MODULE SPECIFICATION

Part 1: Information			
Module Title	Practical Electronics		
Module Code	UFMFCA-15-1	Level	Level 4
For implementation from	2018-19		
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		
Contributes towards	Electronic Engineering [Sep][SW][Frenchay][5yrs] MEng 2018-19 Robotics [Sep][SW][Frenchay][4yrs] BEng (Hons) 2018-19 Electrical and Electronic Engineering [Sep][SW][Northshore][5yrs] MEng 2018-19 Electronic and Computer Engineering [Sep][FT][Frenchay][3yrs] BEng (Hons) 2018-19 Robotics [Sep][FT][Frenchay][3yrs] BEng (Hons) 2018-19 Electrical and Electronic Engineering [Sep][SW][Frenchay][5yrs] MEng 2018-19 Electronic and Computer Engineering [Sep][SW][Frenchay][4yrs] BEng (Hons) 2018-19 Electronic and Computer Engineering {Top Up} [Aug][FT][SHAPE][1yr] BEng (Hons) 2018-19 Electronic and Computer Engineering {Top Up} [Aug][PT][SHAPE][2yrs] BEng (Hons) 2018-19 Electronic and Computer Engineering [Sep][PT][GlosColl][5yrs] BEng (Hons) 2018-19 Electronic and Computer Engineering {Apprenticeship} [Sep][PT][GlosColl][5yrs] BEng (Hons) 2018-19		
Module type:	Project		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

Educational Aims: In addition to the educational aims the educational experience may explore, develop, and practise but not assess the following:

Working as a team member
Printed circuit board design
Circuit simulation

Outline Syllabus: Use of basic laboratory instrumentation (PSU, oscilloscope, DMM, function generator).

Ohm's law - Resistors and resistance (parallel and series), value marking, tolerance.

Diode – basic operation and V-I characteristics.

Rectification and smoothing.

Transistor operation, as an amplifier and as a switch.

Operational Amplifiers.

Digital Logic ICs.

AC waveforms, RMS.

Project work will encompass more advanced topics, e.g. battery charging, timing circuits, dc-dc converters etc.

Teaching and Learning Methods: The module will mainly involve laboratory sessions of a directed nature; the broad aim of this approach is to underpin/reinforce theoretical knowledge gained either prior to or after joining the course, in order to ensure a minimum standard of practical ability is achieved across a cohort with potentially diverse backgrounds.

The primary focus will be to introduce students to a number of common electronic components in a practical setting, and to provide the stimulus to investigate the characteristics and performance of circuits built from these components.

Students will be encouraged to use private study time to investigate the theoretical principles on which the laboratory exercises are based, and to gain familiarity with the components encountered by studying the associated data sheets which are available on-line.

Students will also gain experience in the use of standard test equipment, and gain confidence through the use of such equipment 'in context'.

The keeping of formal laboratory notebooks will be required to ensure adequate recording of the work undertaken, and to satisfy the requirements of accrediting bodies such as the IET that such practice is observed. The laboratory notebook will also serve as the primary grading mechanism for summative assessment, and as a vehicle for providing feedback on work undertaken across a variety of topics.

To integrate the practical concepts, students will also be required to work in groups for a design and build project: Each group will need to submit a project report that will include an individual reflective statement from each team member . Students are required to manage their own time during the entire module so as to work on individual practical exercises and the Group Project which run concurrently. The teaching/learning format for the Group Project is at least partly EBL (enquiry-based learning), where the students are directed to request / demand key information in order to be able to meet the brief.

Contact hours: 36
Self-study: 50

Assignment Preparation: 64
Examination Preparation: 0
Total: 150

Part 3: Assessment

Assessment for the module consists of (1) individual logbook and (2) a group project. The mark attainable is for a combination of quality and quantity of work undertaken.

Apart from providing a grading mechanism, the aim is to encourage students to get into the habit of keeping adequate laboratory notes, and to attend the laboratory sessions regularly.

The first assessment (logbook, A1) addresses Learning Outcomes 1, 2 and 6 and will account for 30% of the module.

Assessment A2 (group project) will yield 1 mark accounting for 70% of module. The Group Project assessment will comprise 3 elements; one for the deliverable hardware, one for a group report (1500 words), and one for an individual reflective statement (150 words) from each group member. Learning Outcomes 2, 3, 4, 5 and 6 are addressed by A2.

The Resit assessment would involve individual students working on a reduced scope project as compared to the Group Project. It will involve the design, building and test of a system for which they have to submit a Individual Report (1500 words).

First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Project - Component A	✓	70 %	Group project (1500 word report plus demo and 150 word individual reflection)
Laboratory Report - Component A		30 %	Laboratory log book
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Project - Component A	✓	100 %	Individual project (1500 word report)

Part 4: Teaching and Learning Methods

Learning Outcomes

On successful completion of this module students will be able to:

	Module Learning Outcomes
MO1	Demonstrate knowledge of and competence in the use of basic laboratory instrumentation
MO2	Demonstrate knowledge and understanding of a number of common electronic components
MO3	Show cognitive skills with respect to the analysis of a design specification, and make appropriate component selection through research and analysis of available component data
MO4	Demonstrate knowledge of and competence in the use of standard electronic hardware prototyping techniques
MO5	Show cognitive skills with respect to the analysis of a requirement specification or problem definition, and synthesize a design solution based on appropriate research and the application of acquired skills and experience

	MO6	Demonstrate knowledge and understanding of the need to keep adequate experimental notes

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/ufmfca-15-1.html