Module Specification

Investigating Structures

Version: 2021-22, v2.0, 21 Jul 2021

Contents

Part 1: Information

Module title: Investigating Structures

Module code: UBLLWH-30-1

Level: Level 4

For implementation from: 2021-22

UWE credit rating: 30

ECTS credit rating: 15

Faculty: Faculty of Environment & Technology

Department: FET Dept of Architecture & Built Environ

Partner institutions: None

Delivery locations: Frenchay Campus

Field: Architecture and the Built Environment

Module type: Standard

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: In addition to Learning Outcomes, the educational experience may explore, develop, and practise but not formally discretely assess the following:

Working as a member of a group and meeting obligations to others within the module cohort.

The use of learning resources in support of practical tests, including the use of technical resources and information in support of design decision-making.

Professional habits of work, time-keeping and punctuality.

Outline syllabus: This module introduces and investigative approach to construction theory, material selection and building evaluation. The purpose of the module is to understand how buildings are constructed, why they are constructed in a particular way and from what.
This is achieved by exploring the following key technical principles:

Structural Theoretical Principles - tension / compression / shear / load etc.

Traditional Materials and Technologies - brick, stone, timber, glass, steel, concrete

Energy in Buildings - U Values, Code for Sustainable Homes etc.

Assembly and the Construction Process - work schedules, mobilisation

Measuring Performance - Building Regulations, air tightness, code for sustainable homes etc.

Further exploration is covered by practical investigation:

Condition Appraisal and Report

Detailed Building Survey

Part 3: Teaching and learning methods

Teaching and learning methods: The module time will be organised as follows:

80 hours contact time that includes lecture based sessions, workshop sessions exploring theories of construction, small group seminars and technical skills sessions

24 hours using surveying skills on site

18 hours are dedicated to laboratory sessions led by technical support staff

82 hours are scheduled for self directed learning in developing the output from survey work, case study preparation, design project and lab testing

24 hours technical report preparation

72 hours engaged with essential reading

Total = 300 hours

Scheduled learning:
As detailed above the strategy for the module is to introduce concepts and theories of construction, to develop the ability to understand building defects and condition, to undertake detailed site analysis and surveys, to complete a small design exercise and by calculating the required structural elements build and test part of the design. This will be achieved through the following methods: lectures, seminars, tutorials, project supervision, demonstration, practical classes and workshops; fieldwork; supervised time in studio/workshop.

Independent learning:
In order to fulfil the requirements of the module a certain amount of independent learning is required. This time is used to support the taught contact sessions and in preparation of the technical assessment. This will be achieved through the following methods: hours engaged with essential reading, case study preparation, assignment

preparation and completion etc. These sessions constitute an average time per level as indicated in the table below. Scheduled sessions may vary slightly depending on the module choices you make.

The module culminates in a structural design intervention project following a defined project brief. This is designed to demonstrate an awareness of structure and theory. Part of the structure for this design will be modelled to scale in the workshop and tested in the lab as part of a final technical logbook underpinning the four strands of the module: Survey, Structure, Materials, Construction

Technical Report –this major part of the module output is to be an edited account of the student's work that demonstrates the knowledge they have gained from the lecture and seminar series, workshop and lab sessions associated with the module.

Module Learning outcomes:

MO1 Discuss the range of common principles of structural solutions and explain the basic theoretical concepts associated with each including load-bearing, frame and long span structures

MO2 Identify a range of common and emerging construction materials and technologies and explain how they are sourced and processed before being suitable for construction with emphasis on science, sustainability and environmental impact

MO3 Explain the process of building buildings making reference to the construction process, construction materials, order of assembly, work schedules

MO4 Understand the principles of measuring the performance of buildings with particular emphasis on environmental and passively designed structures; in order to evaluate basic energy costings

MO5 Appraise the physical condition of existing buildings by undertaking a detailed site and building analysis and survey report for a given structure

MO6 Apply skills to undertake a building survey of an existing structure in three-dimensions accurately using appropriate surveying equipment to set out and record the information logically and clearly

MO7 Design a small structural intervention that responds to the functional requirements of a defined brief and calculate the sizing of required components necessary to fulfil the safe load of that structure

MO8 Construct a structural element to scale and evaluate the structural limits of that element by controlled testing its capacity and potential imperfections; by recording this information technically discuss a refined solution

Hours to be allocated: 300

Contact hours:

Independent study/self-guided study = 178 hours

Face-to-face learning = 80 hours

Total = 300

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/ubllwh-30-1.html

Part 4: Assessment

Assessment strategy: The module is assessed by a substantial Technical Report submitted at the conclusion of the module in April/May. The report (4500 words) will contain the output from weekly sessions including explanations and drawn output of survey work undertaken, design exercises, laboratory testing and data analysis allowing the students to demonstrate a complete grasp of the module requirements. The report will include a separately defined and largely drawn design project demonstrating application of the learning.

Formative activities, research and reading take place through the module and are discussed in workshop sessions allowing students to get feedback on their work.

Assessment components:

Report - Component A (First Sit)

Description: Technical Report (4000 word) plus Design Report (500 word - image based)
Weighting: 100 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6, MO7, MO8

Report - Component A (Resit)
Description: Technical report (4000 words) plus Design Report (500 words) imaged based
Weighting: 100 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6, MO7, MO8

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Architecture {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2020-21