Module Specification

Analogue Electronic Systems

Version: 2025-26, v3.0, Approved

Contents

Part 1: Information

Module title: Analogue Electronic Systems

Module code: UFMFPT-15-2

Level: Level 5

For implementation from: 2025-26

UWE credit rating: 15

ECTS credit rating: 7.5

College: College of Arts, Technology and Environment

School: CATE School of Engineering

Partner institutions: None

Field: Engineering, Design and Mathematics

Module type: Module

Pre-requisites: Principles of Electrical Engineering 2024-25

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: The module builds on prior knowledge of basic electronic engineering principles to design analogue electronic systems. Students will learn to design analogue electronic circuits, including those which extract and process sensor data and which operate and control electronic systems containing transducers and actuators.

Analogue Electronic Systems (AES) are integral to most high-tech hardware

applications including automobile, aeroplanes, robotics, rail networks, and communication devices. This module teaches analogue electronic engineering (AEE) systems design and analysis.

Features: Not applicable

Educational aims: This module builds on level 4 provision in electronic principles and applied electronics to deliver core skills in analogue electronics systems design and analysis.

In this module students will learn about the practical application of various analogue electronic circuits that are used in electronic systems.

Outline syllabus: Topics typically include:
Circuit Simulation Tools
Push-pull output stages
Static and dynamic behaviour and limitations of operational amplifiers
Signal conditioning circuits, active filters
Linear regulated power supplies
Sensors, transducers and actuators in automation

Part 3: Teaching and learning methods

Teaching and learning methods: The module content will be delivered by lectures and laboratory experimental work. The learning material will be supported by directed reading and project-based lab activities. Tutorial exercises will be designed to progressively enhance depth of knowledge in analysing and designing analogue electronic circuits.

The delivery is intended to ensure that students have opportunity to develop practical lab-based skills alongside theoretical understanding of analogue electronic systems.

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

MO1 Simulate and implement complex analogue electronic circuits.

MO2 Design and analyse complex analogue electronic circuits, including those that interface with sensors, transducers, and actuators.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://rl.talis.com/3/uwe/lists/FDAB21B1-2A73-00D2-B34F-A16267F9EB6C.html?lang=en-GB&login=1

Part 4: Assessment

Assessment strategy: In this module we are developing the theory and practice that underpin Electrical and Electronic Engineering and are providing practical experiences that allow students to bring theory and practice together. The laboratory reinforces the material learned in the lecture sessions.

Task I: The students will be required to individually submit a portfolio of key concepts concerning the design assignments of progressively increasing complexity undertaken in the laboratory sessions at the end of the semester. The aim is to promote practices of good design in analogue electronics and to encourage regular engagement in laboratory sessions.

There will be opportunity for students to gain feedback through planned review sessions interspersed through the laboratory classes. This strategy provides a mechanism for feedback and feed forward and is intended to assist students to develop confidence in the field and improve their work as they progress through the module.

Task II: A laboratory-based examination at the end of the semester that is

summative and assesses the student's knowledge and understanding of concepts and techniques learned throughout the module, and their skills and ability to apply them to analysis and design problems in electronics.

The Resit strategy is the same as the first-sit strategy.

Assessment tasks:

Portfolio (First Sit)
Description: Portfolio (5 milestones, total length 20 pages including circuit designs and simulation results)
Weighting: 50 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1

Examination (First Sit)
Description: Laboratory Exam (2 hours)
Weighting: 50 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO2

Portfolio (Resit)
Description: Portfolio (5 milestones, total length 20 pages including circuit designs and simulation results)
Weighting: 50 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1

Examination (Resit)
Description: Laboratory Exam (2 hours)
Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO2

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Electronic Engineering {Foundation} [Frenchay] WITHDRAWN BEng (Hons) 2023-24

Electrical and Electronic Engineering {Foundation} [Frenchay] BEng (Hons) 2023-24

Mechatronics {Apprenticeship-UCW} [UCW] FdSc 2024-25

Electrical and Electronic Engineering [Frenchay] BEng (Hons) 2024-25

Electrical and Electronic Engineering [Frenchay] BEng (Hons) 2024-25

Electrical and Electronic Engineering {Foundation} [Frenchay] BEng (Hons) 2023-24

Electronic Engineering [Frenchay] BEng (Hons) 2022-23