MODULE SPECIFICATION

Part 1: Information			
Module Title	Analogue Electronic Design		
Module Code	UFMFE7-15-3	Level	Level 6
For implementation from	2019-20		
UWE Credit Rating	15	ECTS Credit Rating	7.5
Faculty	Faculty of Environment & Technology	Field	Engineering, Design and Mathematics
Department	FET Dept of Engin Design & Mathematics		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

Educational Aims: See Learning Outcomes.

In addition to the learning outcomes, the educational experience may explore, develop, and practise but not formally discretely assess the following:

The ability to work safely in a workshop or laboratory environment while using a range of tools and techniques related to the assembly of electronic circuits and PCBs.

Awareness of nature of intellectual property and contractual issues.

Ability to work with technical uncertainty.

Outline Syllabus: The syllabus includes:

Grounding and wiring
PCB board types, design rules.
Passive components, active components
Analogue ICs
digital and microcontroller interfacing

Power supplies
EMC
Product design and testing

Teaching and Learning Methods: Teaching will include the formal presentation of material through lectures, presentations and seminars from industrial partners and laboratory work. The laboratory work will provide the practical application of the theory discussed in the lectures. The student will apply this understanding to the design and implementation of an electronic circuit and PCB. This will form part of the module assessment.

There may be circumstances where individual part-time students can undertake the practical work in their work-place.

Scheduled learning includes lectures, seminars, practical classes and workshops; external visits; work based learning.

Independent learning includes hours engaged with essential reading, case study preparation, assignment preparation and completion etc.

Contact Hours:

Activity:
Contact: 36 hours
Assimilation and skill development: 44 hours
Coursework: 60 hours
Exam preparation: 10 hours
Total: 150 hours

Part 3: Assessment

All assessments are based on practical work as the design of electronic circuits and PCBs is something that comes through practical experience as much as an understanding and implementation of 'design rules'.

Summative assessment will be achieved through a laboratory exercise conducted under controlled conditions, this will assess the students ability to correctly conduct the testing of a circuit for correct behaviour. The open summative assessment will require the student to develop an electronic device from initial requirements to pre-production prototype including consideration of environmental factors and cost drivers.

Assessments will be conducted in line with the SEEC guidelines for the level in conjunction with the discipline specific outcomes listed above and referenced from the IET Handbook of Learning Outcomes for Accredited Programmes.

The assessed laboratory exercise (A1) will be of 3 hours duration.

The accompanying report for the design and implementation will be expected to be of 2000 -3000 words, to include schematics, layouts etc.

The assessment for referral will be one 3 hour exam testing learning outcomes 5 and 6, as it is not the length of assessment but the outcomes tested that are of importance for demonstrating that knowledge has been gained.

Formative assessment will be provided as feedback during the design and development of the open summative assessment.

First Sit Components	Final Assessment	Element weighting	Description
Project - Component B		50 %	Design and implementation project
Examination - Component A	✓	50 %	Laboratory design exam (3 hours)
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Project - Component B		50 %	Design and implementation project
Examination - Component A	✓	50 %	Laboratory design exam (3 hours)

Part 4: Teaching and Learning Methods

Learning Outcomes

On successful completion of this module students will achieve the following learning outcomes:

Module Learning Outcomes	Reference
Use quantitative methods and appropriate computer software tools to solve engineering problems involving the analysis of electronic circuits	MO1
Ensure fitness for purpose for all aspects of circuit board design including production, operation, maintenance and disposal	MO2
Identify and manage cost drivers in the design and development of electronic systems	MO3
Show knowledge and understanding of commercial and economic context of engineering processes	MO4
Demonstrate knowledge and understanding of the equipment, materials and processes employed in the design, production and testing of electronic circuits and systems, including PCB production	MO5
Apply analytical methods (i.e. circuit theory) and modelling techniques (i.e. electronic device models) to the identification, classification and description of electronic circuits and their performance in response to a range of externally applied stimuli	MO6

Contact Hours

Independent Study Hours:	
Independent study/self-guided study	114
Total Independent Study Hours:	114
Scheduled Learning and Teaching Hours:	
Face-to-face learning	36
Total Scheduled Learning and Teaching Hours:	36

	Hours to be allocated	150
	Allocated Hours	150
Reading List	*The reading list for this module can be accessed via the following link:* https://uwe.rl.talis.com/modules/ufmfe7-15-3.html	

Part 5: Contributes Towards
This module contributes towards the following programmes of study: