MODULE SPECIFICATION

Part 1: Information			
Module Title	Engineering Research		
Module Code	UFMFRS-15-2	Level	Level 5
For implementation from	2021-22		
UWE Credit Rating	15	ECTS Credit Rating	7.5
Faculty	Faculty of Environment & Technology	Field	
Department	FET Dept of Engin Design & Mathematics		
Module type:	Project		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

Overview: This module will prepare students to be able to effectively plan and manage an extensive piece of academic research that involves the use of physical and/or computing resources. A series of lectures and seminars will introduce topics such as effective project planning, academic literature review, ethics, data analysis, technical resources, requirements, identifying a suitable topic etc. Some of these areas will have been introduced in earlier modules and in this module will be built upon to produce a detailed research proposal that could be used for the level 6 individual project.

Educational Aims: The aim of this module is to develop engineering and technology research skills and practice including the development of a feasible research proposal that could be implemented as a level 6 dissertation.

Outline Syllabus: This module is designed to introduce students to various approaches to research methodology in an engineering and technology environment. It will develop the ability to formulate research proposals, select appropriate methods of analysis and prepare and present research outcomes. Key topics covered include:
The Research Process: theory and practical implications including action and case study research

Ethical considerations for engineers undertaking research
Risk assessment and management, planning and budgeting
The research proposal, research strategy and project plan
Search techniques, literature abstraction and the preparation of a literature review
Issues of reliability, validity and generalisability for researchers
Features of Qualitative and Quantitative data
Collection of primary data: experimental design, survey methods, sampling design and procedure
Analysis of quantitative data: an overview of statistical procedures
Use of secondary data in the research process
Collection and analysis of qualitative data: interviewing and observation methods
Communicating results effectively: dissertation structure and presentation
Understanding plagiarism, copyright and intellectual property
Preparation of a research proposal.

Teaching and Learning Methods: The module will be delivered to promote discussion and active engagement with the material. The module material will be delivered with a combination of lectures, small group seminars and on-line materials. The module will involve a substantial element of independent research and learning.

A project week will be used to bring students, academic and technical staff together and provide an environment for students to discuss and plan their final year dissertation. Students will work in small groups to scope out project ideas leading to an individual short presentation of an outline project proposal which will be later submitted as a detailed proposal.

Part 3: Assessment

The assessment strategy is designed to support students as they develop a detailed project proposal that identifies a clear research question, contains an initial literature review, considers ethical, resource and professional considerations, IP, security, details an achievable project plan, identifies the academic knowledge and skills required for the completion of the proposed project including new knowledge that student will need to acquire and a reflection on the project development process.

Formative assessment tasks will be set to provide feedback throughout the module to support students preparing their project proposal.

At the start of the module students complete a library workbook to support effective access to databases and other sources to support research based activities and literature review worth 5% of the final mark.

In the project week for teaching block 2, students will work in small groups to scope out project ideas and will be able to interact with academics and technicians in the development of their project ideas. During the project week, students will make a short individual presentation pitch of their project ideas worth 20% of the final mark.

Following the project week, students will use the comments from their presentation to produce a detailed written individual project proposal. This proposal will make up the remaining 75% of the project mark.

The resit strategy will involve students submitting a reworking of the project proposal and a review presentation.

First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Report - Component A	✓	75 %	Research Proposal (2500 words)
Presentation - Component A		20 %	Project proposal pitch (10 mins)
Practical Skills Assessment - Component A		5 %	Library workbook
Resit Components	**Final Assessment**	**Element weighting**	**Description**

Report - Component A	✓	80 %	Project Proposal (2500 words)
Presentation - Component A		20 %	Short presentation on reflection of project proposal and plan (10 mins).

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
Develop a coherent, evidenced and feasible project proposal that contains a clearly defined engineering research question that may be applicable to real world application or academic research.	MO1
Develop an effective project plan, identifying risk factors and resource requirements and constraints	MO2
Identify and critically evaluate relevant literature to support the proposed research project.	MO3
Identify and evaluate ethical, societal, legal, financial and environmental issues in the context of the proposed research.	MO4

Contact Hours

Independent Study Hours:	
Independent study/self-guided study	126
Total Independent Study Hours:	126
Scheduled Learning and Teaching Hours:	
Face-to-face learning	24
Total Scheduled Learning and Teaching Hours:	24
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/lists/98BA8807-511B-D04B-9E03-9F44F463C2AF.html

Part 5: Contributes Towards

This module contributes towards the following programmes of study: