



## **Module Specification**

### **Structural Analysis**

Version: 2023-24, v8.0, 25 Jul 2023

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## Part 1: Information

**Module title:** Structural Analysis

**Module code:** UBGMV9-15-2

**Level:** Level 5

**For implementation from:** 2023-24

**UWE credit rating:** 15

**ECTS credit rating:** 7.5

**Faculty:** Faculty of Environment & Technology

**Department:** FET Dept of Geography & Environmental Mgmt

**Partner institutions:** None

**Field:** Geography and Environmental Management

**Module type:** Module

**Pre-requisites:** Engineering Principles for Civil Engineering 2022-23, Mathematics for Civil and Environmental Engineering 2023-24

**Excluded combinations:** None

**Co-requisites:** None

**Continuing professional development:** No

**Professional, statutory or regulatory body requirements:** None

## Part 2: Description

**Overview:** Not applicable

**Features:** Not applicable

**Educational aims:** In this module you will develop the necessary knowledge, understanding and skills to analyse and solve problems relating to multi-variable structural systems of both statically determinate and indeterminate structure types.

**Outline syllabus:** You will cover:

Internal loading functions.

Qualitative analysis of frames and the use of computers.

Elastic analysis of statically indeterminate structures (e.g. moment distribution method).

Plastic analysis to calculate collapse loads of beams and frames.

Arch Analysis.

Moment redistribution.

Vibration.

### **Part 3: Teaching and learning methods**

**Teaching and learning methods:** The theory and concepts of the module will be taught by lectures, supported by tutorial sessions where the theory will be applied to set problems. Formative feedback will be provided on the students work in tutorial sessions.

**Module Learning outcomes:** On successful completion of this module students will achieve the following learning outcomes.

**MO1** Understand the key difference between determinate and indeterminate structures and between plastic and elastic analysis with reference to equilibrium, compatibility and material properties

**MO2** Use qualitative methods to analyse determinate and indeterminate structures elastically

**MO3** Use quantitative methods to analyse determinate and indeterminate structures elastically

**MO4** Use plastic methods to analyse determinate and indeterminate structures

**Hours to be allocated:** 150

**Contact hours:**

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Total = 150

**Reading list:** The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/modules/ubgmv9-15-2.html) via the following link <https://uwe.rl.talis.com/modules/ubgmv9-15-2.html>

## Part 4: Assessment

**Assessment strategy:** The learning outcomes can be effectively demonstrated through the application of the taught theory to classical engineering problems. The use of an unseen written examination ensures that the work is individual.

Online Examination (5 hours)

**Assessment tasks:**

**Examination (Online) (First Sit)**

Description: Online Examination (5 hours)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

**Examination (Online) (Resit)**

Description: Online Examination (5 hours)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

## **Part 5: Contributes towards**

This module contributes towards the following programmes of study:

Civil Engineering [Frenchay] BEng (Hons) 2022-23

Civil and Environmental Engineering [Sep][SW][Frenchay][4yrs] - Not Running BEng (Hons) 2022-23

Civil and Environmental Engineering [Sep][FT][Frenchay][3yrs] - Not Running BEng (Hons) 2022-23

Civil Engineering [Frenchay] MEng 2022-23

Civil Engineering {Apprenticeship-UWE} [Sep][FT][Frenchay][5yrs] BEng (Hons) 2021-22

Civil Engineering [Sep][PT][Frenchay][7yrs] MEng 2021-22

Civil and Environmental Engineering [Sep][PT][Frenchay][5yrs] - Not Running BEng (Hons) 2021-22

Civil and Environmental Engineering {Foundation} [Sep][FT][Frenchay][4yrs] - Not Running BEng (Hons) 2021-22

Civil and Environmental Engineering {Foundation} [Sep][SW][Frenchay][5yrs] - Not Running BEng (Hons) 2021-22

Civil Engineering [Sep][PT][Frenchay][5yrs] BEng (Hons) 2021-22

Civil Engineering {Foundation} [Sep][FT][Frenchay][4yrs] BEng (Hons) 2021-22

Civil Engineering {Foundation} [Sep][SW][Frenchay][5yrs] BEng (Hons) 2021-22