

# Linear Electronics

## Module Information

2022.01, Approved

### Summary Information

Module Code	5304CIT
Formal Module Title	Linear Electronics
Owning School	Engineering
Career	Undergraduate
Credits	10
Academic level	FHEQ Level 5
Grading Schema	40

### Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

### Partner Teaching Institution

Institution Name
Changshu Institute of Technology

### Learning Methods

Learning Method Type	Hours
Lecture	32
Practical	16

### Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-PAR	PAR	September	12 Weeks

## Aims and Outcomes

Aims	The module aims to broaden the students' knowledge and understanding of linear electronic circuit design, and also to provide students with practical skills necessary to design, analyse and simulate and manufacture electronic circuits.
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**After completing the module the student should be able to:**

### Learning Outcomes

Code	Number	Description
MLO1	1	Discuss analogue circuit operations and design for signal measurement, data acquisition and processing.
MLO2	2	Master the working principle and linear application of transistor, FET and Op Amp
MLO3	3	Design and use the equivalent circuit analysis method is used to analyse the performance of various amplifying circuits.
MLO4	4	Use CAD tools for circuit design and simulation.

## Module Content

Outline Syllabus	1. Amplifier circuits• Review of transistors: modelling, biasing and amplifiers.• Linear integrated circuits: differential amplifiers, current mirrors. Power control:• regulation, rectification and power amplification.2. Op-amp applications• Design of analogue systems using op-amps: active filters, oscillators, A/D converters• for measurement, instrumentation and data acquisition, understanding relevant• parameters such as bandwidth, precision, slew rate, feedback, stability.3. CAD tools• Use NI Multisim for circuit design and simulation• Use NI Ultiboard for PCB-level design and simulation
Module Overview	
Additional Information	This course will provide undergraduate students in electronic design with intermediate level tools and skills necessary to design, test and implement and manufacture electronic circuits. Reports are 2500 maximum word count.

## Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Report	Coursework	100	0	MLO1, MLO2, MLO3, MLO4

## Module Contacts

### Module Leader

Contact Name	Applies to all offerings	Offerings
Guangming Zhang	Yes	N/A

### Partner Module Team

Contact Name	Applies to all offerings	Offerings
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