Module Specification

Engineering Experimentation

Version: 2025-26, v2.0, Approved

Contents

Part 1: Information

Module title: Engineering Experimentation

Module code: UFMFEG-30-0

Level: Level 3

For implementation from: 2025-26

UWE credit rating: 30

ECTS credit rating: 15

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: Engineers must know how to perform experiments safely and accurately. Performing engineering experimentation is crucial for making informed decisions, advancing technology, and maintaining reliable, effective solutions in both laboratory and workshop environments. It is a core skill for a foundation engineering student, giving them a strong basis for all future practical work at university.

Features: Not applicable

Educational aims: This module aims to equip students with the skills to safely conduct experiments, collect and analyse data, and draw meaningful conclusions. It focuses on adhering to health and safety guidelines to minimize risk in experimental settings. Students will also learn the importance of thorough Lab Book documentation to accurately record observations and results. By the end of the module, students will be prepared to perform engineering experiments with a focus on precision, safety, and effective communication of findings.

Outline syllabus: A varied and diverse mixture of laboratory and workshop activities will be undertaken intended to demonstrate the range and flavour of the many degree programmes that foundation engineering students may progress to. For example, students may receive sessions relating to Robotics, Mechanical Engineering, Automotive Engineering, Aerospace Engineering and Electronic Engineering. Topics may include a combination of the following: Programming of industrial robots; Assembly and test of electronic circuits; Investigation of mechanical systems; Experimental investigation and tests on mechanical structures; Basic tests on fluid flow; Machine Vision; Aerodynamics; Design and Manufacture.

Part 3: Teaching and learning methods

Teaching and learning methods: Scheduled teaching and learning includes timetabled laboratory and workshop sessions for students, rotating around the individual activities.

Independent learning includes hours engaged in research, investigation, analysis and preparation of laboratory records. This is guided by the Blackboard site.

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

MO1 Demonstrate the essential skills of experimentation within an engineering environment including collection of relevant experimental data; analysis and evaluation of experimental data; drawing conclusions from experimental results.

MO2 Safely perform experimental work in a laboratory or workshop environment, in accordance with the health and safety guidelines for that environment.

MO3 Ensure adequate recording of experimental notes in a Lab Book while performing an engineering experiment.

Hours to be allocated: 300

Contact hours:

Independent study/self-guided study = 228 hours

Face-to-face learning = 72 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/ufmfeg-30-0.html

Part 4: Assessment

Assessment strategy: Assessment of this module is based on the student's engagement and competence in each of the laboratory activities sessions in the form of an in-class assessment each week.
Students will be assessed during and at the end of each session to support student development and provide feed-forward opportunities. The assessment for each lab will have four points of assessment:
Has the student sufficiently engaged with their class throughout?
Has the student followed the Health and Safety requirements throughout?
Has the student taken sufficient notes in a Lab Book throughout?
Has the student made sufficient progress during the session?

As the nature of each session varies, the students will be made aware of the expectations of each session on Blackboard from the beginning of term, and also in the session itself; the session tutor will then assess each student against these four points throughout and at the end of the session.
In order to pass each session, the tutor will determine if the student has met each of these 4 points of assessment. Should the answer to any of them be no, then the

student has failed that week.
In order to pass the module, a student must pass a specific number of sessions throughout the course of the module.

The Resit strategy will be a 2-page mini technical report based on 4 labs (8 pages in total). The lab report should include background, health and safety, and the lab content (experiment, results and conclusion), to sufficiently evidence that they engaged with, understood the subject and health and safety implications of the 4 sessions that they attended in the main sit. In addition, the student must submit a 1-page reflection on what they learned during the main sit and how they would ensure they pass a similar module in future.

Assessment tasks:

Practical Skills Assessment (First Sit)
Description: Every session will have an in-class assessment at the end of the lab, where students have to demonstrate they passed the lab safely and to an acceptable standard.
Weighting: 0 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2, MO3

Practical Skills Assessment (Resit)
Description: Laboratory exercises to assess student practical engineering skills and competence.
This is a Pass/Fail assessment.
Weighting: 0 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2, MO3

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Electrical and Electronic Engineering {Foundation} [Frenchay] BEng (Hons) 2025-26

Automotive Engineering {Foundation} [Frenchay] BEng (Hons) 2025-26

Aerospace Engineering with Pilot Studies {Foundation} [Frenchay] BEng (Hons) 2025-26

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

Mechanical Engineering {Foundation} [Frenchay] BEng (Hons) 2025-26

Engineering {Foundation} [Frenchay] BSc (Hons) 2025-26

Aerospace Engineering {Foundation} [Frenchay] BEng (Hons) 2025-26

Mechatronics Engineering {Foundation} [Frenchay] MEng 2025-26

Mechatronics Engineering {Foundation}[Frenchay] BEng (Hons) 2025-26

Robotics {Foundation} [Frenchay] BEng (Hons) 2025-26

Electrical and Electronic Engineering {Foundation} [Frenchay] BEng (Hons) 2025-26

Robotics {Foundation} [Frenchay] BEng (Hons) 2025-26

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

Automotive Engineering {Foundation} [Frenchay] BEng (Hons) 2025-26

Aerospace Engineering with Pilot Studies {Foundation} [Frenchay] BEng (Hons) 2025-26

Mechanical Engineering {Foundation} [Frenchay] BEng (Hons) 2025-26

Mechatronics Engineering {Foundation} [Frenchay] MEng 2025-26

Aerospace Engineering {Foundation} [Frenchay] BEng (Hons) 2025-26

Mechatronics Engineering {Foundation}[Frenchay] BEng (Hons) 2025-26