

Concrete Structures

Course leader:	Dr Robert Vollum
Other contributors:	
Module status:	Elective
Pre- or co-requisites:	CI1-130, CI1-131, CI2-231
Term:	Autumn
Contact hours:	30
ECTS units:	6
Assessment:	Coursework, written examination

1.0 Aims

- To develop a sound understanding of the design concrete structures.
- To demonstrate the application of theory to practice through a design project.

2.0 Syllabus

This module will be delivered in a series of 3-hour slots. Topics covered will include:

No.	Topic	Staff
01	Design of continuous beams	RLV
02	Design for shear, torsion, bending and combinations thereof.	RLV
03	Introduction to strut and tie modelling	RLV
04	Aspects of building frame design.	RLV
05	Serviceability limit states of cracking and deflection.	RLV

3.0 Intended learning outcomes

On successfully completing this course unit, students will be able to:

- Design concrete structures to Eurocode 2.
- Understand the basic behaviour of concrete structures.
- Design concrete members loaded in flexure, shear, torsion, axial load and combinations thereof.
- Calculate deflections and crack widths.
- Develop appreciation of issues to be considered in design of a multi-storey building.

- Appreciate the non-linear behaviour of reinforced concrete structures.
- Understand the background to the design methods in Eurocode 2.

4.0 Teaching methods

A combination of lectures, tutorials and design labs.

5.0 Assessment

There will be one piece of design related coursework which carries 20% of module marks.

6.0 Recommended textbooks

Category as defined by Central Library:

C = Core, S = Supplementary

S	W.H. Mosley, J.H. Bungey and Ray Hulse, Reinforced Concrete Design to EC2, 7th Edition, Palgrave Macmillan.
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7.0 Subject threads

The table below shows how the themes of design, sustainability and health & safety risk management are embedded in the curriculum (as defined by the JBM degree guidelines).

Key: Primary (P), Secondary (S) and Contributory (C).

Design	Health & Safety Risk Management	Sustainability
P	C	S