MODULE SPECIFICATION

Part 1: Information			
Module Title	Advanced Analogue Electronics		
Module Code	UFMFVT-15-3	Level	Level 6
For implementation from	2022-23		
UWE Credit Rating	15	ECTS Credit Rating	7.5
Faculty	Faculty of Environment & Technology	Field	Engineering, Design and Mathematics
Department	FET Dept of Engineering, Design & Mathematics		
Module type:	Standard		
Pre-requisites	Principles of Electrical Engineering 2020-21		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

Overview: This module builds upon the knowledge gained in Analogue Electronic Systems at level 5. Electronic systems can demonstrate complex characteristics due to high frequency signals as well as the non-linear behaviour and parameter variations of constituent passive and active components. Such behaviours will be discussed and analysed in this module. Standard design methodologies and practices will be covered. Furthermore, complex circuit topology such as differential and multi-stage amplifiers, and their cascaded operation will also be covered.

The material covered in this module is important because these devices are used in the design of communication and power systems amongst other common applications.

Educational Aims: This module equips the students with a clear understanding of the non-ideal behaviour of electronic components and their usage in complex electronic circuits that are used in many real-world applications

Outline Syllabus: Typical course syllabus topics:

BJT Transistors as Amplifiers

Amplifier high frequency behaviour

Current-Mirrors and Active Loads

Differential Amplifiers

Multi-stage Amplifiers

Feedback and Stability

Component Sensitivity Analysis

Teaching and Learning Methods: The delivery is intended to ensure that students have opportunity to develop practical lab-based skills alongside theoretical understanding of advanced analogue electronics concepts.

Part 3: Assessment

Assessment of this module consists of two major parts:

Component B will be a coursework assessment (lab sessions) in regular intervals during the semester. This will be used to assess competency in the methods learned during the project-based work. Regular feedback and feed forward from the coursework is intended to assist students to prepare for the examination.

Component A will be an examination at the end of the semester that assesses the student's understanding of design and analysis techniques learned during the lectures and tutorials, and their ability to apply them to real world problems or scenarios.

Resit strategy:
Component B coursework submission will be an individual report of an electronic system design and an experimental exercise that encompasses critical aspects of learning expected through the laboratory work.
Component A will be an individual examination as described in the first sit assessment.

First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Examination - Component A	✓	50 %	Written examination (2 hours)
Laboratory Report - Component B		50 %	Coursework assessment (lab sessions) in regular intervals during the semester
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Examination - Component A	✓	50 %	Written examination (2 hours)
Report - Component B		50 %	

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**
Apply analytical methods and modelling techniques to the performance of electronic circuits in response to a range of externally applied stimuli	MO1
Use quantitative methods and appropriate computer software tools to solve engineering problems involving the analysis of electronic circuits	MO2

	Explain and apply electronic principles and design guidelines to complex electronic systems and troubleshooting techniques	MO3
	Analyse measured data from electronic circuits and correlate them against simulation/analytical formulae	MO4

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://rl.talis.com/3/uwe/lists/60B4B381-4C95-BCCC-783C-A47CCF48F16E.html?lang=en-GB&login=1

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