

Liverpool John Moores University

Title: STRUCTURAL ANALYSIS AND DESIGN
Status: Definitive
Code: **5502ICPDCE** (126996)
Version Start Date: 01-08-2021

Owning School/Faculty: Civil Engineering and Built Environment
Teaching School/Faculty: ICBT, Colombo

Team	Leader
Alison Cotgrave	Y

Academic Level: FHEQ5 **Credit Value:** 20 **Total Delivered Hours:** 39
Total Learning Hours: 200 **Private Study:** 161

Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	30
Practical	6

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Examination (Open Book)	100	3

Aims

This unit provides learners with an understanding of civil engineering structural design, beginning with simple structural elements found in buildings

Learning Outcomes

After completing the module the student should be able to:

- 1 Identify equilibrium and compatibility in relation to structures.
- 2 Identify deflection of structural systems.
- 3 Identify further theories for structures.
- 4 Produce designs for building elements.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Examination	1	2	3	4
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Outline Syllabus

Equilibrium and compatibility requirements for given structures
The stress/strain relationship of an axially loaded system
Statically determinacy and kinematical indeterminacy using appropriate methods
Deflection of compound and complex trusses
Statically determinate structures using energy theorems
Statically indeterminate structures using matrix force method
Loading conditions for a civil engineering structure
Load transfer within civil engineering structures
Different design concepts used in civil engineering design
Designs for simply supported beams in steel, reinforced concrete and timber
Designs for columns in steel, reinforced concrete, timber and masonry
Appropriate slab designs for one-way and two-way spanning slabs
Understand appropriate designs for doubly reinforced concrete beams
Understand appropriate designs for continuous concrete beams

Learning Activities

Students will be supported in their learning, to achieve the above learning outcomes, in the following ways:

By a series of lectures and tutorials and through participation within practical sessions for problem solving

Self-managed investigative study to analyse cases related to the industry

In-class participation and case studies are key features of this module

A recommended resource list - indicating key reading, internet support and physical learning assistance, is provided to help enable students to undertake self-directed study

Notes

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