

Liverpool John Moores University

Title: ADVANCED AUTOMOTIVE DESIGN
Status: Definitive
Code: **6090ENG** (115905)
Version Start Date: 01-08-2016

Owning School/Faculty: Maritime and Mechanical Engineering
Teaching School/Faculty: Maritime and Mechanical Engineering

Team	Leader
Christian Matthews	Y

Academic Level: FHEQ6
Credit Value: 20
Total Delivered Hours: 102
Total Learning Hours: 200
Private Study: 98

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	21
Practical	60
Tutorial	21

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Artefacts	AS1	Coursework Group Design Exercise 1	40	
Artefacts	AS2	Coursework Group Design Exercise 2	30	
Artefacts	AS3	Coursework Group Design Exercise 3	30	

Aims

This module will deliver a project based learning experience in Automotive Engineering Design. The participants will undertake a year long design project and will use a systematic design approach, to generate evaluate and specify concepts for

a product or system. Their design will be a response to a set of real or supposed client requirements and constraints.

Learning Outcomes

After completing the module the student should be able to:

- 1 Interpret vehicle system requirements and generate a design specification accordingly.
- 2 Apply a systematic approach to the design process.
- 3 Communicate design information and data effectively and in accordance with requirements.
- 4 Demonstrate technical competence in a range of automotive engineering disciplines and their application to the design of automotive systems.
- 5 Create computer models of automotive systems and use them appropriately.
- 6 Demonstrate an awareness of relevant automotive standards and legislation.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Group Design Exercise 1	1	2	3	4	5
Group Design Exercise 2	2	3	4	5	6
Group Design Exercise 3	2	3	4	5	6

Outline Syllabus

- 1. Adherence to an established design process.*
- 2. Introduce elements of BS7000 Design Management.*
- 3. Design Quality: QFD, FMEA, Risk Assessment, Value Engineering, Value Analysis.*
- 4. Human Factors: Ergonomics, Anthropometrics, User-Interfaces, Accessibility*
- 5. Standards & Laws: ISO, BS, ANSI, SAE, EuroNCAP, EU Directives (WEEE, RoHS),*
- 6. Intellectual Property: Copyright, Patents*
- 7. Further applications of ISO/BS8887:2009 Design for Manufacture, Assembly, Disassembly and End-of-life processing.*
- 8. Concurrent engineering*
- 9. Using appropriate methods to produce a principle proving prototype (PPP) in order to validate a design.*

Learning Activities

Lectures, tutorials, case studies and practical assignments.

Notes

The main parts of the syllabus will be intrinsic to the three courseworks. The three courseworks are to be staged submissions of one year long design project.