



## **Module Specification**

### **Environmental Physics and Materials**

Version: 2021-22, v5.0, 10 Aug 2021

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## Part 1: Information

**Module title:** Environmental Physics and Materials

**Module code:** UBLMSS-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:** 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:**

**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:** Block 1: The Technical Report comprises online tests and short essays (light, thermal, acoustics) equivalent to 1600 words - 50%

Block 2: Online tests on construction materials (timber, metals, ceramics, energy) & one 1000 word technical report - 50%

The Online tests and short essays 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 first semester these tests 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 each of the short essays in Teaching Block 1 to help students identify the level they must achieve and how they might improve their skills.

The Technical report is used to integrate the strands of knowledge presented as separated topics and to introduce students to formal academic writing. The report is also used to test the students use of ICT. Formative Feedback will be given to help students improve their work for future years.

**Resit strategy**

Students will undertake 2 on line tests and 1 x 1,000 technical essay which is a synoptic assessment covering all teaching on the module.

**Assessment components:**

**Report - Component A (First Sit)**

Description: Block 1 assessment: Technical Report (1,600 words)

Weighting: 50 %

Final assessment: No

Group work: No

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

**Report - Component A (First Sit)**

Description: Block 2 Assessment: Materials

Students complete a series of Blackboard quizzes covering each construction material and complete a 1000 word essay.

The marks for the quizzes and essay are combined to produce a single summative mark for teaching Block 2.

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO8

**Report - Component A (Resit)**

Description: Block 2 Assessment: Materials

Students complete two Blackboard quizzes and complete a 1000 word essay . This resit assessment is synoptic in nature.

Weighting: 100 %

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:

Building Surveying [Sep][SW][Frenchay][4yrs] BSc (Hons) 2021-22

Quantity Surveying and Commercial Management [Sep][SW][Frenchay][4yrs] BSc (Hons) 2021-22

Quantity Surveying and Commercial Management [Sep][PT][Frenchay][5yrs] BSc (Hons) 2021-22

Quantity Surveying and Commercial Management {Apprenticeship-UWE} [Sep][FT][Frenchay][5yrs] BSc (Hons) 2021-22

Quantity Surveying and Commercial Management [Sep][FT][Frenchay][3yrs] BSc (Hons) 2021-22

Building Services Engineering [Sep][FT][Frenchay][3yrs] BEng (Hons) 2021-22

Building Services Engineering {Apprenticeship-UWE} [Sep][FT][Frenchay][5yrs] BEng (Hons) 2021-22

Building Surveying {Apprenticeship-UWE} [Sep][FT][Frenchay][5yrs] BSc (Hons) 2021-22

Building Surveying [Sep][FT][Frenchay][3yrs] BSc (Hons) 2021-22

Building Surveying [Sep][PT][Frenchay][5yrs] BSc (Hons) 2021-22

Construction Project Management [Sep][SW][Frenchay][4yrs] BSc (Hons) 2021-22

Construction Project Management [Sep][PT][Frenchay][5yrs] BSc (Hons) 2021-22

Construction Project Management [Sep][FT][Frenchay][3yrs] BSc (Hons) 2021-22

Architectural Technology and Design [Sep][PT][Frenchay][5yrs] BSc (Hons) 2021-22

Architectural Technology and Design [Sep][FT][Frenchay][3yrs] BSc (Hons) 2021-22

Architectural Technology and Design [Sep][SW][Frenchay][4yrs] BSc (Hons) 2021-22

Quantity Surveying and Commercial Management {Foundation}[Sep][SW][Frenchay][5yrs] BSc (Hons) 2020-21

Quantity Surveying and Commercial Management {Foundation}

[Sep][FT][Frenchay][4yrs] BSc (Hons) 2020-21

Building Surveying {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2020-21

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

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

Construction Project Management {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2020-21

Architectural Technology and Design {Foundation} [Oct][FT][GCET][4yrs] BSc (Hons) 2020-21

Building Services Engineering {Foundation} [Oct][FT][GCET][4yrs] BEng (Hons) 2020-21

Building Services Engineering {Foundation} [Feb][FT][GCET][4yrs] BEng (Hons) 2020-21

Architectural Technology and Design {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2020-21

Architectural Technology and Design {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2020-21

Architectural Technology and Design {Foundation} [Feb][FT][GCET][4yrs] BSc (Hons) 2020-21

Architecture and Environmental Engineering {Foundation} [Sep][SW][Frenchay][6yrs] BEng (Hons) 2020-21

Architecture and Environmental Engineering {Foundation} [Sep][FT][Frenchay][5yrs] BEng (Hons) 2020-21