**Liverpool** John Moores University

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|---|---|
| Title: | ELECTRICAL AND ELECTRONIC PRINCIPLES |
| Status: | Definitive |
| Code: | **4047ENG** (117058) |
| Version Start Date: | 01-08-2016 |
| Owning School/Faculty: | Electronics and Electrical Engineering |
| Teaching School/Faculty: | Electronics and Electrical Engineering |

| Team | Leader |
|---|---|
| Paul Otterson | Y |
| Wei Zhang | |
| Tony McKenna | |

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| **Academic Level:** | FHEQ4 | **Credit Value:** | 24 | **Total Delivered Hours:** | 96 |
| **Total Learning Hours:** | 240 | **Private Study:** | 144 | | |

**Delivery Options**
Course typically offered: Standard Year Long

| Component | Contact Hours |
|---|---|
| Lecture | 24 |
| Practical | 48 |
| Tutorial | 24 |

**Grading Basis:** 40 %

**Assessment Details**

| Category | Short Description | Description | Weighting (%) | Exam Duration |
|---|---|---|---|---|
| Test | Test | | 15 | |
| Report | Rpt | | 15 | |
| Portfolio | Port | | 70 | |

**Aims**

*To provide a solid understanding of the concepts upon which electrical & electronic principles are based*

## Learning Outcomes

After completing the module the student should be able to:

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|---|---|
| 1 | Describe and solve basic problems using DC & AC circuit principles |
| 2 | Test and measure electronic components and measure the properties of simple electrical and electronic circuits |
| 3 | Describe and analyze circuits containing discrete semiconductor devices and operational amplifiers |
| 4 | Describe and analyze properties of devices from datasheets and specifications |

## Learning Outcomes of Assessments

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

| | | |
|---|---|---|
| Test | 1 | |
| Report | 3 | 4 |
| Portfolio | 2 | |

## Outline Syllabus

*Basic quantities and SI units*
*Ohms law, series & parallel resistors*
*Simple dc circuit analysis*
*Introduction to capacitance & inductance and usage in electrical circuit (descriptive)*
*Impedance of R,C,L components (descriptive)*
*Power*
*PN junction diodes. Forward and reverse biasing of a PN junction. Diode applications. Basic transistor operation. Transistor characteristics and operations, (Biasing and DC load line). Transistor applications.*
*Ideal operational amplifiers, Inverting, non-inverting, summing.*

## Learning Activities

Lectures, tutorial and practical sessions

## Notes

This module provides a fundamental understanding of electrical & electronic principles for level 4 BSc programmes.