



## **Module Specification**

### **Environmental Physics and Materials**

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## Part 1: Information

**Module title:** Environmental Physics and Materials

**Module code:** UBLMSS-30-1

**Level:** Level 4

**For implementation from:** 2023-24

**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:** 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.

In addition to those listed in Learning Outcomes, the educational experience may

explore, develop, and practise but not formally discretely assess the following:

The use of ICT in recording, analysing and presenting data.

**Outline syllabus: Materials:**

Timber

Bricks and Masonry

Iron and Steel

Non-Ferrous Materials

Concrete

Glass

Polymers

Finishes

Emerging Materials

**Building Science:**

Comfort and Health

Climate and Weather

Steady State Heat Flow

Ventilation

Condensation

Noise, Room Acoustics

Natural Lighting

Artificial Lighting

Solar Geometry

Heat gains

Combustion

**Part 3: Teaching and learning methods**

**Teaching and learning methods:** The two strands of this module, Materials and Building Science, run throughout the year, each contributing to the understanding of the other.

One set of tutorials reinforce module content through, Q and A, worked examples and discussion. A separate set, focuses on the mathematical and analytic techniques required to fully understand and describe properties of materials and environments.

Laboratories and Demonstrations provide tangible evidence for, and explanation of, topics covered in the lecture course and develops the skills of observation, data collection, analysis and presentation.

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

**MO1** Identify a range of common and emerging construction materials and discuss their properties.

**MO2** Explain how each material can be analysed and evaluated using established scientific processes

**MO3** Identify and summarise the legislative constraints affecting material selection, environmental design and energy efficiency.

**MO4** Identify the different parameters of a building's materials and internal environment that contribute towards human health and comfort.

**MO5** Explain the scientific principles underlying heat, humidity, light, sound, air quality, ventilation and combustion; and how each of these is influenced by different building materials.

**MO6** Describe the role of energy systems in providing healthy and comfortable environments.

**MO7** Calculate the rates of energy flows in simple interactions between buildings, their environment.

**MO8** Produce text and graphical material to describe the measurement of physical parameters.

**Hours to be allocated:** 300

**Contact hours:**

Independent study/self-guided study = 228 hours

Face-to-face learning = 72 hours

Total = 300

**Reading list:** The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/modules/ublmss-30-1.html) via the following link <https://uwe.rl.talis.com/modules/ublmss-30-1.html>

## **Part 4: Assessment**

**Assessment strategy:** The two assessments are used to consolidate the understanding of environmental physics and materials and to introduce the objective description of physical properties and events. Early in the module these tests and essays will be used to provide formative feedback in mathematics skills in order to allow students to identify their needs, if any, for additional revision or catch-up study. Formative Feedback will be given for some of the short reports to help students identify the level they must achieve and how they might improve their skills.

Online Tests - a series of online tests after each major topic across the module. These will be added together to form one overall mark.

Report - comprising of two parts, firstly a series of short reports relating to taught content submitted across the module. The second part is a longer technical report which is used to integrate the strands of knowledge presented as separated topics and to introduce students to formal academic writing, information literacy and word processing skills. The marks for the short reports and the longer technical report shall be submitted as one mark.

Resit Online tests - Students will undertake online tests to a similar standard as detailed above, in a condensed timeline.

Resit Report - student shall rework the material from the first attempt into a technical essay which is a synoptic assessment covering all teaching on the module.

**Assessment components:**

**Online Assignment (First Sit)**

Description: Online topic tests

Weighting: 50 %

Final assessment: No

Group work: No

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

**Report (First Sit)**

Description: Written reports (2000 words)

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO7, MO8

**Online Assignment (Resit)**

Description: Online test

Weighting: 50 %

Final assessment: No

Group work: No

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

**Report (Resit)**

Description: Report (2000 words)

Weighting: 50 %

Final assessment: No

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 and Environmental Engineering [Frenchay] MDes 2023-24

Architectural Technology and Design {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2022-23

Architectural Technology and Design {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2022-23

Quantity Surveying and Commercial Management {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2022-23

Quantity Surveying and Commercial Management {Foundation}[Sep][SW][Frenchay][5yrs] BSc (Hons) 2022-23

Building Surveying {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2022-23

Building Surveying {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2022-23

Construction Project Management {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2022-23

Construction Project Management {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2022-23

Architecture and Environmental Engineering {Foundation} [Sep][SW][Frenchay][6yrs] BEng (Hons) 2022-23

Architecture and Environmental Engineering {Foundation} [Sep][FT][Frenchay][5yrs] BEng (Hons) 2022-23

Construction Project Management {Foundation} [Frenchay] BSc (Hons) 2022-23

Building Surveying {Foundation} [Frenchay] BSc (Hons) 2022-23

Building Services Engineering {Foundation} [GCET] BEng (Hons) 2022-23

Quantity Surveying and Commercial Management {Foundation} [Frenchay] BSc (Hons) 2022-23

Architectural Technology and Design {Foundation} [Frenchay] BSc (Hons) 2022-23

Architectural Technology and Design {Foundation} [GCET] BSc (Hons) 2022-23

Architecture and Environmental Engineering {Foundation} [Frenchay] BEng (Hons)  
2022-23