This Version is No Longer Current
The latest version of this module is available here

MODULE DESCRIPTOR

Module Title

Electronics 3

Reference	EN3512	Version	4
Created	May 2017	SCQF Level	SCQF 9
Approved	July 2009	SCQF Points	15
Amended	May 2017	ECTS Points	7.5

Aims of Module

To provide students with the ability to analyse and synthesise analogue and digital circuits and systems.

Learning Outcomes for Module

On completion of this module, students are expected to be able to:

1	Design analogue circuits and systems.
2	Construct basic signal acquisition systems using Virtual Instrumentation techniques.
3	Design and implement digital systems using programmable logic.
4	Interpret, use and create HDL code for digital systems.

Indicative Module Content

Operational amplifier performance characteristics and applications. Analogue signal processing circuits including filters; signal conditioning. Analogue signal acquisition and processing in a Virtual Instrument (VI) environment; basic VI structures for signal capture, analysis and recording. Sequential digital design and implementation using Algorithmic State Machines (ASM); High-level state machines and Register Transfer Language(RTL). The use of programmable logic and high-level description languages in digital system design and implementation.

Module Delivery

This is a lecture-based course supplemented with tutorial sessions, laboratory exercises and student centred learning.

Indicative Student Workload	Full Time	Part Time
Contact Hours	45	45
Non-Contact Hours	105	105
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	150
Actual Placement hours for professional, statutory or regulatory body		

Module Ref:	EN3512 v4

ASSESSMENT PLAN

If a major/minor model is used and box is ticked, % weightings below are indicative only.

Component 1

Type:	Coursework	Weighting:	30%	Outcomes Assessed:	2
Description:	Design investigation; the results of which will be presented in a suitable medium.				

Component 2

Type:	Examination	Weighting:	70%	Outcomes Assessed:	1, 3, 4
Description:	Closed book examination.				

MODULE PERFORMANCE DESCRIPTOR

Explanatory Text

To pass the module, you must achieve a 40% weighted average mark from the exam and coursework. In addition you need to achieve at least 35% in both the individual exam and coursework components.

Module Grade	Minimum Requirements to achieve Module Grade:
A	=>70%
B	60-69%
C	50-59%
D	40-49%
E	35-39%
F	0-34%
NS	Non-submission of work by published deadline or non-attendance for examination

Module Requirements

Prerequisites for Module	Electronics 2 (EN2510) or the equivalent.
Corequisites for module	None.
Precluded Modules	None.

ADDITIONAL NOTES

An Indicative Bibliography will normally reference the latest edition of a text. In some cases, older editions are equally useful for students and therefore, those are the editions that may be stocked.

INDICATIVE BIBLIOGRAPHY

1	BOTROS, N., 2005. HDL Programming Fundamentals: VHDL and Verilog. Rockland, MA: Charles River Media, Inc.
2	FRANCO, S., 2014. Design with Operational Amplifiers and Analog Integrated Circuits. 4th ed. New York, NY: McGraw-Hill.
3	ROTH, C. H., 2013. Fundamentals of Logic Design. 7th ed. Nashville, TN: Thomson/Nelson.
4	SEDRA, A.S. and SMITH, K.C., 2014. Microelectronic Circuits. 7th ed. New York, NY: Oxford University Press.