

Module Title:	Engineering Geology I
Language of Instruction:	English
Credits:	5
NFQ Level:	8
Module Delivered In	1 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 surficial 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 Outcomes	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	Appreciate the depositional characteristics of various soil and bedrock deposits and how they influence development
LO2	Assist in risk assessment and design in relation to geohazards
LO3	Interpret general geomorphological and subsurface conditions based on the use of desk study mapping, site reconnaissance, invasive and non-invasive techniques.
LO4	Apply the principles of engineering geology to dam design and construction
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>	
Bachelor of Engineering (Ordinary) in Civil Engineering	

Module Content & Assessment

Indicative Content

Geohazards

Risk assessment and management of geohazards Desk studies

Geomorphology

Introduction to concepts of landform genesis including formation, identification and engineering application

Fluvial Geomorphology

Applications of fluvial geomorphology, fundamentals of fluvial geomorphological assessment

Sedimentology and stratigraphy

Introduction to principles of sediment and sedimentary rock formation, transport, classification, and depositional environments

Hard Rock Geology

Excavability; Stability analysis; Use and reuse

Ground Investigation

Nature, cost and design of Ground Investigation. Pitting, boring, probing, in-situ testing, in situ monitoring. Construction of in-place monitoring instrumentation - GW and Gas

Evaluation of rock cores

Laboratory testing UCS, PLT, Core logging - TCR, SCR, RQD

Applications of Engineering Geology

Dam design and construction

Assessment Breakdown

%

Continuous Assessment

50.00%

End of Module Formal Examination

50.00%

Continuous Assessment

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Project	GeoHazards Project.	1,2,3	15.00	n/a
Project	Fluvioglacial Geomorphology Project	1,2,3	10.00	n/a
Practical/Skills Evaluation	Rock Core Evaluation and Ground Investigation Design	1,2,3	15.00	n/a
Project	Dam Design Task	1,2,3,4	10.00	n/a

No Project

No Practical

End of Module Formal Examination

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Formal Exam	Exam	1,2,3,4	50.00	End-of-Semester

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	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	Programme	Semester	Delivery
CW_CMHCE_B	Bachelor of Engineering (Honours) in Civil Engineering	5	Mandatory