

## Liverpool John Moores University

Title: Mechatronics 1 - Electrical Fundamentals  
Status: Definitive  
Code: **4006AMCPD** (126480)  
Version Start Date: 01-08-2019

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

Team	Leader
Frederic Bezombes	Y

**Academic Level:** FHEQ4      **Credit Value:** 10      **Total Delivered Hours:** 17  
**Total Learning Hours:** 100      **Private Study:** 83

### Delivery Options

Course typically offered: Summer

Component	Contact Hours
Online	12
Tutorial	5

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Test	ASS1	VLE test	100	

### Aims

*This module provides an applied introduction to electronics fundamentals for Mechatronics applications.*

### Learning Outcomes

After completing the module the student should be able to:

- 1 Analyse fundamental electrical circuits which include passive and active components

## Learning Outcomes of Assessments

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

VLE test 1

## Outline Syllabus

*Circuit analysis applying the fundamentals of current, voltage and resistance*

- *Ohms Law, Conductivity & Resistance, Capacitance; Power & Dissipation of Losses, Magnetism & Inductance; Motor and generator effects, Power supplies*
- *Fundamentals of AC, Kirchhoff's Voltage and Current Laws; Resistive circuits in series and parallel;*
- *Active electrical circuits incorporating transistors and diodes*

## Learning Activities

On-line lectures and tutorials.

## Notes

This is a single-module CPD programme code 36250.

This module covers the essential elements of electrical circuits and electronics relevant to mechanical and manufacturing engineering. Knowledge will be further developed by application to a work-related learning project.

Candidates applying for the module must hold the prerequisite relevant engineering qualifications at Level 3 totalling at least 90 credits. In addition, many will already have a HE level qualification and may use this CPD module to extend or update their existing skill set.

Intake entry point for study onto the CPD module will occur in summer.

The CPD module will not have any formal PSRB accreditation.

Subject benchmark statement - Aligns to Engineering Council UK SPEC

The module is a CPD version based on part of 4500MTC, which is part of the Advanced Manufacturing BEng.

The module will be delivered by remote study of on-line lecture content. Delivery of the module is intended to last approximately 12 weeks.

Learners are allocated a personal tutor, who may be drawn on to deal with any support requirements they may have. This support is delivered virtually using online

virtual tutorial sessions.

Formative assessment will be facilitated through tutorial feedback, plus through engagement with online study material and assessment tasks.

The programme is assessed and run in line with the Academic Framework (<https://www.ljmu.ac.uk/about-us/public-information/academic-qualityandregulations/academic-framework>).

The methods for improving the quality and standards of learning are as follows:

- Continuous Monitoring and Enhancement
- Liaison and feedback from the students
- Reports from the External Examiner
- Programme team ensuring the module reflects the values of the current teaching and learning strategy
- Module/Programme Leader updating knowledge and skills to ensure these remain current and relevant.

As the content of this CPD is derived from the Advanced Manufacturing BEng, it will share the same external examiner as that programme.