



## **Module Specification**

### **Electronic Control Systems Design**

Version: 2028-29, v2.0, Approved

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## Part 1: Information

**Module title:** Electronic Control Systems Design

**Module code:** UFMF8Q-30-3

**Level:** Level 6

**For implementation from:** 2028-29

**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 equips students with the skills to analyse and design electronic control systems covering reliability and stability calculations, PID control, PLC/SCADA applications and microprocessor programming through computational modelling and practical engineering tasks .

**Features:** Not applicable

**Educational aims:** To develop your ability to perform rigorous reliability, stability and observability analyses of control systems; to build proficiency in creating and evaluating computational models and controller programs and to foster critical evaluation of control strategies for industrial applications.

**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:** Interactive lectures and small-group tutorials introduce core theory and modelling techniques, while hands-on laboratory sessions and portfolio-based design experiments (including microcontroller programming and system demonstrations) consolidate practical skills; all activities are supported by extensive independent study.

**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

**Reading list:** The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://rl.talis.com/3/uwe/lists/48DB047C-63CB-A9FE-04C6-327408646FE0.html?lang=en-GB) via the following link <https://rl.talis.com/3/uwe/lists/48DB047C-63CB-A9FE-04C6-327408646FE0.html?lang=en-GB>

## Part 4: Assessment

**Assessment strategy:** Assessment strategy: The assessment for this module is as follows: Viva (30 minutes): Learners will be given a case study literature involving some control system models and data, and will be required to perform system stability, controllability and observability calculations and analysis. During the controlled assessment learners will be required to answer system performance related questions.

Portfolio of System Design Experiments and Demonstration: The learners will create a computer model (e.g., MATLAB / SIMULINK) of a control system and evaluate its performance, and will be required to produce a computer program (e.g., PLC, Arduino) to control an industrial system process(es)

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

**Assessment tasks:**

**Presentation (First Sit)**

Description: Answer questions from literature review activity (30 minutes)

Weighting: 25 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1

**Portfolio (First Sit)**

Description: Computer and Controller model, practical skills and report assessment (3000 words)

Weighting: 75 %

Final assessment: No

Group work: No

Learning outcomes tested: MO2, MO3, MO4

**Presentation (Resit)**

Description: Answer questions from literature review activity (30 minutes)

Weighting: 25 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1

**Portfolio (Resit)**

Description: Computer and Controller model, practical skills and report assessment (3000 words)

Weighting: 75 %

Final assessment: No

Group work: No

Learning outcomes tested: MO2, MO3, MO4

## **Part 5: Contributes towards**

This module contributes towards the following programmes of study:

Electrical, Electronic and Control Engineering with Nuclear {Apprenticeship-UCS}  
[UCS] BEng (Hons) 2025-26

Electrical, Electronic and Control Engineering with Nuclear [UCS] BEng (Hons)  
2026-27

Electrical, Electronic and Control Engineering with Nuclear [UCS] BEng (Hons)  
2026-27

Electrical, Electronic and Control Engineering with Nuclear {Apprenticeship-UCS}  
[UCS] BEng (Hons) 2026-27

Electrical, Electronic and Control Engineering with Nuclear [UCS] BEng (Hons)  
2026-27

Electrical, Electronic and Control Engineering with Nuclear {Apprenticeship-UCS}  
[UCS] BEng (Hons) 2026-27