LIVERPOOL JOHN MOORES UNIVERSITY

Module Proforma

Approved, 2022.02

Summary Information

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

Module Contacts

Module Leader

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

Module Team Member

Contact Name	Applies to all offerings	Offerings

Partner Module Team

Contact Name	Applies to all offerings	Offerings

Teaching Responsibility

LJMU Schools involved in Delivery
Engineering

Learning Methods

Learning Method Type	Hours

Lecture	22
Practical	11

Module Offering(s)

Offering Code	Location	Start Month	Duration
SEP-CTY	CTY	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.

Learning Outcomes

After completing the module the student should be able to:

Code	Description
MLO1	Discuss analogue circuit operations and design for signal measurement, data acquisition and processing
MLO2	Design, evaluate and produce op-amp based filter, amplifier, D/A, and A/D circuits
MLO3	Use CAD tools for circuit design and simulation
MLO4	Use CAD tools for PCB-level, simulation

Module Content

Outline Syllabus

1. Amplifier circuitsReview of transistors: modelling, biasing and amplifiers.Linear integrated circuits: differential amplifiers, current mirrors. Power control: regulation, rectification and power amplification.2. Op-amp applicationsDesign 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.

Module Overview

This module aims to broaden your knowledge and understanding of linear electronic circuit design, and also to provide you with the practical skills necessary to design, analyse, simulate and manufacture electronic circuits. This module will provide you with the intermediate level tools and skills necessary to design, test, implement and manufacture electronic circuits.

Additional Information
This Level 5 module will provide undergraduate students in electronic design with intermediate level tools and skills necessary to design, test and implement and manufacture electronic circuits.Where this module is part of a Degree Apprenticeship programme, the knowledge learning outcomes is K1, K2, K3 and K6, the skills learning outcomes are S1, S3 and S6

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Learning Outcome Mapping
Centralised Exam	Exam	70	2	MLO2, MLO1
Report	Report	30	0	MLO4, MLO2, MLO3, MLO1