practicals Buoyancy, Centre of Pressure, Water properties Lab – pH, solubility, conductivity, dissolved Oxygen, Biology Lab – microscopes (Timber, thin sections)

Assessment Breakdown	%
Continuous Assessment	60.00%
Practical	40.00%

Continuous Assessment				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Project	n/a	1,2	60.00	n/a

No Project

Practical				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Practical/Skills Evaluation	No Description	1,2,3	40.00	Every Second Week

No End of Module Formal Examination

SETU Carlow Campus reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full Time		
<i>Workload Type</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	12 Weeks per Stage	3.00
Practicals	12 Weeks per Stage	2.00
Estimated Learner Hours	12 Weeks per Stage	7.50
Total Hours		150.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_CMCIV_D	Bachelor of Engineering in Civil Engineering	2	Mandatory