



Module Specification

Advanced Chassis

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Part 1: Information

Module title: Advanced Chassis

Module code: UFMEVE-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: Automotive Technology 2023-24

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: See Learning Outcomes.

Outline syllabus: The syllabus includes:

Revision of steady-state cornering, understeer, oversteer and yaw.

Roll, weight transfer, load transfer.

Ride, pitch and bounce (quarter car model, half car model).

Transient behaviour.

Applying dynamics modelling techniques to vehicle chassis performance.

Race car design and setup.

Part 3: Teaching and learning methods

Teaching and learning methods: This module is delivered through a series of lecture/tutorial sessions (lecturials) and is supported by sessions in the vehicle simulation lab to allow students to apply the knowledge gained in this module.

Scheduled learning includes lectures, tutorials and sessions in the vehicle simulation lab.

Independent learning includes hours engaged with essential reading, project work.

Contact: 36 hours

Assimilation and Skill development: 47 hours

Project work work: 67 hours

Total: 150 hours

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

MO1 Design and undertake substantial investigations to address significant areas of theory and practice in chassis design, performance and analysis

MO2 Select and critically evaluate advanced methodological approaches in analysis of vehicle dynamics

MO3 Apply both analytical and practical methods to the analysis of vehicle chassis engineering problems

MO4 Demonstration and critically evaluate current theoretical and methodological approaches through use of professional literature

MO5 Act with initiative in decision making within professional and given guidelines

MO6 Communicate effectively using professional engineering terms

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Project work (individual or group) = 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/ufmeve-15-m.html) via the following link <https://uwe.rl.talis.com/modules/ufmeve-15-m.html>

Part 4: Assessment

Assessment strategy: The project work is assessed using a written report (including the development of a vehicle model) and is designed to assess the students' abilities in understanding the various aspects of vehicle dynamics and how the parameters affect the vehicle's handling performance. This includes evaluation of their competencies in critically evaluation and analysing results within the context of vehicle dynamics.

Assessment tasks:

Report (First Sit)

Description: A written piece of work focussed on optimising vehicle parameters and modelling vehicle dynamics (5000 words).

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6

Report (Resit)

Description: A written piece of work focussed on optimising vehicle parameters and modelling vehicle dynamics (5000 words).

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6

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