



## **Module Specification**

### **Professional Practice for Engineers**

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## Part 1: Information

**Module title:** Professional Practice for Engineers

**Module code:** UFME3N-30-1

**Level:** Level 4

**For implementation from:** 2024-25

**UWE credit rating:** 30

**ECTS credit rating:** 15

**College:** College of Arts, Technology and Environment

**School:** CATE School of Engineering

**Partner institutions:** University Centre Weston

**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:** This module provides a broad comprehension of the competencies and social responsibilities required in order to be a professional engineer in the workplace.

The module will develop the engineering habits of mind of: Problem finding, Creative problem-solving, Visualising, Systems Thinking, Improving, and Adapting.

This module provides a broad comprehension of the competencies and social responsibilities required in order to be a professional engineer in the workplace. The module draws upon the underpinning theory of the level 4 delivery to allow theory to be put into practice, taking into account employer requirements and skills needs.

Holistic design thinking is important for systems engineering, and so particular focus will be placed on the role of a creative skilled practitioner to develop sustainable solutions to problems in today's world, with reference to the Sustainable Development Goals. As well as module learning materials, students will be expected to demonstrate this through module projects involving relevant problems, and with a consideration for sustainability, social action and civic responsibility.

Engineering have a crucial role to play in helping solve the world's problems, ensuring the benefits of innovation and progress are shared equitably, ensuring that they take into consideration, diversity and inclusion, sustainability and social value.

Engineers typically spend most of their careers working in project teams, therefore managing projects is a critical skill for career development. To be effective they need to understand the tools and techniques available to them and the issues associated with meeting business and personnel needs. Project management training includes time and budget planning, communication between peers and with clients, teamwork skills, and leadership opportunities. Communication skills are therefore essential both within a professional work context, and also to engage with communities and groups that are impacted by engineering and mathematics projects and developments.

Students will learn about and experience a variety of communication methods such as technical reports, laboratory reports, oral presentations, posters, and digital media. They will also experience public engagement strategies utilised by professional organisations, as well as the variety of audiences with which these skills can be practiced and explored.

In addition, the module requires students to apply design thinking and modelling skills using 3D software.

Successful completion of this module will establish students ready for future learning on their degree apprenticeship programme. Students will also begin working towards Engineering Competencies for the UK SPEC AHEP4 and be exposed to Professional Bodies.

**Features:** Not applicable

**Educational aims:** The aim of the module is to Integrate theory and practice, the module will provide the knowledge and experience required to enable the students to develop the professional requirements of Engineers as identified by the Engineering Council.

**Outline syllabus:** Sustainable Development Goals

sustainability , social action and civic responsibility.

Approach to equitable innovation and problem solving (diversity, inclusion, and social value).

Working in project teams working with peers and clients; communication and leadership skills.

Introduction to project management skills and techniques

Communication methods e.g. technical reports, laboratory reports, oral presentations, posters, and digital media.

Apply design thinking and modelling skills using 3D software.

### **Part 3: Teaching and learning methods**

**Teaching and learning methods:** This module will combine lectures, guest speakers, immersive employer experiences, practical skills sessions and collaboration activities with the local community.

Accompanying lectures and tutorial sessions will present the formal aspects of the module. These will be supported by directed reading, practical and workshop practical experiences in order to demonstrate technical and safe conduct and behaviours in the workplace as well as professional conduct with peers.

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

**MO1** Identify own strengths and developmental needs taking into account social, moral, environmental and sustainable considerations in an engineering context.

**MO2** Communicate accurately and reliably in a variety of forms, demonstrating coherent argument.

**MO3** Apply design thinking and modelling skills, including through relevant software and other realisation techniques.

**Hours to be allocated:** 300

**Contact hours:**

Independent study/self-guided study = 192 hours

Face-to-face learning = 72 hours

Total = 0

**Reading list:** The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://rl.talis.com/3/uwe/lists/401B7E56-835F-C71F-7ACD-EAE7D8B2A68F.html?lang=en-GB&login=1) via the following link <https://rl.talis.com/3/uwe/lists/401B7E56-835F-C71F-7ACD-EAE7D8B2A68F.html?lang=en-GB&login=1>

## Part 4: Assessment

**Assessment strategy:** The assessments will enable students to demonstrate their understanding of the engineering habits of mind, while reflecting on becoming socially responsible engineers in appropriate professional formats. Formative feedback takes place during the module and considers the development of the student's engineering habits of mind and reflective thinking.

Group Project - Portfolio

Students need to complete a group project based on a given scenario which will enable them to demonstrate the knowledge and skills needed within an engineering project

Professional Report - 1,500 words

Students will provide a professional report based on an engineering ethical dilemma linked to the requirements of the engineering council

The resit strategy has the same profile as the first sit assessment, and will be comparable.

**Assessment tasks:**

**Report (First Sit)**

Description: Professional Report - 1,500 words

Students will write a professional report based on an engineering ethical dilemma linked to the requirements of the engineering council

Weighting: 40 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2

**Portfolio (First Sit)**

Description: Group Project - Portfolio

Students need to complete a group project based on a given scenario which will enable them to demonstrate the knowledge and skills needed within an engineering project

Weighting: 60 %

Final assessment: Yes

Group work: Yes

Learning outcomes tested: MO1, MO3

**Report (Resit)**

Description: Professional Report - 1,500 words

Students will provide a professional report based on an engineering ethical dilemma linked to the requirements of the engineering council

Weighting: 40 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2

**Portfolio (Resit)**

Description: Group Project - Portfolio

Students need to complete a group project based on a given scenario which will enable them to demonstrate the knowledge and skills needed within an engineering project

Weighting: 60 %

Final assessment: Yes

Group work: Yes

Learning outcomes tested: MO1, MO3

**Part 5: Contributes towards**

This module contributes towards the following programmes of study:

Electro-mechanical Engineering {Apprenticeship-UCW}[UCW] BEng (Hons) 2024-25

Aeronautical Engineering {Apprenticeship-UCW}[UCW] BEng (Hons) 2024-25