

MODULE DESCRIPTION FORM – 2022/2023



DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

CL528 SUSTAINABLE STRUCTURAL DESIGN

Module Registrar: Viola Valentine	Taught To (Course): Elective to MEng Civil Engineering/Civil and Environmental Engineering		
Other Lecturers Involved: N/A	Credit Weighting: 10	Semester: 2	
Assumed Prerequisites: All compulsory structural engineering classes up to the end of 3 rd year and CL418 (60% average min) or equivalent	Compulsory/ optional/ elective class	Academic Level: 5	Suitable for Exchange: Y/N

Module Format and Delivery (HOURS i.e. 1 credit = 10hrs of study):

Lecture	Tutorial	Laboratory	Group work	External	Online	Project	Assignments	Private Study	Total
10	4		10				26	50	100

Educational Aim

This module aims to develop ability at conceptual and detailed design of structures using sustainable materials. Students will work in small groups to generate a unique and innovative design concept for a large structure, selected from a number of project briefs, followed by preparation of a contractual report summarising the design proposals.

Learning Outcomes

On completion of the module the student is expected to:

LO1: Generate a unique or innovative design concept for a large structure adopting sustainable and low-carbon/carbon-neutral materials.

LO2: Assess the limitations of the proposed concept in terms of dynamic and sway sensitivity of lightweight structures.

LO3: Prepare the detailed technical design of typical structural elements.

LO4: Produce a coherent final report summarising the design proposals.

LO5: Work and collaborate in a group on a complex design brief.

Syllabus

The module will teach the following:

The class is run on the basis of being a mentored project, however several lectures are included in this module. Topics that students will learn about, especially through self-study are as follows:

- Conceptual design and optimisation of sustainable structures
- Preliminary sizing of structural elements
- Sway sensitivity of lightweight structures
- Dynamic behaviour of lightweight structures
- Methods of construction

L/Outcomes				4	100%		
				1, 2, 3, 4 and 5			

Indicate which learning outcomes (LO1, LO2 etc) are to be assessed by exam/coursework/project as required.

Coursework / Submissions deadlines (academic weeks):

Semester 2 weeks 3, 5, 10 and 11.

Resit Assessment Procedures:

Resubmission of part(s) of DP54 prior to commencement of the August exam diet.

PLEASE NOTE:

Students must gain a summative mark of 50% to pass the module. Students who fail the module at the first attempt will be re-examined during the August diet. This re-examination will consist entirely of coursework with resit assessment procedures as above. The resit mark will be 100% of the resit coursework. No marks from any previous attempts will be transferred to a new resit attempt.

Recommended Reading

An extensive list of references for specific technical topics, as well as other general references are provided on Myplace.

Additional Student Feedback

(Please specify details of when additional feedback will be provided)

Date	Time	Room No

Session:

Approved:

Course Director Signature:

Date of Last Modifications: August 2022

MODULE TIMETABLE

Module Code:

CL528

Module Title:

Sustainable Structural Design

Brief Description of Assessment:

- Material selection DP51 – 5% - Group – LO 1 & 5
- Design review DP52 – 10% - Group – LO 1 & 5
- Poster presentation DP53 – 15% - Group – LO 1,3 & 5
- Final Design Report DP54 – 50% - Group – LO 1,2,3,4 & 5
- Individual Contribution to the group DP55 – 20% - Individual – LO 1,2,3,4 & 5

Assessment Timing:-

Indicate on the table below the start/submission dates for each assignment/project and the timing of each exam/assessment using the dropdowns provided. Dropdowns can be left blank. Add extra notes below the dropdowns.

Please note: Timings can and will change, this should only be used as a guide.

Semester One	W&D Wk	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9	WK10	WK11	Exam Period
	Choose an item. Choose an item.	Choose an item.											

Semester Two	C&D Wk	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9	WK10	WK11	Exam Period
	Choose an item. Choose an item.	Course work Set Choose an item.	Choose an item. Choose an item.	DP 51 Submit	Choose an item. Choose an item.	DP 52 Submit	Choose an item. Choose an item.	DP 53 Submit	DP 54 and DP 55 Submit	Choose an item.			