Liverpool John Moores University

Title:	ELECTRONIC ENGINEERING
Status:	Definitive
Code:	**5005ENG** (105500)
Version Start Date:	01-08-2016
Owning School/Faculty:	Astrophysics Research Institute
Teaching School/Faculty:	Astrophysics Research Institute

Team	Leader
Jawad Kadim	Y

Academic Level:	FHEQ5	**Credit Value:**	24	**Total Delivered Hours:**	54
Total Learning Hours:	240	**Private Study:**	186		

Delivery Options
Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	24
Practical	24
Tutorial	4

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Examination	50	2
Essay	AS2	Coursework	50	

Aims

The module aims to broaden the students' knowledge and understanding of analogue and digital circuits, and also to provide students with skills necessary to design, analyse and implement electronic circuits.

Learning Outcomes

After completing the module the student should be able to:

1 apply formalised systematic design techniques to electronic circuits.
2 design, analyse and implement digital circuits.
3 design and analyse bipolar transistor amplifiers and basic op-amp. circuits.
4 recognise the terms such as output power, power gain, voltage gain and frequency response.

Learning Outcomes of Assessments

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

EXAM	1	2	3	
CW	1	2	3	4

Outline Syllabus

Review of Boolean algebra and Karnaugh maps.
Synchronous sequential state machine design and analysis, including Mealy, Moore and mixed type circuits. Design of iterative circuits. Design of asynchronous sequential networks.
Introduction to the principles of programmable logic design.
Bipolar and MOSFET transistors: modelling, biasing and amplifiers.
Linear integrated circuits: differential amplifiers, current mirrors. Power control: regulation, rectification and power amplification. Feedback: positive and negative feedback, poles and zeros, polynomials, stability.
Noise: types of noise, statistical basis, noise power, noise equivalent circuits.
High frequency considerations: high frequency circuit modelling, design and analysis.

Learning Activities

By a combination of lectures, tutorials, and laboratory design assignments.

Notes

This Level 2 module will provide undergraduate students in electronic engineering with intermediate level tools and skills necessary to design, test and implement electronic systems.