



Module Specification

Electronic Control Systems Design

Version: 2023-24, v2.0, 11 May 2023

Contents

Module Specification	1
Part 1: Information	2
Part 2: Description	2
Part 3: Teaching and learning methods	3
Part 4: Assessment.....	4
Part 5: Contributes towards	6

Part 1: Information

Module title: Electronic Control Systems Design

Module code: UFMF8Q-30-3

Level: Level 6

For implementation from: 2023-24

UWE credit rating: 30

ECTS credit rating: 15

Faculty: Faculty of Environment & Technology

Department: FET Dept of Engineering Design & Mathematics

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: Not applicable

Features: Not applicable

Educational aims: See Learning Outcomes.

Outline syllabus: The topics covered in this unit are:

Control Systems Analysis:

Reliability

Stability

PID Control

Computational Analysis and Modelling

Control Systems Design:

Programmable Interface Controllers

Programmable Logic Controllers

Supervisory, Control and Data Acquisition

Data Transmission

Microprocessor Systems:

Programming Languages

Components

Constructs

Program Design

Part 3: Teaching and learning methods

Teaching and learning methods: The learners will create or perturb a variety of electronic control and processing systems for practical engineering applications to enhance mathematical analysis, critical evaluation and computational skills.

This module focusses on designing and analysing control systems and how to work with microprocessors. Key areas for study are control system reliability and stability, using PLCs and looking at the workings of microprocessors, including components, programme language and program design.

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

MO1 Conduct system reliability and stability analysis calculations

MO2 Create and evaluate computer analysis models of control systems

MO3 Create and evaluate computer programs for microcontroller systems

MO4 Evaluate control methods for industrial applications

Hours to be allocated: 300

Contact hours:

Independent study/self-guided study = 228 hours

Face-to-face learning = 72 hours

Total = 300

Reading list: The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/index.html) via the following link <https://uwe.rl.talis.com/index.html>

Part 4: Assessment

Assessment strategy: The assessment for this module is as follows:

Literature Review - Learners will be given literature to read prior to the controlled assessment. During the controlled assessment learners will be given literature material to refer to prepare for a videoed interview.

Program – The learners will create a computer model (e.g., MATLAB / SIMULINK) of a control system.

They will also produce a computer program (e.g., PLC, Arduino) to control an industrial system.

The resit assessment strategy is the same as the first sit.

Assessment tasks:

Examination (First Sit)

Description: Literature review 30 minutes

Weighting: 25 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1

Practical Skills Assessment (First Sit)

Description: Controller program

Weighting: 40 %

Final assessment: No

Group work: No

Learning outcomes tested: MO3, MO4

Practical Skills Assessment (First Sit)

Description: Computer model

Weighting: 35 %

Final assessment: No

Group work: No

Learning outcomes tested: MO2, MO4

Examination (Resit)

Description: Literature review 30 minutes

Weighting: 25 %

Final assessment: Yes

Group work: No

Learning outcomes tested:

Practical Skills Assessment (Resit)

Description: Controller program

Weighting: 40 %

Final assessment: No

Group work: No

Learning outcomes tested:

Practical Skills Assessment (Resit)

Description: Control systems computer model

Weighting: 35 %

Final assessment: No

Group work: No

Learning outcomes tested:

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Electrical, Electronic and Control Engineering with Nuclear {Apprenticeship-UCS}
[Sep][FT][UCS][4yrs] BEng (Hons) 2021-22

Electrical, Electronic and Control Engineering with Nuclear [Sep][PT][UCS][4yrs]
BEng (Hons) 2021-22

Electrical, Electronic and Control Engineering with Nuclear {Apprenticeship-UCS}
[Sep][FT][UCS][5yrs] BEng (Hons) 2020-21