Module Specification

Structural Integrity

Version: 2024-25, v5.0, 11 Jul 2024

Contents

Part 1: Information

Module title: Structural Integrity

Module code: UBLMGL-15-M

Level: Level 7

For implementation from: 2024-25

UWE credit rating: 15

ECTS credit rating: 7.5

College: College of Arts, Technology and Environment

School: CATE School of Architecture and Environment

Partner institutions: None

Field: Architecture and the Built Environment

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: A module in the MSc Facade Engineering programme. Only suitable as CPD for people with extensive prior knowledge of Facade systems.

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 Differentiate between the different structural performance aspects of a typical façade, compare serviceability to ultimate limit states, and show how applied loads may be resolved into load components and bending moments.

MO2 Investigate various methods for demonstrating structural integrity, including movement in façade systems and in buildings as a whole.

MO3 Simulate a communication to a client, that explains the key issues with an example façade relating to movement in structures, and justify additional design aspects to account for the issues in question.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 118 hours

Face-to-face learning = 32 hours

Total = 0

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 (24 hour online) will be based on a series of structural analysis topics and structural designs provided to students and that they are expected to study before the assessment.

The written 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 a similar format to the first attempt.

Assessment tasks:

Examination (Online) (First Sit)
Description: Online Exam (24 hours)
Weighting: 50 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO2

Written Assignment (First Sit)
Description: Letter (1500 words)
Weighting: 50 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO3

Examination (Online) (Resit)
Description: Online Exam (24 hours)
Weighting: 50 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO2

Written Assignment (Resit)
Description: Letter (1500 words)
Weighting: 50 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO3

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Façade Engineering [Frenchay] MSc 2024-25

Façade Engineering [Frenchay] MSc 2024-25

Façade Engineering [Frenchay] MSc 2023-24