

Liverpool John Moores University

Title: Engineering Practice and Design
Status: Definitive
Code: **4042ENG** (116962)
Version Start Date: 01-08-2016

Owning School/Faculty: Electronics and Electrical Engineering
Teaching School/Faculty: Electronics and Electrical Engineering

Team	Leader
Ronan McMahon	Y
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Academic Level: FHEQ4 **Credit Value:** 20 **Total Delivered Hours:** 75
Total Learning Hours: 200 **Private Study:** 125

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	12
Practical	63

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Portfolio	Portfolio		90	
Self Awareness Statement	Reflection		10	

Aims

To enhance knowledge & understanding of electrical and electronic product design methods, and engineering relevant project management & business practices. To gain experience in practical design of a product. To develop professional practical skills to undertake experimental laboratory work, to test design ideas in laboratories or through simulation, to analyse and critically evaluate technical issues, and to

present and document ideas and results. To develop the ability in data manipulation and sorting.

Learning Outcomes

After completing the module the student should be able to:

- 1 Familiarise with the process and steps involved in 'real' engineering design
- 2 Gain experiences in project management and team work
- 3 Develop good engineering practice and skills
- 4 Apply experimental methods and data analysis techniques
- 5 Safely use a range of electrical equipment
- 6 Use CAD tools for design and simulation
- 7 Identify and reflect upon the following aspects of personal development: strengths and weaknesses, motivations and values, ability to work with others.

Learning Outcomes of Assessments

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

Portfolio	1	2	3	4	5	6
Bronze Statement & Reflection	7					

Outline Syllabus

Effective studying, information sources, written communication, presentation.

Measurement techniques, data collection, data analysis, data presentation, report writing.

Circuit building, Health and safety, use of breadboard, use of solder, various power supplies, wiring.

Design project through a case study of a typical engineering product development.

After receiving an 'order' from a 'client', the students will be guided to develop a 'product' through the following: Understanding the true need of 'client' and develop specifications; Project planning: time schedule. Use of Gantt chart; Search and choose appropriate solutions, components and materials; Analyse the physical and financial constraints; Risk assessments; Evaluate the design through simulation by using CAD tools; Prototyping and construction; Commissioning and testing; Reliability considerations; Documentation.

Learning Activities

Practical sessions, supported by lectures where appropriate.

Notes

The module provides a vehicle by which students can acquire essential skills in engineering and product design. It also will provide the opportunity for effective personal tutoring.