



Module Specification

Low/zero Impact Buildings

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Contents

Module Specification	1
Part 1: Information	2
Part 2: Description	2
Part 3: Teaching and learning methods	3
Part 4: Assessment.....	5
Part 5: Contributes towards	7

Part 1: Information

Module title: Low/zero Impact Buildings

Module code: UBLMQ4-15-M

Level: Level 7

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

College: Faculty of Environment & Technology

School: FET Dept of Architecture & Built Environ

Partner institutions: None

Field: CONSTRUCTION AND PROPERTY

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: Highly efficient buildings;

Zero-carbon and renewable technologies;

Building environmental performance;

Passive solutions;

Renewable materials;

Part L, EPC ratings, BREEAM, and WELL.

BIM 6D

Sustainability analysis (e.g. Thermal, Lighting, Ventilation, Life Cycle Analysis, Carbon footprint, materials...)

Part 3: Teaching and learning methods

Teaching and learning methods: The module will be delivered by means of a series of lectures, seminars and tutorials.

Lectures and seminars will be used to enable students to support their own independent learning by exploring deeper issues pertaining to Low/zero carbon buildings, and receiving formative feedback. Occasional speakers will be used to provide up to date material and context to the applications of the subject area.

A series of tutorials are designed to provide knowledge and practical skills in the use of BIM processes and technology in low/zero carbon buildings.

Presentations by and to the group by the students will also be used to enable students to develop the skills and capabilities to analyse problems, negotiate, make decisions and present solutions to problems. The formative work in the presentation will provide research material useful to the final report.

Directed reading examining the key principles and relevant criteria relating to a

number of topics of importance to Low/zero carbon buildings.

Hours

The module is delivered by way of five study days for face to face teaching. Recorded lectures and the use of email discussion groups of virtual learning environments (VLEs) and other technology-aided means are also employed.

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

MO1 Understand principles, theories, standards, regulations and tools to achieve sustainability.

MO2 Critically evaluate the potential benefits and issues of emerging technologies, such as BIM, and their impact to design, construct and operate more efficient, comfortable and sustainable buildings.

MO3 Understand the role of applying 3D BIM models in multidisciplinary decision-making to deliver the sustainability agenda.

MO4 Understand the principles, inputs and outputs to be able to create BIM models to perform sustainable analyses in relation to energy efficiency, lighting analysis, life cycle cost, carbon intensity and other criteria associated with sustainability.

MO5 Evaluate the implications of Part L, BREEAM and other regulations and standards in a construction project.

MO6 Evaluate technologies and design solutions using sustainability evaluation methods [BREEAM] and critically reflect on examples of good practice (national and international).

MO7 Draw conclusions on the strategies used in exemplary sustainable buildings on energy use, CO2 emissions, comfort and well-being of occupants .

MO8 Plan technologies, analysis tools, evaluation tools, responsibilities and information management within a 6D BIM environment and communicate it effectively to achieve sustainability.

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/index.html) via the following link <https://uwe.rl.talis.com/index.html>

Part 4: Assessment

Assessment strategy: The assessment strategy adopted by this module involves a mix of practical skills assessment, and a report to reflect on BIM and BREEAM processes and technology applied at low/zero impact sustainable building.

Practical Skills Assessments (equivalent to 1500 words) - This assessment is designed to evaluate students' practical skills in planning and applying BIM and BREEAM processes and technology to produce low/zero carbon buildings. State of the art technology, including hardware and software, is used to support students in their learning process. Students are expected to work on real-life case study to provide a real-life experience of using Low/zero carbon buildings.

Report (2500 words) - Students are expected to prepare a report requiring a detailed knowledge of the application of Low/zero carbon buildings. It is important for the student to appreciate the depth of detail required in which BIM is applied to deliver the sustainability agenda. This report is also a reflective piece of work to examine the strengths and limitations of current and emerging BIM processes and technology to deliver low/zero carbon buildings. The report will be of a standard suitable for dissemination to senior management in practice.

Resit Practical Skills Assessment - a similar brief to that described above, which may include a summary of changes from any previously submitted work.

Resit Report - a similar brief to that described above, which may include some topic changes.

Assessment tasks:

Practical Skills Assessment (First Sit)

Description: Building Performance Assessment (equivalent to 1500 words)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6, MO7

Report (First Sit)

Description: Report (2500 words/equivalent)

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO5, MO8

Report (Resit)

Description: Report (2500 words/equivalent)

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO5, MO8

Practical Skills Assessment (Resit)

Description: Building Performance Assessment (equivalent to 1500 words)

Weighting: 50 %

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:

BIM in Design, Construction and Operation [Frenchay] MSc 2023-24

BIM in Design, Construction and Operation [Frenchay] MSc 2022-23

Computational Architecture [Frenchay] MSc 2023-24

Architecture [Frenchay] MArch 2023-24

Architecture [Sep][PT][Frenchay][3yrs] MArch 2021-22

Architecture {Apprenticeship-UWE} [Sep][FT][Frenchay][3yrs] MArch 2021-22