

ENGR C3502: Engineering Geology II

Module Title:			Engineering Geology II
Language of Instruction:		า:	English
Credits:		5	
NFQ Level:		8	
Module Deliv	vered In		3 programme(s)
Teaching & Learning Strategies:			Lectures. Demonstrations. Project work. Practicals and Site visits. Site visits and private study
Module Aim:			The aims of this module are to a) extend the learner's engineering knowledge base associated with surfical and bedrock geology, groundwater and surface water, b) build on the knowledge introduced in Geotechnical Engineering 1 and 2. c) To enable the learner to appreciate the interaction between ground and human activity in civil engineering projects and to d) incorporate this understanding into design and construction. e) To appreciate and have a general understanding of groundwater, f) to appreciate the formation of topography by water and ice agents. g) to understand the technologies available to investigate and understand geohazards, to gain an appreciation of the interaction of the physical environment on development and how impacts can be recognised, eliminated or mitigated.
Learning Ou	tcomes		
On successful completion of this module the learner should be able to:			
LO1	Appreciate the depositional characteristics of various soil and bedrock deposits and how they influence development		
LO2	Assess the requirements of a development as they relate to ground and groundwater and select the appropriate investigative techniques		

 LO3
 Interpret general geomorphological and subsurface conditions based on the use of desk study mapping, site reconnaissance, invasive and non-invasive techniques.

 LO4
 Develop competence in the organisational, communicative and team-working skills required of civil engineers in practice - through group design project.

LO5 Apply engineering geology principles to design of substructures/embankments/tunnels and landslide assessment and remediation.

Pre-requisite learning
<i>Module Recommendations</i> This is prior learning (or a practical skill) that is recommended before enrolment in this module.
No recommendations listed
<i>Incompatible Modules</i> These are modules which have learning outcomes that are too similar to the learning outcomes of this module.
No incompatible modules listed
Co-requisite Modules
No Co-requisite modules listed
Requirements This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.

Bachelor of Engineering (Ordinary) in Civil Engineering



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Module Content & Assessment

Indicative Content

Glacial Geomorphology

Introduction to glaciers and glaciation; Landforms; Transportation of sediment; Formations; Deposits; Engineering uses

Geophysics

Introduction to Geophysics, Geophysics contracts, Seismic, Electrical resistivity, Gravity and magnetic surveys, Geophysical borehole logging and electromagnetic methods.

Groundwater Control

Application of groundwater hydrology to groundwater control and dewatering in construction.

Applications of Engineering Geology Design and construction of highways and tunnels. Landslide assessment and remediation.

Design Team Project

Cross Disciplinary Group design project promoting inclusion and understanding of other discipline drivers. Collaboration with construction/architectural technology students required who will design the structure and engineering geology students the substructure. Students design the substructure of a multi-story building with basement. The brief requires design/assessment of a temporary retaining structure, groundwater control via pumping and bearing capacity/ settlement considerations for the foundation of the structure. Student selfassessment required.

Assessment Breakdown	%
Continuous Assessment	50.00%
Project	50.00%

Continuous Assessment

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Project	Glacial Geomorphology Project	1,2,3	20.00	n/a
Project	Geophysics Project	1,2,3	15.00	n/a
Project	Groundwater Control	1,2,3	15.00	n/a

Project				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Project	Application of engineering geology to design and construction of embankments and tunnels and landslide assessment and remediation.	1,2,3,4,5	20.00	n/a
Project	Cross Disciplinary Group design project promoting inclusion and understanding of other discipline drivers. Collaboration with construction/architectural technology students required who will design the structure and engineering geology students the substructure. Students design the substructure of a multi-story building with basement. The brief requires design/assessment of a temporary retaining structure, groundwater control via pumping and bearing capacity/ settlement considerations for the foundation of the structure. Student self-assessment required.	1,2,3,4,5	30.00	End-of- Semester
No Practical				

No End of Module Formal Examination

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



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Module Workload

Workload: Full Time		
Workload Type	Frequency	Average Weekly Learner Workload
Lecture	12 Weeks per Stage	2.00
Practicals	12 Weeks per Stage	1.00
Estimated Learner Hours	12 Weeks per Stage	7.50
	Total Hours	126.00

Module Delivered In Programme Code Semester Delivery Programme CW_CMHCE_B Bachelor of Engineering (Honours) in Civil Engineering 6 Mandatory CW_CMHCE_B 5 Mandatory Bachelor of Engineering (Honours) in Civil Engineering - Ab Initio CW_CMCEN_B Bachelor of Engineering (Honours) in Civil Engineering - Add On 1 Mandatory