

Module specification

When printed this becomes an uncontrolled document. Please access the Module Directory for the most up to date version by clicking on the following link: [Module directory](#)

Module Code	ENG6D7
Module Title	Motorsport Innovation and Sustainability
Level	6
Credit value	20
Faculty	FACE
HECoS Code	100206
Cost Code	GAME
Pre-requisite module	N/A

Programmes in which module to be offered

Programme title	Core/Optional/Standalone
BEng (Hons) Motorsport Engineering	Core

Breakdown of module hours

Learning and teaching hours	21 hrs
Placement tutor support hours	0 hrs
Supervised learning hours e.g. practical classes, workshops	21 hrs
Project supervision hours	0 hrs
Active learning and teaching hours total	42 hrs
Placement hours	0 hrs
Guided independent study hours	158 hrs
Module duration (Total hours)	200 hrs

Module aims

This module integrates advanced theoretical study with applied laboratory investigation. Students critically evaluate techniques, interpret data, and justify design or methodological decisions within a professional context. The combination of theory and practice cultivates independent learning, innovation, and readiness for individual project or dissertation work.

This module aims to prepare students to evaluate and justify innovative motorsport engineering solutions by balancing performance, sustainability requirements, and professional responsibility.

Module Learning Outcomes

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

1	Critically evaluate sustainable technologies, regulations, and strategic approaches relevant to contemporary complex motorsport problems, considering both environmental and competitive performance (AHEP-4 C2, C6).
2	Apply and justify appropriate engineering evaluation methods, such as life cycle assessment and thermal or energy efficiency analysis, to quantify environmental impact and operational performance (AHEP-4 C6).
3	Develop and defend a coherent sustainability improvement plan for a practical motorsport application, integrating technical evidence, innovation pathways, and professional responsibility considerations (AHEP-4 C7, C12.)

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

Assessment consists of a portfolio of individual activities relating to a case study consisting of the evaluate a recent motorsport innovation related to sustainability, analysing its technical basis, environmental impact, regulatory context, and implementation challenges. The assessment is expected to require critical use of technical literature, quantitative evaluation where appropriate, and a justified improvement proposal, directly assessing through practical and/or evidence-based judgement and professional reasoning. The assessment comprises the oral presentation of the findings.

Assessment number	Learning Outcomes to be met	Type of assessment	Duration/Word Count	Weighting (%)	Alternative assessment, if applicable
1	1-3	Portfolio	3000	100	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

Learning combines theoretical exploration with applied laboratory investigation to bridge conceptual understanding and professional competence. Students critically analyse data, test approaches, and evaluate outcomes in practical settings. Blended delivery through the Virtual Learning Environment supports flexibility and reflection. Tutorials focus on independent enquiry, innovation, and readiness for project or dissertation work.

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

Motorsport Innovation Drivers and Context: Analysis of key drivers of innovation in motorsport engineering, including regulatory frameworks, competitive pressures, cost constraints, and sustainability requirements.

Evaluation of Motorsport Technologies: Critical assessment of recent motorsport innovations, examining their technical performance, competitive advantages, and environmental implications within modern racing contexts.

Engineering Evaluation Techniques: Application of engineering methods, including simplified life cycle assessment (LCA) and thermal or energy efficiency analysis, to quantify environmental impact and operational performance of motorsport technologies.

Assessment of Methods and Limitations: Evaluation of assumptions, limitations, and trade-offs associated with analytical tools when applied to emerging motorsport technologies.

Innovation Led Design and Improvement: Development of sustainability focused proposals for motorsport systems, balancing performance requirements, environmental impact, and practical feasibility.

Professional Justification and Application: Justification of proposed solutions within a professional motorsport engineering context, including consideration of regulatory compliance, stakeholder expectations, and emerging electrical propulsion architectures (e.g. EV and hybrid systems).

Indicative Bibliography

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

Essential Reads:

Fédération Internationale de l'Automobile (FIA), *FIA Environmental Accreditation Framework*, latest ed. [Online]. Available: <https://www.fia.com>.

Other indicative reading:

T. Wright, *Formula 1 Technology*, 2nd ed. Warrendale, PA, USA: SAE International, 2017.

J. Summerscales et al., "Recycling and re-use of composite materials," *Composites Part A: Applied Science and Manufacturing*, vol. 40, no. 2, pp. 122–133, 2009.

Plus, various others to be signposted on Moodle.

Administrative Information

For office use only	
Initial approval date	June 2026
With effect from date	September 2026
Date and details of revision	
Version number	1