

Module Title:	Concepts in Soil Science
Language of Instruction:	English
Credits:	5
NFQ Level:	8
Module Delivered In	6 programme(s)
Teaching & Learning Strategies:	Formal lectures will be complemented by practical field sessions that allows for a balance of theory and hands on learning activities. Classroom activities will focus on aspects of soil nutrient content and the interactions between these nutrients and the plant. Visiting lecturers will be used where appropriate to enhance the learning experience of the students and expose them to new concepts in soil management. Learners will be brought to selected tillage and grassland farms in the South East to assess soil structure and nutrient content.
Module Aim:	This module aims to develop the students understanding of the importance of soil in agricultural systems. Students will learn the principles of soil formation and how assess the physical and chemical properties of the soil including; structure, porosity, pH and nutrient content.

Learning Outcomes	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	Recognise soil fertility concepts to ensure that land is managed in a sustainable manner
LO2	Understand the need for, and processes involved in soil nutrient testing
LO3	Critically assess the suitability of soils to grow a variety of crops
LO4	Be capable of conducting in field assessments of soil structure
LO5	Have a basic understanding of the influence of underlying geology on soil function

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
Soil nutrient management The interaction between soil nutrients and availability for the crop
Soil pH The effect of pH on the chemical properties of soil and crop growth
Physical properties of soil Assessment of soil porosity, bulk density and water holding capacity
Soil texture and class Characterisation of soils by their underlying geology and constituent components
Ion exchange in soils Cations, Anions, • Cation and Anion Exchange Capacity and movement of ions from soils to roots

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
Practical/Skills Evaluation	Students will complete a number of practical tests on their own soils including; soil texture, bulk density, porosity, water holding capacity	2,3,4	25.00	n/a
Written Report	Students will create a bedrock and soil portfolio of their own farm/farm of their choosing.	2,3,4,5	25.00	n/a

No Project

No Practical

End of Module Formal Examination				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Formal Exam	An end of year exam will take place covering aspects of soil science delivered during the term	1,2,5	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	Every Week	1.50
Practicals	Every Week	1.50
Independent Learning	Every Week	3.00
Total Hours		6.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_EFARG_B	Bachelor of Engineering (Honours) in Agricultural Systems Engineering	3	Mandatory
CW_EFARG_D	Bachelor of Engineering in Agricultural Systems Engineering	3	Mandatory
CW_SWOAG_B	Bachelor of Science (Honours) in Organic Agriculture	3	Mandatory
CW_SWSFM_B	Bachelor of Science (Honours) in Sustainable Farm Management and Agribusiness	3	Mandatory
CW_SWOAG_D	Bachelor of Science in Organic Agriculture	3	Mandatory
CW_SWSFM_D	Bachelor of Science in Sustainable Farm Management and Agribusiness	3	Mandatory