Module Specification

Structural Integrity

Version: 2023-24, v3.0, 22 Jun 2023

Contents

Part 1: Information

Module title: Structural Integrity

Module code: UBLMGL-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 Architecture & Built Environ

Partner institutions: None

Delivery locations: Not in use for Modules

Field: Architecture and the Built Environment

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: Introduction to Facade Systems 2023-24

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Co-requisites: Students must have already completed or be currently enrolled in UBLLYS-15-M Introduction to Façade Systems. This requirement is compulsory for FT and PT students. Advisory for CPD students who only intend to take an individual module.

Features: Not applicable

Educational aims: This unit looks at the fundamentals of structural design and analysis, and the role it plays in façade design.

Outline syllabus: This unit includes the following lectures and tutorials:

Introduction to design criteria including; loads acting on the façade, limit states, deflection and stress limits.

Structural systems, load paths and the response of the façade to loads.

The effect of jointing methods and composite sections will be considered.

Movement accommodation is a fundamental requirement of façade design. If movement is restrained, components may fail due to the stresses induced. What movement accommodation is required? How do different materials behave? How is the differential movement between the façade and the building structure accommodated?

In addition to lectures there are also tutorials going through various calculation exercises.

Part 3: Teaching and learning methods

Teaching and learning methods: The module will be delivered by means of:

Lectures and seminars which enable students to support their own independent learning by exploring deeper issues pertaining to Façade Engineering, visiting speakers will be used to provide up to date material and context to the applications of the subject area.

Directed reading examining the key principles and relevant criteria relating to a number of topics of importance to Façade Engineering.

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

MO1 Identify load paths in facades, and how applied loads may be resolved into load components and bending moments (Component A)

MO2 Specify the structural performance of a typical facade (Component A,B)

MO3 Differentiate between the serviceability and ultimate limit states, and the performance criteria associated with each (Component A,B)

MO4 Recognize and apply various methods for demonstrating structural integrity. (Component A,B)

MO5 Demonstrate an understanding of how a façade may be designed to accommodate movement both in the supporting structure and its own movement in response to changes in environmental conditions. (Component B)

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 118 hours

Face-to-face learning = 32 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/modules/ublmgl-15-m.html

Part 4: Assessment

Assessment strategy: Assessment will be via an online examination and submission of a written assignment.

The examination will be based on a series of structural analysis topics and structural calculations provided to students and that they are expected to study before the module.

the witten assignment is assessed via a Letter which is based on a real world practical activity which a professional Façade Engineer would need to undertake, modelled around realistic case studies.

Resit strategy is the same as the first sit.

Assessment components:

Examination (Online) (First Sit)
Description: Online Exam (2 hours)
Weighting: 50 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO2, MO3, MO4

Written Assignment (First Sit)
Description: Letter
Weighting: 50 %
Final assessment: No
Group work: No
Learning outcomes tested: MO2, MO3, MO4, MO5

Examination (Online) (Resit)
Description: Online Exam (2 hours)
Weighting: 50 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO2, MO3, MO4

Written Assignment (Resit)
Description: Letter
Weighting: 50 %
Final assessment: No

Group work: No

Learning outcomes tested: MO2, MO3, MO4

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Façade Engineering [Frenchay] MSc 2023-24

Façade Engineering [Frenchay] MSc 2023-24

Façade Engineering [Frenchay] MSc 2022-23