

**Summary Information**

<b>Module Code</b>	4606IYO
<b>Formal Module Title</b>	Analogue Electronics
<b>Owning School</b>	Engineering
<b>Career</b>	Undergraduate
<b>Credits</b>	10
<b>Academic level</b>	FHEQ Level 4
<b>Grading Schema</b>	40

**Module Contacts**

**Module Leader**

Contact Name	Applies to all offerings	Offerings
Lonnie Readioff	Yes	N/A

**Module Team Member**

Contact Name	Applies to all offerings	Offerings
Mohamed Kara-Mohamed	Yes	N/A

**Partner Module Team**

Contact Name	Applies to all offerings	Offerings
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**Teaching Responsibility**

<b>LJMU Schools involved in Delivery</b>
LJMU Partner Taught

## Partner Teaching Institution

Institution Name
Study Group

## Learning Methods

Learning Method Type	Hours
Lecture	12
Seminar	24

## Module Offering(s)

Offering Code	Location	Start Month	Duration
APR-PAR	PAR	April	12 Weeks
JAN-PAR	PAR	January	12 Weeks

## Aims and Outcomes

<b>Aims</b>	To provide an introduction to diodes, transistors and the small-signal equivalent circuits, the use of operational amplifiers.
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## Learning Outcomes

After completing the module the student should be able to:

Code	Description
MLO1	Understand the principles of diode and transistor characteristics.
MLO2	Analyse electronics by using diode and transistor for simple amplifier design.
MLO3	Identify operational amplifier circuits and applications.
MLO4	Describe circuits design for analogue signal processing.

## Module Content

### Outline Syllabus

Analogue Fundamentals. Review of fundamental notations and relations, SI units, Ohms Law, measurement of voltage, current and resistance, series and parallel circuit equivalences.  
Quantitative discussion of capacitors, transients in R-C circuits, and time constants. Diode and transistor operation and simple models.  
Operational amplifiers and feedback; basic inverting and non-inverting amplifier. Stability in feedback amplifiers; frequency response and gain-bandwidth product; input and output impedance.  
Operational amplifier applications such as small signal amplifier and applications.

### Module Overview

#### Additional Information

This Level 4 module is devised for students to gain fundamental knowledge and practical skills in analogue electronics circuit analysis and design.

### Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Learning Outcome Mapping
Exam	Exam/test	100	2	MLO1, MLO3, MLO2, MLO4