Module Specification

Construction Materials and Sustainability

Version: 2025-26, v3.0, Approved

Contents

Part 1: Information

Module title: Construction Materials and Sustainability

Module code: UBGMY1-15-1

Level: Level 4

For implementation from: 2025-26

UWE credit rating: 15

ECTS credit rating: 7.5

College: College of Arts, Technology and Environment

School: CATE School of Engineering

Partner institutions: None

Field: Engineering, Design and Mathematics

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: The Construction Materials and Sustainability module is designed to provide an in-depth understanding of the relationship between construction materials and sustainable building practices. Students will explore the environmental impact of various construction materials, including their production, transportation, and disposal. The module will cover the latest sustainable materials and technologies, such as recycled materials, biodegradable materials, and low-carbon alternatives, and their application in different construction projects.

Features: Key points about this module:

1. Focus on emerging construction material
2. Hands-on learning opportunities
3. Emphasis on global issues due to the production and consumption of various construction material
4: Sustainable alternatives of construction material.

Educational aims: The Construction Materials and Sustainability module provides a unique and comprehensive approach to understanding the role of construction materials in sustainable building practices and prepares students to be leaders in this rapidly growing field.

Outline syllabus: The module will cover the mechanical and physical properties, sustainability and environmental aspects of a range of construction materials, including:

Concrete

Masonry

Steel (including carbon, stainless and weathering steel; high tensile steel; welding and fatigue; corrosion protection)

Timber

Glass

Bitumen

Polymers and emerging materials

You will also cover the associated testing procedures and specifications and the appropriate use of materials in engineering applications, And sustainable alternatives to all the materials will also be covered in this module

Part 3: Teaching and learning methods

Teaching and learning methods: The module will be taught through lectures, introducing the principal concepts and theories, which are then expanded on through practical laboratory sessions.

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

MO1 Understand the mechanical and physical properties of construction materials.

MO2 Assess the engineering properties of construction materials through laboratory testing , data analysis and a review of literature.

MO3 Select and evaluate materials for engineering applications, considering their environmental impact and sustainability.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://uwe.rl.talis.com/modules/ubgmy9-15-1.html

Part 4: Assessment

Assessment strategy: The assessment for this course is comprised of two tasks. The first task is to create a portfolio of lab reports, which is intended to evaluate students' ability to analyse and interpret the engineering properties of construction materials based on laboratory testing.

The second task is an examination, which will be used to gauge students' comprehension of construction materials and their associated properties, as well as

their ability to evaluate and select appropriate construction materials for engineering applications for a sustainable built environment.

Resit is the same as the first sit.

Assessment tasks:

In-class test (First Sit)
Description: In class test based on the laboratory practicals
Weighting: 25 %
Final assessment: No
Group work: No
Learning outcomes tested: MO2

Examination (First Sit)
Description: The examination will consist of set of questions that will gauge students' comprehension of construction materials and their associated properties, as well as their ability to evaluate and select appropriate construction materials for engineering applications for a sustainable built environment
Weighting: 75 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO3

In-class test (Resit)
Description: In class test based on the laboratory practicals
Weighting: 25 %
Final assessment: No
Group work: No
Learning outcomes tested: MO2

Examination (Resit)
Description: The examination will consist of set of questions that will gauge students' comprehension of construction materials and their associated properties,

as well as their ability to evaluate and select appropriate construction materials for engineering applications for a sustainable built environment
Weighting: 75 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO3

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Civil Engineering {Foundation} [Frenchay] BEng (Hons) 2024-25

Civil Engineering [Frenchay] BEng (Hons) 2025-26

Civil Engineering [Frenchay] BEng (Hons) 2025-26

Civil Engineering {Apprenticeship-UWE} [Frenchay] BEng (Hons) 2025-26

Civil Engineering [Frenchay] MEng 2025-26

Civil Engineering {Apprenticeship-UWE} [Frenchay] BEng (Hons) 2025-26