



Module Specification

Advanced Powertrain Technologies

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Part 1: Information

Module title: Advanced Powertrain Technologies

Module code: UFMF8E-15-M

Level: Level 7

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Environment & Technology

Department: FET Dept of Engineering Design & Mathematics

Partner institutions: None

Field: Engineering, Design and Mathematics

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Not applicable

Features: Not applicable

Educational aims: In this module you will examine powertrain technologies in more depth.

Outline syllabus: You will learn about established conventional engine technologies, such as:

- Forced induction systems
- Emissions control systems
- Modern fuel injection systems

As well as established engine technologies you will study emerging and future engine technologies, such as:

- New engine cycles
- Hybrid technology
- Electric vehicles

Part 3: Teaching and learning methods

Teaching and learning methods: Teaching and learning of conventional powertrains technology will be led by the lecturer, supported with lecture material.

Learning of unconventional powertrains will be facilitated by the lecturer, but led by the students. The students will be expected to conduct self-paced research using peer reviewed sources.

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

MO1 Design and undertake investigations to address an issue/research need in the field of powertrain technology

MO2 Apply both analytical and practical methods to the analysis of powertrain engineering problems

MO3 Demonstrate and critically evaluate current theoretical and experimental technologies through use of professional literature.

MO4 Act with initiative in decision making within professional and given guidelines

MO5 Communicate effectively using professional engineering terms.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Total = 150

Reading list: The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/modules/ufmf8e-15-m.html) via the following link <https://uwe.rl.talis.com/modules/ufmf8e-15-m.html>

Part 4: Assessment

Assessment strategy: The module is examined through individual assessment. The students will demonstrate that they have met the learning outcomes through analysis of conventional technology and research and investigation into future engine technologies.

The students will write a report with two parts.

Part 1: Will be an analysis of data collected from a practical lab based experiment on a real engine. They are required to demonstrate their knowledge and understanding of advanced powertrain technology by gathering live data, analysing the data and drawing conclusions.

Part 2: The students will need to identify a significant research project related to advanced powertrain technology and conduct a feasibility study to assess its suitability. The written assignment is designed to assess the students' ability to critically evaluate and analyse data based on a brief study that the student has conceived. It also includes evaluation of their competency to identify an issue/research need and design a test plan to investigate that issue/need.

Resit strategy: The resit strategy will be as follows:

Will provide the individual student with the opportunity to rework the written assignment, including collection of new data (if appropriate)

Assessment tasks:

Report (First Sit)

Description: Written report (5000 words)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5

Report (Resit)

Description: Written report (5000 words)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Automotive Engineering [Sep][FT][Frenchay][4yrs] - Not Running MEng 2020-21

Automotive Engineering [Sep][SW][Frenchay][5yrs] MEng 2019-20

Automotive Engineering {Foundation} [Sep][FT][Frenchay][5yrs] MEng 2019-20

Automotive Engineering {Foundation} [Sep][SW][Frenchay][6yrs] MEng 2018-19