

Module Title:	Applied Soil Science		
Language of Instruction:	English		
Credits:	5		
NFQ Level:	8		
Module Delivered In	4 programme(s)		
Teaching & Learning Strategies:	Formal lectures, field studies and laboratory work will be used engage the student in the importance of soils in a sustainable agricultural system. Where appropriate, case studies will be used to demonstrate the benefit of soil remediation on crop growth.		
Module Aim:	This module aims to build upon Soil Science 1, further enhancing the students understanding of the importance of soils in a sustainable agricultural system. Specifically, this module will focus on the application of principles of soil structural and nutrient management		
Learning Outcomes			
On successful completion of this module the learner should be able to:			
LO1	Demonstrate a knowledge of the interactions between the plant, the rhizosphere and the soil and how these can be manipulated to enhance crop production		
LO2	Understand the influence of geology and weather on the formation of soils and their subsequent influence on maintenance of soil structure		
LO3	Understand the importance of nutrient cycling within the soil- plant- animal system.		
LO4	Interpret detailed soil analysis and be capable of giving recommendations of these results for the nutrition of the crop		
LO5	Be capable of designing a field management system to incorporate proper machinery management and field drainage		
Pre-requisite learning			
Module Recommendations			
This is prior learning (or a practical skill) that is recommended before enrolment in this module.			
7836	AGRI H2703	Soil science 1	
Incompatible Modules			
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.			
No requirements listed			

Module Content & Assessment

Indicative Content

Soil acidity and alkalinity

- Soil acidity and alkalinity and how they are controlled by farmers

Macro and Micro-Elements

- Macro and Micro-Elements in plant nutrition and how they affect each other in the soil • Fertilization of soil and types and mode of action of fertilizers

Nutrient cycling

The importance of complete nutrient cycles in the maintenance of the soil

Soil Management

How to manage soils to avoid compaction. How to deal with compaction.

Field Drainage

How to drain waterlogged areas of fields.

Assessment Breakdown

	%
Continuous Assessment	60.00%
Project	40.00%

Continuous Assessment

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Multiple Choice Questions	MCQ based on learning outcomes 1 and 2	1	10.00	n/a
Project	Complete a nutrient management plan for a farm based on a soil analysis and all management factors	1,3,4	40.00	n/a
Short Answer Questions	Short answer question assessment	1,2,3	10.00	n/a

Project

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Project	Conduct a management survey of a land parcel that the student is familiar with. This would include an assessment of the animal/machinery traffic, compaction and a detailed remediation plan to include drainage	2,5	40.00	n/a

No Practical

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	Every Week	1.50
Practicals	Every Week	1.50
Independent Learning Time	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	5	Mandatory
CW_EFARG_D	Bachelor of Engineering in Agricultural Systems Engineering	5	Mandatory
CW_SWSFM_B	Bachelor of Science (Honours) in Sustainable Farm Management and Agribusiness	5	Mandatory
CW_SWSFM_D	Bachelor of Science in Sustainable Farm Management and Agribusiness	5	Mandatory