



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: 2022-23

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: 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: Assessment for the module consists of two components which are contributed to over teaching Block 1 & 2.

Component A: A series of online tests after each major topic. In Block 1 these cover light, thermal and Acoustics. In Block 2 these cover Timber, Ceramics, Metals and Energy.

Component B: A series of short essays relating to taught content. In Block 1 these cover light, thermal and Acoustics. In Block 2 the essay compares critically compares construction materials. The essays are equivalent to 1750 words.

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 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 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 longer Technical report in Block 2 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:

Online Assignment - Component A (First Sit)

Description: Block 1 and 2 assessment: Online topic tests

Weighting: 50 %

Final assessment: No

Group work: No

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

Report - Component B (First Sit)

Description: Block 1 and 2 Assessment: Written reports up to a maximum of 2000 words.

Students complete a series of short reports in Block one and a 1000 word essay in Block 2.

The marks for all these essays are combined to produce a single summative mark Component B.

Weighting: 50 %

Final assessment: No

Group work: No

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

Online Assignment - Component A (Resit)

Description: Block 1 and 2 Assessment:

Students complete two Blackboard quizzes . This resit assessment is synoptic in nature.

Weighting: 50 %

Final assessment: No

Group work: No

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

Report - Component B (Resit)

Description: Block 2 Assessment: Materials

Students complete a 1000 word essay . This resit assessment is synoptic in nature.

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:

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

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

Building Surveying [Sep][SW][Frenchay][4yrs] BSc (Hons) 2022-23

Quantity Surveying and Commercial Management [Sep][SW][Frenchay][4yrs] BSc (Hons) 2022-23

Quantity Surveying and Commercial Management [Sep][PT][Frenchay][5yrs] BSc (Hons) 2022-23

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

Quantity Surveying and Commercial Management [Sep][FT][Frenchay][3yrs] BSc (Hons) 2022-23

Building Services Engineering [Sep][FT][Frenchay][3yrs] BEng (Hons) 2022-23

Building Services Engineering {Apprenticeship-UWE} [Sep][FT][Frenchay][5yrs] BEng (Hons) 2022-23

Building Surveying {Apprenticeship-UWE} [Sep][FT][Frenchay][5yrs] BSc (Hons) 2022-23

Building Surveying [Sep][FT][Frenchay][3yrs] BSc (Hons) 2022-23

Building Surveying [Sep][PT][Frenchay][5yrs] BSc (Hons) 2022-23

Construction Project Management [Sep][SW][Frenchay][4yrs] BSc (Hons) 2022-23

Construction Project Management [Sep][PT][Frenchay][5yrs] BSc (Hons) 2022-23

Construction Project Management [Sep][FT][Frenchay][3yrs] BSc (Hons) 2022-23

Architectural Technology and Design [Sep][PT][Frenchay][5yrs] BSc (Hons) 2022-23

Architectural Technology and Design [Sep][FT][Frenchay][3yrs] BSc (Hons) 2022-23

Architectural Technology and Design [Sep][SW][Frenchay][4yrs] BSc (Hons) 2022-23

Architecture and Environmental Engineering [Sep][FT][Frenchay][4yrs] BEng (Hons) 2022-23

Architecture and Environmental Engineering [Sep][SW][Frenchay][5yrs] BEng (Hons) 2022-23

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

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

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

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

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

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

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

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

Quantity Surveying and Commercial Management {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2021-22

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

Building Services Engineering {Foundation} [Oct][FT][GCET][4yrs] BEng (Hons) 2021-22

Building Services Engineering {Foundation} [Feb][FT][GCET][4yrs] BEng (Hons) 2021-22

Building Surveying {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2021-22

Building Surveying {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2021-22

Construction Project Management {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2021-22

Construction Project Management {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2021-22

Architectural Technology and Design {Foundation} [Feb][FT][GCET][4yrs] BSc (Hons) 2021-22

Architectural Technology and Design {Foundation} [Oct][FT][GCET][4yrs] BSc (Hons) 2021-22

Architectural Technology and Design {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2021-22

Architectural Technology and Design {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2021-22

Architecture and Environmental Engineering {Foundation} [Sep][FT][Frenchay][5yrs]
BEng (Hons) 2021-22

Architecture and Environmental Engineering {Foundation} [Sep][SW][Frenchay][6yrs]
BEng (Hons) 2021-22