Module Specification

Automotive Manufacturing

Version: 2023-24, v2.0, 27 Mar 2023

Contents

Part 1: Information

Module title: Automotive Manufacturing

Module code: UFMFNC-30-3

Level: Level 6

For implementation from: 2023-24

UWE credit rating: 30

ECTS credit rating: 15

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:

Automotive Manufacturing:

Structure of metallic materials, structure of composite materials, joining technology; manufacturing processes and assembly techniques; design for manufacture; design for assembly; material technology selection; manufacturing process technology selection; sustainability in materials and manufacturing.

Advanced Manufacturing Technologies:
Process management, measurement and control, Six sigma, Planning and control of production, scheduling techniques, managing manufacturing systems, MRP MRPII and ERP, batch v flow manufacture, flexible manufacturing systems, lean and agile manufacture, continuous improvement, introduction to supply chain management.

Automotive Legislation Regulations and Industry:
“Automotive safety; crash avoidance, driver assistance, crashworthiness, post crash survivability, pedestrian safety, NCAP ratings, Sustainable car industry; energy options, technologies, products, issues and policies. Automotive Emission standards, constituents and sources of emissions, measurement and instrumentation of emissions. Automotive manufacturing structure, OEM, suppliers, tier system, manufacturers, Globalisation and global trends”.

Part 3: Teaching and learning methods

Teaching and learning methods: Scheduled learning lectures will introduce the general theoretical concepts and present examples in the use of these techniques. Laboratory sessions will be used to underpin and integrate the key theoretical concepts. Some simulation software may be used to complement and help understand the application concepts.

Independent learning In addition to the scheduled learning, students are expected to spend time engaged with essential reading, report preparation and studying the concepts and underlying principles.

Contact Hours:

Scheduled teaching hours will take the form of
Lectures for the whole group
Laboratory demonstration/ tutorials classes for small groups
A project on a given topic

Activity:
Contact time (lectures, tutorials and laboratory): 72 hours
Assimilation and development of knowledge: 150 hours
Coursework/report preparation: 56 hours
Presentation preparation: 22 hours
Total: 300 hours

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

MO1 Subject specific skills in with respect to the principles of process measurement, management and control

MO2 A detailed knowledge and understanding of the principles of manufacturing systems management in the context of automotive engineering

MO3 The principles of metallic and composite materials, manufacturing process technologies and assembly techniques

MO4 The principles of design for manufacturing and design for assembly

MO5 Modelling and simplifying real problems, applying fundamental principles of mechanical engineering to the analysis of realistic problems and making recommendations based on analysis

MO6 Modelling situations and providing solutions to problems using engineering principles. Interpreting experimental data

MO7 Problem formulation and decision making

MO8 Progression to independent learning

MO9 A thorough understanding of the trends, legislation and regulations governing the automotive industry

Hours to be allocated: 300

Contact hours:

Independent study/self-guided study = 228 hours

Face-to-face learning = 72 hours

Total = 300

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://uwe.rl.talis.com/modules/ufmfnc-30-3.html

Part 4: Assessment

Assessment strategy: Assessed at the end of the module on the basis of an industrially based group project report and files, presentation, oral examination and evidence of individual effort (personal log books) 100%.

The assessment will take into account both the professional practise demonstrated in the management of the projects and outcomes of the projects themselves.

The resit will comprise an individual assignment, report, presentation and oral examination.

Assessment tasks:

Final Project (First Sit)
Description: Project Report, presentation and oral examination
Weighting: 100 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6, MO7, MO8, MO9

Final Project (Resit)

Description: Report, presentation and oral examination

Resit deliverable(s) will be scaled appropriately to group size and task complexity
Weighting: 100 %
Final assessment: Yes
Group work: No
Learning outcomes tested:

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Mechanical Engineering and Vehicle Technology {Foundation} [Feb][FT][GCET][4yrs] BEng (Hons) 2020-21

Mechanical Engineering and Vehicle Technology {Foundation} [Oct][FT][GCET][4yrs] BEng (Hons) 2020-21

Automotive Engineering {Foundation} [Sep][FT][Frenchay][5yrs] - Not Running MEng 2020-21

Automotive Engineering [Sep][SW][Frenchay][4yrs] - Not Running BEng (Hons) 2020-21

Automotive Engineering {Foundation} [Sep][FT][Frenchay][4yrs] - Not Running BEng (Hons) 2020-21

Automotive Engineering [Sep][SW][Frenchay][5yrs] MEng 2020-21

Automotive Engineering {Foundation} [Sep][SW][Frenchay][6yrs] MEng 2019-20

Automotive Engineering {Foundation} [Sep][SW][Frenchay][5yrs] BEng (Hons) 2019-20