Module Specification

Design of Structures

Version: 2023-24, v2.0, 18 Apr 2023

Contents

Part 1: Information

Module title: Design of Structures

Module code: UBGMSN-15-M

Level: Level 7

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Environment & Technology

Department: FET Dept of Geography & Envrnmental Mgmt

Partner institutions: None

Field: Geography and Environmental Management

Module type: Module

Pre-requisites: None

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: See Learning Outcomes

Outline syllabus: Pre-stressed concrete structures: Basic principles and methods of pre-stressing; Materials for pre-stressing; pre-stress loss; Design of flexural members for serviceability and ultimate limit states.

Water retaining concrete structures: Introduction to code of practice; Basis of design and materials, Design aspects of reinforced concrete water retaining structures (rectangular/Intze type) – calculation of crack widths due to external loads, calculation of crack widths in relation to thermal and moisture effects, Joints in water retaining structures, Design examples.

Part 3: Teaching and learning methods

Teaching and learning methods: Student time will be allocated as follows:

Lectures: 48 hours

Tutorials: 12 hours

Directed Learning: 12 hours

Summative assessment: 42 hours

Self directed learning: 36 hours

Total student hours: 150 hours

Scheduled learning includes lectures, seminars, tutorials, project supervision, demonstration, practical classes and workshops; fieldwork; external visits; work based learning; supervised time in studio/workshop.

Independent learning includes hours engaged with essential reading, case study preparation, assignment preparation and completion etc.

The module will be delivered by means of a series of lectures and tutorials.

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

MO1 Design statically determinate pre-stressed concrete beam elements

MO2 Demonstrate an in-depth understanding of the design of structures using pre-stressed concrete

MO3 Produce appropriate designs for rectangular overhead/ground water tanks

MO4 Appropriately use and apply technical design standards and other information sources

MO5 Convey complex information in the form of structural design calculations

MO6 Produce appropriate structural drawings based on design notes and sketches

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 78 hours

Face-to-face learning = 60 hours

Total = 150

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://uwe.rl.talis.com/index.html

Part 4: Assessment

Assessment strategy: The strategy has been chosen to ensure that fundamental engineering principles are assessed under controlled conditions, while a more open ended research based assignments are used to encourage wider engagement and reflection on this topic.

Summative assessment comprises a 2 hr examination for Assessment Task 1 and two Written assignments.

Coursework Assignments:
Two assignments of 2000 words each will cover design of pre-stressed concrete structures and water retaining structures respectively. Students are assessed in learning outcomes 4-6 using these two assignments.

Examination:
The examination will cover the module syllabus as a whole, pulling together the individual learning outcomes 1-5. An open book format will be used to allow reference to appropriate codes and standards.

Formative assessment opportunities will be provided through four tutorial sessions and students are advised to attend all these tutorial sessions.

Assessment tasks:

Examination (First Sit)
Description: Examination (120 minutes)
Weighting: 50 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2, MO3, MO4, MO5

Written Assignment (First Sit)
Description: Assignment 1 (pre-stressed concrete) 2000 words
Weighting: 25 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO2, MO4, MO5, MO6

Written Assignment (First Sit)
Description: Assignment 2 (water retaining structures) 2000 words
Weighting: 25 %
Final assessment: No
Group work: No

Learning outcomes tested: MO3, MO4, MO5, MO6

Examination (Resit)
Description: Examination (120 minutes)
Weighting: 50 %
Final assessment: Yes
Group work: No
Learning outcomes tested:

Written Assignment (Resit)
Description: Assignment 1 (pre-stressed concrete) 2000 words
Weighting: 25 %
Final assessment: No
Group work: No
Learning outcomes tested:

Written Assignment (Resit)
Description: Assignment 2 (water retaining structures) 2000 words
Weighting: 25 %
Final assessment: No
Group work: No
Learning outcomes tested:

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Civil Engineering [Jan][FT][Northshore][4yrs] - Not Running MEng 2020-21