STUDENT AND ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Information			
Module Title	Engineering and Society		
Module Code	UFMFCL-15-3	Level	Level 6
For implementation from	2022-23		
UWE Credit Rating	15	ECTS Credit Rating	7.5
Faculty	Faculty of Environment & Technology	Field	Engineering, Design and Mathematics
Department	FET Dept of Engin Design & Mathematics		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	Business Environment 2022-23		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
Overview: This module provides a broad comprehension of the importance of professional development, sustainability, and the competencies and social responsibilities required for 'engineering citizenship' in order to be a professional engineer. This module will introduce students to how engineering and wider Science, Technology, Engineering and Mathematics (STEM) concepts are viewed and communicated within society. The module aims to improve engineers' communication skills through experience of speaking to groups of people. Successful completion of this module will enable students to communicate engineering and sustainability concepts to a variety of audiences in the future. Communication skills are essential both within a professional work context, and also to engage with communities and publics that are impacted by engineering projects and developments. Engineers will experience teaching a class of school pupils and public speaking to their peers in class. **Educational Aims:** This module develops a broader understanding of engineering in wider society, its impact and the public perception of the discipline. **Outline Syllabus:** Students are expected to demonstrate professional demeanour in all their dealings with external audiences, as would be expected in working towards Chartered Engineer status. In doing this, they will have exposure to a range of topics including the following: Science Communication and Public Engagement. Contemporary societal contexts for engineering. Pedagogical theories for teaching Science, Technology, Engineering and Mathematics in primary schools.

Relating at least two taught modules specific to their own academic programme of study (generally at level 2) to societal contexts appropriate for teachers and pupils, and vice-versa.
Comparative analysis of engagement strategies for technologies and projects in different contexts in society.
Teamwork, partnership working and professional relations.
Relationships between academe and practice.
Project and time management.
Codes of practice, professional standards and workplace ethics.
Reflective practice and professional development. The practitioner as methodologist – lifelong learning in choosing, using, evaluating methods, techniques, tools and technologies.
Identification of career and personal goals to support employability.

Teaching and Learning Methods: Students will learn about a variety of engagement strategies utilised by professional organisations and Chartered Engineers. Students will get the opportunity to be taught by Professional Teaching Academics to explore pedagogical strategies to enable them to help others learn about engineering and STEM. The variety of audiences with which these skills can be practiced and explored will be outlined.

Engineering students are given the opportunity to pair with a fellow student professional (pre-service teachers BA Ed) in order to mentor each other on complementary skills and expertise. The paired peers will be given existing teaching materials to develop a lesson plan which is co-presented to primary school children. The students then experience a school placement in order to coach school pupils in the Engineering Design Process.

Finally, the engineering students then work in groups to learn about sustainability in engineering and apply their knowledge to other public engagement activities.

This module will combine class-based interactive lectures and workshops with experience in professional practice. It is expected students will enhance this with self-directed study.

Scheduled Learning:
Interactive lectures will outline key skills and considerations in science communication, teaching and on placement. Workshops will enable students to plan, develop and practice their communication skills.

Placements:
Students will work with a paired peer to deliver their STEM materials in primary schools. Students are expected to mentor the pupils to present their own material at a conference at UWE. Feedback on the STEM materials and communications skills, plus in-class and online discussion of their reading and experiences will encourage peer review and critical analysis of the placements.

Independent Learning:
Students will be expected to read key texts to develop their skills, as well as watching experienced professionals deliver similar materials in their own time.

Part 3: Assessment

Formative feedback will take place:
Between peers within the teacher / engineer partnership.
Placement feedback from professional within the school context.
Feedback from engineers through a presentation to the class to share learning.

The summative submission components have been designed to enable students to demonstrate, for the purposes of assessment, their acquisition of the skills, knowledge, understandings and experiences that will enable them to meet the learning outcomes for this module. These forms of assessment enable the student to build and demonstrate their understanding of some of the professional skills needed to communicate their work and ideas in appropriate professional formats. The summative assessment will provide feedback on personal development for professional engineering competency achievements, whilst also reflecting on the benefits to the social responsibility aspects of being an engineer. These will consist of:

Group presentation (4-5 engineering students per group) to consider the communication and impact of engineering and sustainability on society, with reference to the UK Spec:
15 minute presentation in class-time to fellow students.

Presentation submitted and group mark awarded alongside individual reflection (resit presentations will be individual) .

Individual logbook and feedback - This includes evidence for the student's placement and experience, alongside feedback from the class teachers.

Report on placement and learning (2000 words)

The resit assessment strategy will involve an individual presentation for component A and component B have the same format as the first sit assessment.

First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Presentation - Component A	✓	30 %	Group presentation (15 mins)
Report - Component B		35 %	Report (2000 words)
Portfolio - Component B		35 %	Portfolio
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Presentation - Component A	✓	30 %	Individual Presentation
Report - Component B		35 %	Report (2000 words)
Portfolio - Component B		35 %	Portfolio

Part 4: Teaching and Learning Methods

Learning Outcomes

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

Module Learning Outcomes	**Reference**
Explain and critique science communication and public engagement strategies	MO1
Explain and critique pedagogical theories and strategies	MO2
Design, plan, communicate and deliver STEM concepts to different audiences	MO3
Demonstrate ethical and safe professional behaviour in practice.	MO4
Critically reflect on the wider societal implications of sustainability in engineering	MO5

Contact Hours

Independent Study Hours:	
Independent study/self-guided study	110
Total Independent Study Hours:	110
Placement Study Hours:	
Placement	20
Total Placement Study Hours:	20

	Scheduled Learning and Teaching Hours:	
	Face-to-face learning	20
	Total Scheduled Learning and Teaching Hours:	20
	Hours to be allocated	150
	Allocated Hours	150
Reading List	*The reading list for this module can be accessed via the following link:* https://uwe.rl.talis.com/modules/ufmfcl-15-3.html	

Part 5: Contributes Towards

This module contributes towards the following programmes of study:

Aerospace Engineering [Sep][PT][UCW][8yrs] MEng 2018-19

Aerospace Engineering with Pilot Studies (Design) {Foundation} [Sep][SW][Frenchay][5yrs] BEng (Hons) 2018-19

Aerospace Engineering with Pilot Studies (Design) [Sep][PT][Frenchay][6yrs] BEng (Hons) 2018-19

Robotics {Foundation} [Sep][SW][Frenchay][5yrs] BEng (Hons) 2018-19

Aerospace Engineering with Pilot Studies [Sep][PT][Frenchay][6yrs] BEng (Hons) 2018-19

Aerospace Engineering with Pilot Studies (Manufacturing) [Sep][PT][Frenchay][6yrs] BEng (Hons) 2018-19

Aerospace Engineering with Pilot Studies (Systems) [Sep][PT][Frenchay][6yrs] BEng (Hons) 2018-19

Automotive Engineering {Foundation} [Sep][SW][Frenchay][5yrs] BEng (Hons) 2018-19

Aerospace Engineering [Sep][PT][Frenchay][8yrs] MEng 2018-19

Aerospace Engineering (Design) [Sep][PT][Frenchay][8yrs] MEng 2018-19

Aerospace Engineering (Manufacturing) [Sep][PT][Frenchay][8yrs] MEng 2018-19

Aerospace Engineering (Systems) [Sep][PT][Frenchay][8yrs] MEng 2018-19