

Module Title:	Soils Mechanics
Credits:	5
NFQ Level:	6
Module Delivered In	1 programme(s)
Teaching & Learning Strategies:	Lectures Practicals Private study
Module Aim:	The aims of the module are: (1) to provide students with a sound knowledge of the fundamentals of soil mechanics laboratory testing, as a basis for further studies in the area of geotechnical engineering; (2) to provide students with the technical ability to participate in quality control in earthworks and other associated areas.

Learning Outcomes	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	have an understanding of the significance of moisture content in a soil;
LO2	To be able to undertake a soil classification tests and have a basic knowledge of technical report writing.
LO3	be able to classify a soil in accordance with the BS/Eurocode 7 Classification Systems while understanding these are regional codes
LO4	Have a basic knowledge of site investigation stages and techniques;

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

(1) Introduction To Soils Technology (1 hours lectures)

(a) Geological formation of soil and rock - Rock cycle. (b) Clay and silt minerals.

(2) Site Investigation (6 hours lectures, 4 hours practicals)

(a) Aims and objectives (b) Desk study (c) Site reconnaissance (d) Ground investigation

(3) Classification Of Soils (6 hours lectures, 20 hours practicals)

(a) Moisture content (b) Atterberg limits (c) Particle size analysis - wet sieve analysis (d) Particle size analysis - sedimentation (e) Particle density

(4) Strength Of Soil (8 hours lectures, 16 hours practicals)

(a) Shear strength theory (b) Direct shear test - shear box (c) Quick undrained triaxial test (d) Field testing - vane test (e) California Bearing Ratio

(5) Compaction Of Soil (8 hours lectures, 21 hours practicals)

(a) Optimum Moisture Content (b) Dry density / moisture content test (c) Measurement of in-situ density

Typical Laboratory Experiments

(a) Soil sampling & sub-sampling (b) Classification of a soil (c) Measurement of Optimum Moisture Content (d) Measurement of California Bearing Ratio (e) Measurement of shear strength parameters using shear box (f) Measurement of shear strength parameters using triaxial apparatus

Assessment Breakdown	%
Continuous Assessment	40.00%
End of Module Formal Examination	60.00%

Continuous Assessment

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Other	No Description	1,2,3,4	40.00	n/a

No Project

No Practical

End of Module Formal Examination

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Formal Exam	No Description	1,2,3,4	60.00	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>
Practicals	30 Weeks per Stage	3.00
Estimated Learner Hours	30 Weeks per Stage	3.00
Total Hours		180.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_CMHCE_B	Bachelor of Engineering (Honours) in Civil Engineering - Ab Initio	1	Mandatory