

### Summary Information

Module Code	4507USST
Formal Module Title	Electrical and Electronic Engineering
Owning School	Engineering
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 4
Grading Schema	40

### Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

### Partner Teaching Institution

Institution Name
University of Shanghai For Science and Technology

### Learning Methods

Learning Method Type	Hours
Lecture	44
Tutorial	22

### Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
JAN-PAR	PAR	January	12 Weeks

## Aims and Outcomes

Aims	To enable students to develop an understanding of the physical principles of electrical and electronic systems, and to analyse simple circuits which incorporate passive and active components.
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**After completing the module the student should be able to:**

### Learning Outcomes

Code	Number	Description
MLO1	1	Model the physical principles of electrical and electronic systems.
MLO2	2	Analyse circuits which include passive electrical components.
MLO3	3	Analyse circuits which include active electronic components.

## Module Content

Outline Syllabus	Physical Principles of Electrical & Electronic Systems• Charge, Current and Voltage• Ohm's Law• Conductivity & Resistance• Power & Dissipation of Losses• Capacitance• Magnetism & Inductance• Motor and generator effects• Electrochemical & Batteries (increasingly important given hybrid systems)• Semi-conductorso P-type, N-type• Diodes and Transistors• Basic Operational Amplifiers• Fundamentals of A.C. (Sinusoids, Phasors etc)Electrical Circuits• Kirchhoff's Voltage and Current Laws (LO1 & LO2)• Resistive circuits in series and parallel (LO2)• Simple inductive and capacitive circuits (LO2)• RC, RL and RLC circuitso Complex representation• Active Electrical Circuits (LO3)• Transistor and diode circuitso Inverting & Non-Inverting Amplifiers• Summing, Integrating and Differentiating Circuits. • Useful engineering circuits (LO2 & LO3)• Instrumentation, sensors and measurement (LO1, LO2 & LO3)
Module Overview	
Additional Information	This module is designed to provide an introduction to Electrical and Electronic Engineering. The module covers the essential concepts associated with DC and AC circuits, electromechanical systems and instrumentation.

## Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Exam	Examination	60	2	MLO1, MLO2, MLO3
Test	In course tests	40	0	MLO1, MLO2, MLO3

## Module Contacts

### Module Leader

Contact Name	Applies to all offerings	Offerings
Mike Shaw	Yes	N/A

### Partner Module Team

Contact Name	Applies to all offerings	Offerings
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