Module Specification

Engineering Practice 1

Version: 2022-23, v3.0, 20 Jul 2022

Contents

Part 1: Information

Module title: Engineering Practice 1

Module code: UFMFKS-30-1

Level: Level 4

For implementation from: 2022-23

UWE credit rating: 30

ECTS credit rating: 15

Faculty: Faculty of Environment & Technology

Department: FET Dept of Engineering Design & Mathematics

Partner institutions: None

Delivery locations: City of Bristol College, Frenchay Campus, Gloucestershire College, University Centre Somerset, University Centre Weston

Field: Engineering, Design and Mathematics

Module type: Standard

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: Yes

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.

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 locally relevant problems, and with a consideration for sustainability issues and civic responsibility.

Engineers typically spend most of their careers working in project teams. 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.

Successful completion of this module will establish students ready for future learning in their degrees, ahead of being student professionals in their chosen careers. This enables students to work towards achieving the UWE graduate attributes of being Self-Reliant and Connected, Ready and Able, Enterprising, Globally Responsible and Future-Facing. Students will also begin working towards Engineering Competencies for the UK SPEC EngTech Matrix.

Features: Not applicable

Educational aims: The aim of the module is to promote the development of student engineers on their journey to becoming graduate engineers. The module therefore

plays an important role in satisfying the professional awareness and development requirements of engineering awards.

Outline syllabus: 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,
Adapting.

Part 3: Teaching and learning methods

Teaching and learning methods: This module will combine lectures, class-based interactive workshops, technical workshops, and experience with the local community. The module includes time spent in simulated workplace environments (such as laboratories or workshops) in order to demonstrate technical and safe conduct 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 Reflect on the roles and responsibilities within a team delivering a project outcome. (D5, EL1, EL2, EL3, EL4, D8m, P11, G1, G4)

MO2 Communicate accurately and reliably in a variety of forms, demonstrating coherent argument (D1, D2, D6)

MO3 Apply design thinking and modelling skills including through relevant software (D8m, G1)

MO4 Reflect on personal strengths, developmental needs, and competencies in both an academic and professional context and engage in appropriate development activities (P1, P6).

MO5 Identify environmental issues and sustainability considerations in engineering environments (D2, D4, P3, P6, P7, G4).

Hours to be allocated: 300

Contact hours:

Independent study/self-guided study = 191 hours

Face-to-face learning = 109 hours

Total = 300

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk 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. An individual log book is maintained over the whole module as a 'container' for academic outputs at regular intervals, as evidence of professional work in progress, and to track and reflect on professional and personal development.

Formative feedback will consist of:

Discussion between peers within class workshops
Discussing between peers within the project groups

Project week feedback from professionals within the community contexts

Component A: Group Poster linked to the first project week activity (25%)

Professional portfolio including: Project Week presentation, Library skills (Pass/Fail)

Component B:
Technical portfolio including: Design and modelling software exercises, Project management tasks (40%)

Ethical and reflective report on their learning and professional development, including their specific contribution to the group activity (35%)

The resit strategy has the same profile as the first sit assessment.

Assessment components:

Poster - Component A (First Sit)
Description: Group poster
Weighting: 25 %
Final assessment: No
Group work: Yes
Learning outcomes tested: MO1, MO2

Portfolio - Component A (First Sit)
Description: Professional Portfolio of activities including Project Week presentations, Evidence of Library skills and Evidence of Professional skills(pass/fail).
Weighting: 0 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO2

Portfolio - Component B (First Sit)

Description: Technical portfolio including: Design and modelling software exercises, Project management tasks
Weighting: 40 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO3, MO5

Report - Component B (First Sit)
Description: Ethical and reflective report on student learning and professional development (1000 words)
Weighting: 35 %
Final assessment: No
Group work: No
Learning outcomes tested: MO4, MO5

Poster - Component A (Resit)
Description: Group Poster
Weighting: 25 %
Final assessment: No
Group work: Yes
Learning outcomes tested: MO1, MO2

Portfolio - Component A (Resit)
Description: Professional Portfolio of activities including Project Week presentations, Evidence of Library skills and Evidence of Professional skills (pass/fail).
Weighting: 0 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO2

Portfolio - Component B (Resit)
Description: Technical portfolio including: Design and modelling software exercises, Project management tasks
Weighting: 40 %

Final assessment: Yes
Group work: No
Learning outcomes tested: MO3, MO5

Report - Component B (Resit)
Description: Ethical and reflective report on student learning and professional development (1000 words)
Weighting: 35 %
Final assessment: No
Group work: No
Learning outcomes tested: MO4, MO5

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Mechanical Engineering [Frenchay] BEng (Hons) 2022-23

Aerospace Engineering with Pilot Studies [Frenchay] BEng (Hons) 2022-23

Mechatronics Engineering [Sep][FT][Frenchay][4yrs] MEng 2022-23

Electronic Engineering [Frenchay] BEng (Hons) 2022-23

Aerospace Engineering with Pilot Studies [Frenchay] MEng 2022-23

Automotive Engineering [Frenchay] BEng (Hons) 2022-23

Automotive Engineering [Frenchay] MEng 2022-23

Mechanical Engineering [Frenchay] BEng (Hons) 2022-23

Mechanical Engineering [Frenchay] MEng 2022-23

Mechanical Engineering [Frenchay] MEng 2022-23

Aerospace Engineering {Apprenticeship-UCW} [UCW] BEng (Hons) 2022-23

Aerospace Engineering [Frenchay] MEng 2022-23

Aerospace Engineering [Frenchay] BEng (Hons) 2022-23

Mechanical Engineering [Sep][FT][Frenchay][3yrs] BEng (Hons) 2022-23

Mechanical Engineering [Sep][SW][Frenchay][4yrs] BEng (Hons) 2022-23

Electronic Engineering [Sep][PT][Frenchay][6yrs] BEng (Hons) 2022-23

Mechanical Engineering {Apprenticeship-UCW} [Sep][FT][UCW][3yrs] FdSc 2022-23

Aerospace Engineering [Sep][FT][Frenchay][3yrs] BEng (Hons) 2022-23

Aerospace Engineering [Sep][SW][Frenchay][4yrs] BEng (Hons) 2022-23

Aerospace Engineering [Sep][FT][Frenchay][4yrs] MEng 2022-23

Aerospace Engineering [Sep][SW][Frenchay][5yrs] MEng 2022-23

Aerospace Engineering with Pilot Studies [Sep][SW][Frenchay][5yrs] MEng 2022-23

Aerospace Engineering with Pilot Studies [Sep][FT][Frenchay][4yrs] MEng 2022-23

Aerospace Engineering with Pilot Studies [Sep][FT][Frenchay][3yrs] BEng (Hons) 2022-23

Aerospace Engineering with Pilot Studies [Sep][SW][Frenchay][4yrs] BEng (Hons) 2022-23

Automotive Engineering [Sep][SW][Frenchay][4yrs] BEng (Hons) 2022-23

Automotive Engineering [Sep][FT][Frenchay][3yrs] BEng (Hons) 2022-23

Automotive Engineering [Sep][SW][Frenchay][5yrs] MEng 2022-23

Automotive Engineering [Sep][FT][Frenchay][4yrs] MEng 2022-23

Electronic Engineering [Sep][SW][Frenchay][4yrs] BEng (Hons) 2022-23

Electronic Engineering [Sep][FT][Frenchay][3yrs] BEng (Hons) 2022-23

Mechanical Engineering [Sep][SW][Frenchay][5yrs] MEng 2022-23

Mechanical Engineering [Sep][PT][Frenchay][7yrs] MEng 2022-23

Mechanical Engineering [Sep][FT][Frenchay][4yrs] MEng 2022-23

Robotics [Sep][SW][Frenchay][4yrs] BEng (Hons) 2022-23

Robotics [Sep][FT][Frenchay][3yrs] BEng (Hons) 2022-23

Aerospace Engineering {Apprenticeship-UWE} [Sep][FT][UCW][4yrs] BEng (Hons) 2022-23

Aerospace Engineering {Apprenticeship-UCW} [Sep][FT][UCW][4yrs] BEng (Hons) 2022-23

Aerospace Engineering {Apprenticeship-UCW} [Sep][FT][UCW][5yrs] BEng (Hons) 2022-23

Electronic Engineering {Apprenticeship-GLOSCOLL} [Sep][FT][GlosColl][5yrs] BEng (Hons) 2022-23

Mechanical Engineering with Manufacturing {Apprenticeship-UWE} [Sep][FT][UCW][4yrs] BEng (Hons) 2022-23

Mechanical Engineering with Manufacturing {Apprenticeship-UWE} [Sep][FT][COBC][4yrs] BEng (Hons) 2022-23

Mechanical Engineering {Apprenticeship-UCS} [Sep][FT][UCS][3yrs] FdSc 2022-23

Mechanical Engineering {Apprenticeship-GlosColl} [Sep][FT][GlosColl][3yrs] FdSc 2022-23

Mechatronics {Apprenticeship-UCW} [Sep][FT][UCW][3yrs] FdSc 2022-23

Aerospace Engineering {Apprenticeship-UCW} [UCW] BEng (Hons) 2022-23

Electronic Engineering [Frenchay] BEng (Hons) 2022-23

Robotics [Frenchay] BEng (Hons) 2022-23

Mechanical Engineering {Apprenticeship-UCW} [UCW] FdSc 2022-23

Mechanical Engineering {Apprenticeship-GlosColl} [GlosColl] FdSc 2022-23

Mechanical Engineering {Apprenticeship-UCS} [UCS] FdSc 2022-23

Mechanical Engineering with Manufacturing {Apprenticeship-UWE} [UCW] BEng (Hons) 2022-23

Mechanical Engineering with Manufacturing {Apprenticeship-UWE} [COBC] BEng (Hons) 2022-23

Aerospace Engineering {Apprenticeship-UWE} [UCW] BEng (Hons) 2022-23

Electronic Engineering {Apprenticeship-GLOSCOLL} [GlosColl] BEng (Hons) 2022-23

Mechatronics Engineering [Frenchay] MEng 2022-23

Mechanical Engineering [Sep][PT][Frenchay][6yrs] BEng (Hons) 2022-23

Mechatronics {Apprenticeship-UCW} [UCW] FdSc 2022-23

Mechanical Engineering {Foundation}[Sep][SW][Frenchay][5yrs] BEng (Hons) 2021-22

Mechanical Engineering {Foundation}[Sep][FT][Frenchay][4yrs] BEng (Hons) 2021-22

Aerospace Engineering {Foundation} [Sep][FT][Frenchay][4yrs] BEng (Hons) 2021-22

Aerospace Engineering {Foundation} [Sep][SW][Frenchay][5yrs] BEng (Hons) 2021-22

Aerospace Engineering with Pilot Studies {Foundation} [Sep][SW][Frenchay][5yrs] BEng (Hons) 2021-22

Aerospace Engineering with Pilot Studies {Foundation} [Sep][FT][Frenchay][4yrs] BEng (Hons) 2021-22

Automotive Engineering {Foundation}[Sep][FT][Frenchay][4yrs] BEng (Hons) 2021-22

Automotive Engineering {Foundation}[Sep][SW][Frenchay][5yrs] BEng (Hons) 2021-22

Electronic Engineering {Foundation} [Sep][SW][Frenchay][5yrs] BEng (Hons) 2021-22

Electronic Engineering {Foundation} [Sep][FT][Frenchay][4yrs] BEng (Hons) 2021-22

Robotics {Foundation}[Sep][SW][Frenchay][5yrs] BEng (Hons) 2021-22

Robotics {Foundation}[Sep][FT][Frenchay][4yrs] BEng (Hons) 2021-22