

# DSGN C2501: Structural Design I

Module Title:			Structural Design I			
Language of Instruction:		n:	English			
Credits: 5		5				
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NFQ Level:		6				
Module Delivered In			2 programme(s)			
Teaching & Learning Strategies:			Lectures Project work Private study			
Module Aim	:		The aims of the module are: (1) to develop a knowledge of the elastic design of timber and steel beams. (2) to develop a knowledge of the design and detailing of structural elements in reinforced concrete. 3) to have an understanding of the the long and short term implications of material section and construction type and method			
Learning Outcomes						
On successf	ul completio	n of th	his module the learner should be able to:			
LO1	to calculat	ulate the elastic bending stresses and the deflection of simply supported timber and steel members.				
LO2	to calculat	to calculate the characteristic dead and imposed loads on structural members.				
LO3	to design a simply		oly supported reinforced concrete beam and slab in accordance with Eurocode 2.			
LO4			he implications of long and short term sustainability (construction and long term carbon footprint ) when cular material and construction type and method, and the long term implications of construction maintenance			
Pre-requisite learning						
<i>Module Recommendations</i> This is prior learning (or a practical skill) that is recommended before enrolment in this module.						
No recommendations listed						
<i>Incompatible Modules</i> 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						
<b>Requirements</b> This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.						
No requirem	ents listed					



**Module Content & Assessment** 

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#### Indicative Content **Design of Structural Elements** a. Load on structural elements b. Design methods: permissible stress and limit state c. Elastic bending stress d. Shear stress e. Deflection f. Analysis of a reinforced concrete section. g. Cover to reinforcement h. Characteristic and ultimate loads i. Design shear force and bending moment j. Tension steel k. Shear steel I. Deflection m. Design of reinforced concrete elements to the relevant National and European Standards. Detailing of Structural Elements a. Bond and Anchorage b. Lap lengths c. Curtailment d. Reinforcement scheduling e. Weight of reinforcement % Assessment Breakdown Continuous Assessment 50.00% End of Module Formal Examination 50.00% **Continuous Assessment** Assessment Description Outcome % of Assessment Assessment Type total Date addressed Other n/a 2,3,4 50.00 n/a No Project No Practical End of Module Formal Examination Assessment Type Assessment Description Outcome % of Assessment Date addressed total Formal Exam n/a 1,2,3 50.00 End-of-Semester

SETU Carlow Campus reserves the right to alter the nature and timings of assessment



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## Module Workload

Workload: Full Time		
Workload Type	Frequency	Average Weekly Learner Workload
Lecture	12 Weeks per Stage	5.00
Estimated Learner Hours	12 Weeks per Stage	7.50
	Total Hours	150.00

Module Delivered In							
Programme Code	Programme	Semester	Delivery				
CW_CMHCE_B	Bachelor of Engineering (Honours) in Civil Engineering	4	Mandatory				
CW_CMCIV_D	Bachelor of Engineering in Civil Engineering	4	Mandatory				