Module Specification

Applied Electronics

Version: 2025-26, v3.0, 23 Apr 2025

Contents

Part 1: Information

Module title: Applied Electronics

Module code: UFMFHT-30-1

Level: Level 4

For implementation from: 2025-26

UWE credit rating: 30

ECTS credit rating: 15

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: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: This module introduces students to basic applications in Electronic Engineering in order to design and analyse electronic circuits. Basic circuit elements, electronic devices and operational amplifiers and their applications are introduced. Combinational and sequential digital systems as well as finite state machines are covered. Simulation tools are used to verify theoretical calculations and the associated laboratory along with the introduction of standard test and measurement equipment reinforces the lecture material.

Features: Not applicable

Educational aims: The aim of this module is to provide the technical underpinning for the design of electronic circuits, components and devices. Students will gain understanding of fundamental analogue and digital electronic concepts that are commonly applied in the design of complex electronic systems.

Outline syllabus: Indicative syllabus content:

Design and analysis of combinational and sequential logic circuits

Design and analysis of finite state machines

Use of a hardware description language

Semiconductors

Pn-junction diodes, BJTs, and MOSFETs and their basic circuits

Single-stage amplifiers

Basic Operational Amplifier circuits

Part 3: Teaching and learning methods

Teaching and learning methods: This module introduces basic application of electronics. This is done via introduction of non-linear circuit devices through lectures, which are supported by direct reading, tutorial exercises, practical and simulation laboratory-based works.

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

> **MO1** Design, implement, and analyse complex combinational and sequential logic circuits

MO2 Demonstrate theoretical and practical knowledge of electronic components through the design of electronic circuits.

MO3 Design, implement, and analyse analogue single-stage semiconductor circuits

Hours to be allocated: 300

Contact hours:

Independent study/self-guided study = 228 hours

Laboratory work = 48 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/6B0E0B39-B2E7-9B74-F7B1-5E3B2FCEDFC7.html?lang=en-GB&login=1

Part 4: Assessment

Assessment strategy: Assessment of this module consists of three tasks:

Task 1 is delivered in Semester 1 and will take the form of multiple laboratory reports completed at regular intervals during the semester. This is used to assess competency in the technical aspects of the module and provide feed forward preparation for the mid-year examination (Task 2). The coursework assessment regime has been devised to provide regular feedback and feed forward to assist students' progression in practical electronics.

Task 2 is an online examination at the end of Semester 1 and assesses the student's understanding of the range of fundamental concepts applied to practical problems.

Task 3 consists of a portfolio of laboratory assignments and self-study-time assignments that are regularly scheduled throughout the semester, including a design project developed during Project Week 2.

Resit Strategy:

The resit strategy is the same as the first sit strategy

Assessment tasks:

Laboratory Report (First Sit)

Description: Multiple laboratory reports distributed throughout the semester (5-6 pages per report)

Weighting: 25 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1

Examination (Online) (First Sit)

Description: Online exam (2 hour)

Weighting: 25 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2

Portfolio (First Sit)

Description: Portfolio consisting of individual design assignments and theoretical exercise problems

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO2, MO3

Laboratory Report (Resit)

Description: Multiple laboratory reports distributed throughout the resit period (5-6 pages per report)

Weighting: 25 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1

Examination (Online) (Resit)

Description: Online exam (2 hour)

Weighting: 25 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2

Portfolio (Resit)

Description: Portfolio consisting of individual design assignments and theoretical exercise problems

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO2, MO3

Part 5: Contributes towards

This module contributes towards the following programmes of study:

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

Robotics {Foundation} [Frenchay] BEng (Hons) 2024-25

Electronic and Computer Engineering {Apprenticeship-GLOSCOLL} [GlosColl] BEng (Hons) 2024-25

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

Mechatronics Engineering {Foundation} [Frenchay] MEng 2024-25

Mechatronics Engineering {Foundation}[Frenchay] BEng (Hons) 2024-25

Electronic and Computer Engineering [GlosColl] BEng (Hons) 2024-25

Robotics {Foundation} [Frenchay] BEng (Hons) 2024-25

Electronic and Computer Engineering [GlosColl] BEng (Hons) 2024-25

Electronic and Computer Engineering {Apprenticeship-GLOSCOLL} [GlosColl] BEng (Hons) 2024-25

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

Electronic and Computer Engineering [Frenchay] BEng (Hons) 2025-26

Electrical and Electronic Engineering [Frenchay] BEng (Hons) 2025-26

Electrical and Electronic Engineering [Frenchay] BEng (Hons) 2025-26

Electrical and Electronic Engineering [Frenchay] BEng (Hons) 2025-26

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