

Liverpool John Moores University

Title: STRUCTURAL ANALYSIS 1
Status: Definitive
Code: **4019BEUG** (102741)
Version Start Date: 01-08-2016

Owning School/Faculty: Civil Engineering
Teaching School/Faculty: Civil Engineering

Team	Leader
Clare Harris	Y

Academic Level: FHEQ4
Credit Value: 12
Total Delivered Hours: 51
Total Learning Hours: 120
Private Study: 69

Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	24
Practical	12
Tutorial	12

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Unseen	70	3
Report	AS2	Practical based assignment / report	30	

Aims

To introduce the learner to the concepts, theory and application of structural mechanics.

To develop the learner's ability to analyse simple statically determinate structures.

Examine and explore the behaviour of structural members through practical experimentation.

Learning Outcomes

After completing the module the student should be able to:

- 1 Identify and evaluate bending moments and shear forces for simple statically determinate structures.
- 2 Apply knowledge of bending moments and shear forces in conjunction with knowledge of material properties to analyse simple beams of varying sections.
- 3 Explore the combined effect of the addition of direct and bending stress.
- 4 Present and communicate the appropriate findings of practical work.

Learning Outcomes of Assessments

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

EXAM	1	2	3
REPORT	1	2	4

Outline Syllabus

Equilibrium of rigid structures: supports, reactions, pin-jointed frame structures.
Analysis of beams: loading, bending moments, shear forces, bending deflections at mid-span, direct stress, bending stress, cross-sectional properties.
Combined stresses: single-axis bending, eccentrically loaded sections.
Mohr's circle of stress: principal stresses, principal planes.

Learning Activities

Lectures, tutorials and laboratory practicals.

Notes

The module provides the learner with an introduction to the basic analysis of simple statically determinate structures. Through experimentation the learner shall develop a knowledge of the associated structural behaviour of such simple structures.