

Module Title:	Highway Engineering & Surveying
Language of Instruction:	English
Credits:	5
NFQ Level:	7
Module Delivered In	No Programmes
Teaching & Learning Strategies:	Lectures Practicals Private study Blackboard
Module Aim:	The aims of the module are: (1) to produce graduates capable of working with minimal supervision in a modern road construction environment; (2) to provide graduates to the workplace capable of participating in the pavement design process, using the most up to date methods and procedures; (3) to provide graduates with sufficient knowledge and skills to continue to degree level in the highways and civil engineering areas
Learning Outcomes	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	Understand basic highway elements including link roads, roundabouts and junctions to meet current Irish standards using appropriate ICT tools to prepare drawings.
LO2	Design drainage systems and drainage elements used in road projects.
LO3	Calculate information necessary to set out vertical and horizontal curves using traditional setting out and coordinate methods.
LO4	Carry out detail surveys and manipulate survey data in software packages
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
Road Alignment (14 hours lectures, 8 hours practicals) (a) Horizontal and vertical alignment- design methods (b) Roundabout design (c) Application of ICT 3D software packages to road design
Road Drainage (18 hours lectures, 4 hours practicals) (a) Types of drainage systems (b) Design of surface systems (c) Disposal of drained water
Road Curves(12 hours lectures 4 hours practicals) (a) Setting out of vertical curves (b) Setting out horizontal curves
Surveying (10 hours lectures, 16 hours practicals) (a) Global Positioning Systems, (b) Geographic Information Systems, (c) Surveying Software Packages.
Materials In Pavement Design (4 hours Lectures) (a) Pavement Design & Construction (Foundations, Pavement Construction Methods) (b) Surfacing & Surfacing Materials (Bituminous Surfacing Materials & Techniques)

Assessment Breakdown	%
Continuous Assessment	10.00%
Project	10.00%
Practical	20.00%
End of Module Formal Examination	60.00%

Continuous Assessment				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Examination	5% Classroom Assessment 5% 1 on 1 Demonstration of Instrument Use Capability	1,2,3,4	10.00	n/a

Project				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Project	Road/Pipe Design Project	1,2,3,4	10.00	n/a

Practical				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Practical/Skills Evaluation	2 - 4 External Survey Practicals	2,3,4	20.00	n/a

End of Module Formal Examination				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Formal Exam	n/a	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>
Lecture	30 Weeks per Stage	1.80
Practicals	30 Weeks per Stage	1.20
Estimated Learner Hours	30 Weeks per Stage	3.00
Total Hours		180.00

