WM9SJ-15 Sustainable Automotive Research

27/28

Department
WMG
Level
Taught Postgraduate Level
Module leader
Neill Raath
Credit value
15
Module duration
28 weeks
Assessment
100% coursework
Study location
University of Warwick main campus, Coventry

Description

Introductory description

Introductory module for the Autonomous & Electrified Vehicle Technology (AEVT) course. The content will focus on the motivations for pursuing a policy of creating connected autonomous and electrified automobiles in a sustainable manner.
The module introduces the overarching legislative and regulatory frameworks alongside organisational and strategic approaches of manufacturers in response to the challenge of automotive sustainability.
The module will explore the motivations for the introduction of autonomy and intelligence in the automotive industry: safety, reduced human and economic losses, comfort, reduced environmental impact.
The module will cover layer 1 of the System V: the global, local and personal motivations for electrification in the automotive industry and business organisation and strategy evolving to face the environmental challenge.

Module aims

The module aims to equip students with in-depth knowledge and understanding of the opportunities, challenges and issues faced by the automotive industry in relation to sustainable

automotive production, whilst implementing electrification and autonomy strategies.
Students will develop fundamental knowledge of conducting academically-sound and technically-sound research projects through exploring key elements of good academic and research practice.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

Evaluation of key drivers for sustainability and autonomous vehicles, players, standards and road maps driving the industry in terms of sustainability; current opportunities, challenges, trends and issues faced by the automotive industry.
Study skills to undertake a technical project. Understanding and completing a literature review. An introduction to the structure and form of an academic document and technical reports.

Learning outcomes

By the end of the module, students should be able to:

- Group work interpretation, and critical evaluation as to how legislation is impacting the development of new vehicles [AHEP:4-M5,M7,M17]
- Evaluate and critique strategies employed by automotive manufacturers for new product development to meet customer and legislative demands in terms of technology, materials and implementation strategy. [AHEP:4-M5,M7,M17]
- Systematically research, critique and evaluate academic literature appropriate to the subject matter [AHEP:4-M5,M7,M17]
- Communicate critical analysis and evaluation of research effectively [AHEP:4-M5,M7,M17]

Indicative reading list

Reading lists can be found in Talis

Specific reading list for the module

Research element

Research will be conducted with regard to product development strategies conducted by automotive manufacturers. Research areas will include publications and report concerning legislation, automotive technologies and materials.

Subject specific skills

An understanding of the importance of requirements and cascade in the development of new vehicles, in the context of legislation and sustainability.
Effective searching of appropriate literary sources and databases for relevant information. Critical reading of academic texts. Constructing and presenting bibliographies and references. Developing an academic writing style. Preparing and delivering presentations.

Transferable skills

Collaborative working, Critical thinking and analysis, Academic writing skills. Professionalism (time management, attention to detail). Organisational awareness. Ethical values.

Study

Study time

Type	Required
Lectures	22 sessions of 1 hour (15%)
Seminars	2 sessions of 1 hour (1%)
Online learning (scheduled sessions)	6 sessions of 1 hour (4%)
Private study	60 hours (40%)
Assessment	60 hours (40%)
Total	150 hours

Private study description

Self-study time for further research into applications of taught material. Survey of the automotive engineering market is required, hence some time will be spent researching literature.

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Assessment group A

Assessment component	Weighting	Study time	Eligible for self-certification
Presentation	30%	12 hours	No

Group work assessed as a group with peer adjustment. Presentation occurs at the end of the second module week.

	Weighting	Study time	Eligible for self-certification
Reassessment component			
Presentation			No
Recorded 5 minute presentation focussing on one aspect/task determined by module tutor.			
Assessment component			
Critical review	70%	36 hours	Yes (extension)
A critical review and comparison of research papers			
Reassessment component			
Critical review			No
A critical review and comparison of research papers			

Feedback on assessment

In-class verbal debrief of performance on in-module group presentation activity. Written feedback will be provided 4 weeks after the date of submission of the written essay. The feedback will be focussed on the strengths and weaknesses of the work with regards to the module learning objectives and the post module assessment marking guidelines. Suggestions for improvement will also be provided.

Availability

Courses

This module is Core for:

- Autonomous & Electrified Vehicle Technology [AEVT]