Module Proforma

Approved, 2022.03

Summary Information

Module Code	5305DCIV
Formal Module Title	Structural Analysis and Design II
Owning School	Civil Engineering and Built Environment
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 5
Grading Schema	40

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Georgios Kamaris	Yes	N/A

Module Team Member

Contact Name	Applies to all offerings	Offerings
Zelong Yu	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings

Teaching Responsibility

LJMU Schools involved in Delivery
Civil Engineering and Built Environment

Learning Methods

Learning Method Type	Hours
Lecture	44
Online	11
Practical	8
Workshop	5

Module Offering(s)

Offering Code	Location	Start Month	Duration
JAN-CTY	CTY	January	12 Weeks

Aims and Outcomes

Aims	To introduce the analysis of statically indeterminate structures and the analysis of the plastic behaviour of steel structures.To design and detail structural elements in reinforced concrete and structural steelwork using Eurocode 2 and 3.Introduce students to the use of software for the analysis and design of structures.

Learning Outcomes

After completing the module the student should be able to:

Code	Description
MLO1	Analyse indeterminate structures using force methods.
MLO2	Analyse indeterminate structures using displacement methods.
MLO3	Design and detail of reinforced concrete continuous flanged beams, slabs and columns.
MLO4	Design and detail of complex steel elements.
MLO5	Collect, process and report on data from laboratory experiments.

Module Content

Outline Syllabus
Statically indeterminate beams, deflection, composite (flitch) beams.Analysis of Frames, including swayStructural analysis of indeterminate structures using force and displacement methods (Moment distribution, plastic analysis, virtual work, slope deflection)Reinforced concrete design and detailing to Current Code of Practice of rectangular and flanged beams, slabs, and stocky columns.Structural steelwork design and detailing to Current Code of Practice of laterally unrestrained beams, columns and plate girders.

Module Overview

Additional Information
The analysis and design of structures. Students will develop their analytical skills to include the analysis of redundant structures, and will learn to apply the Eurocodes in the design of concrete and steel structures with due consideration for sustainability. They will also be introduced to industry standard analysis and design software.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Learning Outcome Mapping
Centralised Exam	Examination	60	2	MLO4, MLO2, MLO1, MLO3
Portfolio	Practical Based Report	40	0	MLO4, MLO5, MLO3