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Title: Electronic Engineering
Status: Definitive
Code: **5003ENGFRI** (117011)
Version Start Date: 01-08-2016

Owning School/Faculty: Maritime and Mechanical Engineering
Teaching School/Faculty: Maritime and Mechanical Engineering

Team	Leader
Russell English	Y

Academic Level: FHEQ5 **Credit Value:** 20 **Total Delivered Hours:** 50
Total Learning Hours: 200 **Private Study:** 150

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	20
Practical	8
Tutorial	20

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam		60	2
Report	Report		40	

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 and analyse synchronous and asynchronous circuits
- 3 Design and analyse transistor amplifiers and basic op-amp circuits
- 4 Recognise the terms such as 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	
Lab design assignments	1	2	3	4

Outline Syllabus

Review of Boolean algebra and Karnaugh maps.

Design and analysis of clock-mode circuits.

Design and analysis of asynchronous sequential circuits.

Circuit designs utilising MSI/LSI components.

Bipolar and MOSFET transistors: operation, design and analysis, applications.

Linear integrated circuits: differential amplifiers, current mirrors.

Feedback configurations, op-amp circuit representation

Frequency response: gain, cut-off frequency, bandwidth.

Learning Activities

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

Notes

This Level 5 module will provide undergraduate students in electronic engineering with intermediate level tools and skills necessary to design, test and implement electronic systems.