

Liverpool John Moores University

Title: COMPUTER AIDED ENGINEERING DESIGN
Status: Definitive
Code: **5064ENG** (115884)
Version Start Date: 01-08-2018

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
Artefacts	AS1	Coursework - Reverse Engineering Exercise	25	
Artefacts	AS2	Coursework - Conceptual and Embodiment Design Exercise	25	
Artefacts	AS3	Coursework - Guided Design Exercise	30	
Artefacts	AS4	Design Week Exercise	20	

Aims

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

Learning Outcomes

After completing the module the student should be able to:

- 1 Specify and integrate standard engineering components in mechanical design.
- 2 Demonstrate an understanding of the principles of Design for Manufacture, Assembly, Disassembly and End-of-life.
- 3 Use CAD systems during the design process.
- 4 Undertake a systematic design procedure to progress a design from the brief to a solution.
- 5 Perform appropriate engineering design analysis using both traditional 'hand' calculations and CAE techniques.
- 6 Evaluate designs according to the principles of sustainable design.
- 7 Demonstrate the ability to generate a range of creative ideas and solutions.

Learning Outcomes of Assessments

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

Reverse Engineering Exercise	2	3	6					
Conceptual and Embodiment Design	2	3	4	5	7			
Guided Design Exercise	1	2	3	4	5	6	7	
Design Week Exercise	1	2	5					

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.
4. Selection and integration of machine elements (Bearings, shafts, gears, motors etc)
5. Selection and specification of joining methods (Permanent and non-permanent etc)
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 Computer Aided Engineering Design. This is achieved by practical application of formal design methodologies and use of appropriate standards.