

Advanced Structural Design

Module Code:	CSE7014-B
Academic Year:	2018-19
Credit Rating:	20
School:	Department of Civil and Structural Engineering
Subject Area:	Civil and Structural Engineering
FHEQ Level:	FHEQ Level 7 (Masters)

Pre-requisites:

Co-requisites:

Contact Hours

Type	Hours
Lectures	10
Tutorials	48
Directed Study	142

Availability Periods

Occurrence	Location/Period
BDA	University of Bradford / Semester 2 (Feb - May)

Module Aims

Outline Syllabus

Although the design brief will vary slightly from year to year depending on the design question selected by the lecturer, each problem will include the following elements; any geometrical constraints defined in the brief; the principles of sustainable construction; site and site/ground conditions. Development of alternative distinct and viable solutions. Critical appraisal of at least 2 distinct and viable solutions to identify a recommended solution. Detailed Design; determination of the size and structural details of all the principal structural elements including the foundations using the design guidance available in Structural Eurocodes and other specialist design guides. Materials selection and

specification commensurate with the site exposure conditions. Construction: risk assessment and method statement. Outline construction programming. Buildability.

Module Learning Outcomes

On successful completion of this module, students will be able to...

- 1 Extend, integrate and apply the knowledge and understanding from previous study to develop conceptual and detailed solutions to structural engineering problems through a process of appraisal, analysis and validation.
- 2 Synthesise, prioritise and critically evaluate information obtained from a range of sources to establish structural engineering design objectives.
- 3 Formulate creative and innovative solutions by a systematic process of critical appraisal and review by judging alternative proposals against the design objectives
- 4 Create detailed solutions to engineering problems that satisfy modern performance and safety standards and sustainability requirements
- 5 Present solutions in the form of a technical report including detailed engineering drawings and supporting solutions.
- 6 Plan and manage your time to complete a demanding technical exercise within a pre-determined timescale.

Learning, Teaching and Assessment Strategy

This is a student-led exercise. The design brief will normally be based on one question from a past IStructE chartered member examination paper. The design process and specialist aspects of the brief will be explored in formal lectures delivered to all students. Students normally work in groups of 3 to 5 and different solutions are expected from each group. Each group of students will then be required to develop their own design through a process of individual study with individual tutorial support provided on a weekly basis by the lecturing staff. Oral feedback will be provided by the lecturing staff at the weekly meeting. Some formal lectures and tutorial support will be provided by external industrialists who are chartered civil and structural engineers with industrial experience.

Module learning outcomes will be assessed by a Design Report. The progress of students will be weekly assessed and feedback will be given to guide their learning and understanding of the design process.

Mode of Assessment

Type	Method	Description	Length	Weighting	Final Assess'
Summative	Dissertation or Project Report	Design report including drawings and supporting	-4000 words	100%	Yes

calculations
(approx. 4000
words)

Legacy Code (if applicable)

Reading List

To view Reading List, please go to [rebus:list](#).