

Liverpool John Moores University

Title: AUTOMOTIVE DESIGN
Status: Definitive
Code: **5072ENG** (115892)
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: FHEQ5 **Credit Value:** 20 **Total Delivered Hours:** 123
Total Learning Hours: 200 **Private Study:** 77

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	21
Practical	60
Tutorial	42

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Portfolio	AS1	Coursework Reverse Engineering Exercise	40	
Portfolio	AS2	Coursework Conceptual & Embodiment Design Exercise	60	

Aims

The aim of this module is to build upon knowledge gained during level 1 and to provide experience of specific aspects of Automotive Engineering Design

Learning Outcomes

After completing the module the student should be able to:

- 1 Follow a systematic approach to engineering design
- 2 Determine the requirements of an engineering system in an automotive industry context
- 3 Demonstrate and understanding of the principles of design for manufacture and sustainable design in the automotive industry
- 4 Perform appropriate engineering analysis to solve a given design problem
- 5 Apply computer aided engineering methods to the design process

Learning Outcomes of Assessments

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

Portfolio	1	2	5
Portfolio	1	3	4

Outline Syllabus

- 1. Increase understanding and experience of the design process from Design Brief to Specification, Conceptual Design and Embodiment Design.*
- 2. Use appropriate design tools for the generation of creative concepts and ideas.*
- 3. Introduce elements of ISO/BS8887:2009 Design for Manufacture, Assembly, Disassembly and End-of-life processing. Automotive industry specific considerations such as the vehicle-end-of-life directive.*
- 4. Selection and integration of automotive elements (Bearings, shafts, gears, motors, hydraulics, clutches, brakes etc)*
- 5. Selection and specification of typical joining methods used in the Automotive industry.*
- 6. 3D CAD (Computer Aided Design) modelling.*
- 7. Using appropriate methods to produce a principle proving prototype (PPP) in order to validate a design*

Learning Activities

Lectures, case studies and guided design workshops

Notes

The aim of this module is to build upon knowledge gained during level 1 and to provide experience of specific aspects of Automotive Design. This is achieved by practical application of formal design methodologies and use of appropriate standards in the context of automotive engineering design problems.