

Module Specification

Engineering and Environmental Materials

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Part 1: Information

Module title: Engineering and Environmental Materials

Module code: UBGMXU-15-1

Level: Level 4

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Environment & Technology

Department: FET Dept of Geography & Envrnmental Mgmt

Partner institutions: None

Field: Geography and Environmental Management

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: This module will be delivered through lecture sessions aimed at establishing the discipline context, key definitions/concepts, and also at establishing a framework for learning.

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Outline syllabus: Compression and buckling.

Bending stress, shear stress, and torsional stress.

Combined stresses, principal stresses and Mohr circle.

Composite sections.

Properties of Materials.

Concrete and Masonry.

Steel and Timber.

Glass and Polymers.

Emerging Materials.

Testing and Specifications.

Part 3: Teaching and learning methods

Teaching and learning methods: On average students will receive 3 hours of contact time per week.

This will be in a range of formats, including lectures, laboratory practicals, field work, tutorial or computer-based sessions, formative feedback sessions and support via e-mail.

The amount of time spent on activities in this module is shown below:

Activity Hours

Contact time (lectures/feedback/practical sessions) 36

Page 3 of 6 28 July 2023 Assimilation and development of knowledge 84

Coursework preparation 30

Total study time 150

The lectures will be supported by e-learning using computer-based learning exercises. Scheduled learning also includes a number of practical and field work sessions aimed at skills development. Through these mechanisms learners will also build upon the fundamental concepts covered in the lectures and start applying new understanding through the tasks and activities provided. Regular formative feedback is built into the lecture/practical programme.

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

MO1 Appreciate the principles of structural behaviour.

MO2 Undertake basic structural and engineering mechanics calculations.

MO3 Define the engineering properties of structural materials and soils.

MO4 Explain how the composition and structure of structural materials and soils determine their mechanical and physical properties.

MO5 Explain mechanisms of corrosion and factors which determine durability.

MO6 Assess the engineering properties of structural materials and soils through laboratory testing and data analysis.

MO7 Contrast the environmental impact of different engineering materials.

MO8 Solve a range of engineering problems related to materials selection, soil types, slopes and ground water.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 225 hours

Face-to-face learning = 72 hours

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Total = 297

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link <u>https://uwe.rl.talis.com/index.html</u>

Part 4: Assessment

Assessment strategy: Task 1 - Examination 2 hour written examination.

In addition to learning outcomes 1-5 this exam will assess: The students' presentation of engineering calculations.

Task 2 – Portfolio

A portfolio based upon practical work and case studies. In addition to learning outcomes 6 -9 this portfolio will assess:

The students' engagement with academic literature.

The students' ability to assimilate and apply technical knowledge in relation to specific engineering issues.

Assessment tasks:

Portfolio (First Sit) Description: Portfolio (equivalent to 3000 words) Weighting: 50 % Final assessment: No Group work: No Learning outcomes tested:

Examination (First Sit) Description: Examination (2 Hrs) Weighting: 50 %

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Final assessment: Yes Group work: No Learning outcomes tested:

Portfolio (Resit)

Description: Portfolio (equivalent to 3000 words) Weighting: 50 % Final assessment: No Group work: No Learning outcomes tested:

Examination (Resit)

Description: Examination (2 Hours) Weighting: 50 % Final assessment: Yes Group work: No Learning outcomes tested:

Part 5: Contributes towards

This module contributes towards the following programmes of study: