Prifysgol Wrecsam
Wrexham University

Module specification

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Module Code	ENG5D8
Module Title	Engineering Design Project
Level	5
Credit value	40
Faculty	FACE
HECoS Code	100182
Cost Code	GAME
Pre-requisite module	N/A

Programmes in which module to be offered

Programme title	Core/Optional/Standalone
BEng (Hons) Aerospace Engineering BEng (Hons) Mechanical Engineering BEng (Hons) Motorsport Engineering BEng (Hons) Electrical Engineering BEng (Hons) Renewable Energy Engineering	Core

Breakdown of module hours

Learning and teaching hours	12 hrs
Placement tutor support hours	0 hrs
Supervised learning hours e.g. practical classes, workshops	84 hrs
Project supervision hours	0 hrs
Active learning and teaching hours total	**96 hrs**
Placement hours	0 hrs
Guided independent study hours	304 hrs
Module duration (Total hours)	**400 hrs**

Module aims

This module prioritises experiential learning through extensive laboratory engagement supported by concise theoretical delivery. Students enhance their technical proficiency and analytical reasoning by carrying out investigations, recording data, and interpreting outcomes. The emphasis on active exploration prepares learners for independent and specialised study at the next level.

This module aims to enable students to design, develop, and implement a solution to a partially defined engineering problem. Working collaboratively, students will apply analytical, practical, and engineering skills to develop an effective solution and present their outcomes in a professional and structured manner.

Module Learning Outcomes

At the end of this module, students will be able to:

1	Professionally plan a project that seeks to solve a broadly defined problem, recognising the importance of the user and constraints.
2	Select concepts using a rigorous design process to satisfy the PDS (to include managing risk, safety, inclusivity).
3	Implement, test and evaluate the final design solution.
4	Work effectively and communicate as a group member and/or team leader, to deliver a professional project to a desired conclusion (AHEP-4 C16).
5	Individually reflect and evaluate on the group project and the processes undertaken in its development.

Assessment

Indicative Assessment Tasks:

This section outlines the type of assessment task the student will be expected to complete as part of the module. More details will be made available in the relevant academic year module handbook.

Assessment 1: Portfolio

The portfolio can consist of a group report and a group presentation that effectively communicates the final design solution and the processes undertaken in its development.

Assessment 2: Written Assignment

Through the use of a reflective log, students will demonstrate ongoing evaluation of their communication and teamwork skills throughout the module.

Assessment number	Learning Outcomes to be met	Type of assessment	Duration/Word Count	Weighting (%)	Alternative assessment, if applicable
1	1,2,3,4	Portfolio	4000	80%	N/A
2	5	Written Assignment	2000	20%	N/A

Derogations

Credits shall be awarded by an Assessment Board for those modules in which a pass mark 40% has been achieved, with a minimum mark of 30% in each assessment element.

Learning and Teaching Strategies

Teaching and learning emphasises hands-on learning through sustained practical activity, supported by targeted online instruction and feedback. Students design and carry out applied tasks that demand accuracy, teamwork, and independent thinking. Virtual resources and recordings enable continued reflection, while tutorials provide opportunities for constructive dialogue and refinement of professional practice.

Welsh Elements

This module will be delivered through the medium of English; however, students have the option to submit their assessments in the medium of Welsh. While this module is not currently offered fully through Welsh, Welsh language support and guidance are available, and some learning materials or tutorial discussions may incorporate Welsh elements where appropriate. To further promote bilingual learning, all students have the opportunity to take the 20-credit *Welsh for STEM* short course, designed to develop confidence and subject-specific language skills in both English and Welsh.

Indicative Syllabus Outline

Project Management and Delivery:
Application of project management techniques, including scheduling, costing, time management, and negotiation, to support the professional delivery of engineering projects.

Communication and User-Focused Design:
Development of effective communication and presentation skills, ensuring that project outcomes are clearly conveyed and aligned with user needs and expectations.

Global Engineering and Societal Context:
Exploration of the role of engineering within a global and cultural context, considering the wider societal impact of engineering decisions.

Sustainability in Engineering Practice:

Evaluation of environmental, societal, and economic sustainability factors, recognising the responsibilities of engineers in developing sustainable solutions.

Ethics, Equality, and Inclusivity:
Application of ethical principles, equality, diversity, and inclusivity considerations in engineering decision-making and project planning.

Risk and Safety Management:
Use of structured approaches to identify, assess, and mitigate risks, ensuring safe and responsible engineering practice.

Teamwork and Collaboration:
Development of effective teamwork skills, including collaboration, leadership, and coordination within multidisciplinary engineering teams.

Professional Practice in Team Environments:
Application of professional behaviours and practices to support successful group project delivery to a defined outcome.

Indicative Bibliography

Please note the essential reads and other indicative reading are subject to annual review and update.

Essential Reads:

G. E. Dieter and L. C. Schmidt, Engineering Design, 6th ed. New York, NY, USA: McGraw Hill, 2022.

Other indicative reading:

N. J. Smith, Engineering Project Management, 3rd ed. Oxford, U.K.: Blackwell, 2008.

A. Lester, Project Management, Planning and Control: Managing Engineering, Construction and Manufacturing Projects to PMI, APM and BSI Standards, 8th ed. Woburn, MA, USA: Elsevier, 2021.

Administrative Information

For office use only	
Initial approval date	June 2026
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