



Module Specification

Materials and Processes

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Part 1: Information

Module title: Materials and Processes

Module code: UBLFD9-15-2

Level: Level 5

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Environment & Technology

Department: FET Dept of Architecture & Built Environ

Partner institutions: None

Field: Architecture and the Built Environment

Module type: Module

Pre-requisites: Product Design Studio 1 2023-24

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.

Outline syllabus: Introduction:

Understanding materials, properties and processes.

Polymers and polymer processing:

A range of common plastics.

Thermoplastic, thermosetting and elastomers.

Properties and molecular structure.

The range of common manufacturing processes.

Designing plastic components.

Metals and casting/forming processes:

A range of common metals and alloys.

Properties and microstructure of metals and alloys.

Forming, fabrication, processing and casting of metals.

Designing metal components.

Ceramics and forming processes:

A range of common ceramic materials.

Properties and structure of ceramics.

Manufacturing processes.

Designing ceramic components.

Other materials, composites and processes:

Composite and other materials, properties and characteristics, forming and moulding processes.

Designing components.

Colour, material and texture:

Materials qualities.

Visual and tactile experience.

Coatings, surface finish and post processing.

Sustainability and environmental impact:

Life cycle assessment, embodied energy, sustainable design strategies and techniques, circular economy and recycling.

Material and processes selection:

Materials specification.

Materials libraries and data sources.

Systems for developing products or components.

Costing materials, processes and components.

New and emerging materials and manufacturing processes:

Keeping current with new developments such as additive manufacturing.

Note: Elements are not weighted equally in study or assessment time.

Part 3: Teaching and learning methods

Teaching and learning methods: The Teaching and Learning Strategy for this module consists of an applied exercise / project-based approach to learning. Lectures will introduce the students to the topic and the assignment, as well as providing contextual information which supports and frames their acquisition of topic specific knowledge / skills. This teaching method also complements and supports project work carried out in other modules, principally Design Studio 2.

The exercises and projects are designed to facilitate competency acquisition through applied and indirect learning, building knowledge through the introduction of new subject matter and reinvestment of gained knowledge and skills. The tutorial portion of the studio time is designed for the learner to have access to tutorial support, work in the close proximity of classmates and to self-assess his/her progress through the exercises and/or projects.

Exercise and Project work outside of scheduled hours is an essential component of the successful completion of the assigned work with an average time investment of 8+ hours per week. Students will be expected to come prepared for the module sessions with in-process or completed work and supplies.

Feedback will be in the form of direct verbal and/or written. Marking criteria and assessment format will be clearly indicated on the Project Brief made accessible to

the students at the beginning of each project.

Knowledge and Skills reinvestment from parallel running modules are formative and essential for progression through the curriculum.

Additional tutorial support is offered through individual appointments with the module tutors and through PAL.

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

MO1 Employ Critical Analysis

MO2 Apply analytical skills in relation to designed objects including the ability to undertake visual analysis and to analyse designed objects in relation to their context

MO3 Ability to recognise product design cost drivers for both recurring and nonrecurring costs and to appreciate the cost implications of differing production volumes

MO4 Employ research techniques from Databases (secondary research) including UWE holdings, patent sites and on-line sources

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Total = 150

Reading list: The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/modules/ublfd9-15-2.html) via the following link <https://uwe.rl.talis.com/modules/ublfd9-15-2.html>

Part 4: Assessment

Assessment strategy: The assessment strategy is based upon a series of practical / laboratory exercises and a presentation.

Summative Assessment:

Task 1: Individual verbal and visual presentation. The visual element of the presentation will be in the form of an exhibition about different types of materials. Other students, including those from other programmes, will benefit from viewing the exhibition.

Task 2: Report - In small groups the students will undertake a series of practical/laboratory experiments and submit an individual write up of these as a logbook report. The grade will be part group and part individual. Professionalism and engagement with the lab practical will also be assessed.

Resit Assessment:

Task 1: An individual video presentation is required in place of a face-to-face presentation to enable online submission. Students are trained to make videos in their Design Studio Module.

Task 2: Report - The Comprehensive Project is a case study and a series of questions. A student who misses the laboratory practicals will be unable to submit a laboratory logbook, therefore resit students will undertake a Comprehensive Project which tests the same learning outcomes as the laboratory practicals.

Feedback and Formative Assessment: Tutor feedback is provided during tutorials as formative feedback and on the submitted logbook reports. Verbal feedback will be given at the presentation/exhibition, followed by a written feedback summary.

Assessment tasks:

Presentation (First Sit)

Description: Individual Verbal and Visual Presentation 10 minutes

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO4

Report (First Sit)

Description: Practical / Laboratory logbook 1500 words equivalent

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO2, MO3

Presentation (Resit)

Description: Individual verbal and visual presentation (Video) 10 minutes

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO4

Report (Resit)

Description: Comprehensive report 1500 word equivalent

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO2, MO3

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Product Design [Frenchay] BA (Hons) 2022-23

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

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

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

Product Design {Foundation} [Sep][SW][Frenchay][5yrs] BA (Hons) 2021-22

Product Design {Foundation} [Sep][FT][Frenchay][4yrs] BA (Hons) 2021-22