

<b>Module Title:</b>	Structures II
<b>Credits:</b>	10
<b>NFQ Level:</b>	7
<b>Module Delivered In</b>	No Programmes
<b>Teaching &amp; Learning Strategies:</b>	Lectures Projects Private study
<b>Module Aim:</b>	The aim of the module is to develop a knowledge and understanding of the design and or detailing of: - (1) foundations; (2) continuous reinforced concrete members; (3) earth retaining structures; (4) highway structures; (5) underground structures; (6) prestressed concrete.

Learning Outcomes	
On successful completion of this module the learner should be able to:	
LO1	Design and detail: - (a) isolated pad foundations, combined pad foundations and pile caps; (b) earth retaining structures; (c) structural elements using MasterSeries or equivalent structural software package.
LO2	Describe and understand: - (a) highway structures; (b) underground water tanks; (c) the concept of prestressed concrete.
LO3	Analyse, design and detail: - (a) a singly reinforced concrete section (b) continuous reinforced concrete beams, slab, walls, stairs and foundations.
LO4	Design a structural steel: - (a) beam without lateral torsional restraint. (b) column with combined axial load and bending.

Pre-requisite learning
<b>Module Recommendations</b> <i>This is prior learning (or a practical skill) that is recommended before enrolment in this module.</i>
No recommendations listed
<b>Incompatible Modules</b> <i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module.</i>
No incompatible modules listed
<b>Co-requisite Modules</b>
No Co-requisite modules listed
<b>Requirements</b> <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) Foundations (20 hours)**

(a) Pad Foundations (b) Combined foundations (c) Types of piled foundations (d) Pile and pile cap design

**(2) Earth Retaining Structures (20 hours)**

(a) Reinforced concrete retaining walls; (b) Design of R.C. retaining walls; (c) Detailing of R.C. retaining walls; (d) Design of Mass Concrete/Gravity Retaining Walls; (e) Sheet pile retaining walls; (f) Detailing cantilever sheet pile walls.

**(3) Highway Structures (10 hours)**

(a) Types of highway structures (b) Bridge abutments and piers (c) Bridge decks

**(4) Underground Structures (10 hours)**

(a) Underground water tanks. (b) Detailing of underground water tanks.

**(5) Continuous Reinforced Concrete Members (30 hours lectures)**

(a) Analysis of continuous reinforced concrete members. (b) Analysis and design of R.C. using computer packages.

**(6) Structural Steel (20 hours)**

(a) Design of Steel Beams. (b) Design of Steel Column with combined axial load &amp; bending. (c) Connections in structural steelwork

**(7) Prestressed Concrete (10 hours)**

(a) Introduction to prestressed concrete

**Assessment Breakdown**
**%**

Project

40.00%

End of Module Formal Examination

60.00%

No Continuous Assessment

**Project**

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

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**

<b>Workload: Full Time</b>		
<i>Workload Type</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	30 Weeks per Stage	4.00
Estimated Learner Hours	30 Weeks per Stage	4.33
Total Hours		250.00

