

## Liverpool John Moores University

Title: ELECTRICAL AND ELECTRONIC ENGINEERING  
Status: Definitive  
Code: **4507ENGIOM** (117265)  
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

**Academic Level:** FHEQ4      **Credit Value:** 10      **Total Delivered Hours:** 54  
**Total Learning Hours:** 100      **Private Study:** 46

### Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	22
Practical	8
Tutorial	22

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Examination	50	2
Practice	AS2	Coursework - Laboratory and Tutorial Work	50	

### Aims

*To introduce the essential principles of Electrical and Electronic Engineering*

### Learning Outcomes

After completing the module the student should be able to:

- 1 Analyse DC resistive circuits
- 2 Recall the principles of semi-conductor devices e.g. diode and transistor
- 3 Analyse simple inductive and capacitive DC and AC circuits
- 4 Measure electrical quantities in circuits

### Learning Outcomes of Assessments

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

EXAM	1	2	3	4
lab tutorial work	1	2	3	4

### Outline Syllabus

*Fundamental ideas, notions, concepts and relations. Ohms law, measurement of voltage, current and resistance.*

*Kirchhoff's current and voltage laws. Series and parallel circuits and their equivalent circuits.*

*Semiconductors, intrinsic, P-type and N-type. Operation and characteristics of a simple diode and transistor.*

*Simple electro-magnetism. Inductors, self inductance, transformer action and simple motors.*

*Simple inductive and capacitive circuits.*

*Fundamentals of alternating current, frequency, period, angular frequency. Peak, rms and instantaneous values.*

*Complex representation of sinusoidal quantities and phasor diagrams. Series and parallel AC circuits, RL, RC and RLC circuits.*

*Instrumentation sensors and measurement.*

### Learning Activities

A combination of Laboratories, Tutorials and Lectures

### Notes

This module is designed to provide an introduction to Electrical and Electronic Engineering relevant to the fields of Mechanical, Automotive and Marine Engineering. The module covers the essential concepts associated with DC and AC circuits, electromechanical systems and instrumentation.