Module Specification

Analogue Electronic Systems

Version: 2021-22, v1.0, 03 Jul 2020

Contents

Part 1: Information

Module title: Analogue Electronic Systems

Module code: UFMFPT-15-2

Level: Level 5

For implementation from: 2021-22

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Environment & Technology

Department: FET Dept of Engineering Design & Mathematics

Partner institutions: None

Delivery locations: Frenchay Campus

Field: Engineering, Design and Mathematics

Module type: Standard

Pre-requisites: Principles of Electrical Engineering 2020-21

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 EE principles to design AEE systems. Students will learn to design analogue electronic circuits which extract and process sensor data for operation and control of electronic systems containing transducers and actuators.

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

applications including automobile, aeroplanes, robotics, rail networks, 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:
SPICE
Push-pull output stages
Static and dynamic behaviour and limitations of Op Amps
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:

MO1 Design electronic systems using analogue electronic circuits

MO2 Describe and evaluate sensors, transducers and actuators

MO3 Design and implement analogue electronic circuits to extract, process and interface the real-world data generated by sensors and transducers within the electronic systems

MO4 Analyse the circuits used in electronic systems

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 12 hours

Total = 150

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/10299BAD-F31A-FF5C-9A72-288B1081EDF0.html?lang=en-GB&login=1

Part 4: Assessment

Assessment strategy: In this module we are developing the theory and practice that underpin 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.

Component B The students will be required to individually submit a reflective portfolio of key concepts concerning the experiments undertaken in the laboratory sessions at the end of the semester. The aim is to promote practices of keeping experimental notes and records of practical work 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.

Component A: will be an examination at the end of Semester 2 that is summative and assesses the student's knowledge and understanding of concepts and techniques learned throughout the module, and their ability to apply them to problems in electronics.

Resit Strategy:
Component B The students will be required to individually submit a reflective portfolio of a given set of key experiments.

Component A will be a written examination.

Assessment components:

Examination (Online) - Component A (First Sit)
Description: Online Examination
Weighting: 50 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2, MO3, MO4

Portfolio - Component B (First Sit)
Description: Individual portfolio of written up laboratory exercises.
Weighting: 50 %
Final assessment: No
Group work: Yes
Learning outcomes tested: MO1, MO3, MO4

Examination (Online) - Component A (Resit)
Description: Online Examination
Weighting: 50 %
Final assessment: Yes
Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Portfolio - Component B (Resit)

Description: Individual portfolio of written up laboratory exercises.

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO3, MO4

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Electronic Engineering {Apprenticeship-GLOSCOLL} [Sep][FT][GlosColl][5yrs] BEng (Hons) 2020-21

Electronic Engineering [Sep][SW][Frenchay][4yrs] BEng (Hons) 2020-21

Electronic Engineering [Sep][FT][Frenchay][3yrs] BEng (Hons) 2020-21

Mechatronics {Apprenticeship-UCW} [Sep][FT][UCW][3yrs] FdSc 2020-21