MODULE SPECIFICATION

Part 1: Information			
Module Title	Electronic Control Systems Design		
Module Code	UFMF8Q-30-3	Level	Level 6
For implementation from	2019-20		
UWE Credit Rating	30	ECTS Credit Rating	15
Faculty	Faculty of Environment & Technology	Field	Engineering, Design and Mathematics
Department	FET Dept of Engin Design & Mathematics		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

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

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.

Part 3: Assessment

Component A – Literature Review - 30 minutes – 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.

Component B – 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 tasks for this module will involve a rework and reflective evaluation of the work carried out in the original task.

First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Practical Skills Assessment - Component B		37 %	Control systems computer model
Practical Skills Assessment - Component B		38 %	Controller program
Examination - Component A	✓	25 %	Literature review 30 minutes
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Practical Skills Assessment - Component B		37.5 %	Control systems computer model
Practical Skills Assessment - Component B		37.5 %	Controller program
Examination - Component A	✓	25 %	Literature review 30 minutes

Part 4: Teaching and Learning Methods

Learning Outcomes

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

Module Learning Outcomes	Reference
Conduct system reliability and stability analysis calculations	MO1
Create and evaluate computer analysis models of control systems	MO2
Create and evaluate computer programs for microcontroller systems	MO3
Evaluate control methods for industrial applications	MO4

Contact Hours

Independent Study Hours:	
Independent study/self-guided study	228
Total Independent Study Hours:	228
Scheduled Learning and Teaching Hours:	
Face-to-face learning	72
Total Scheduled Learning and Teaching Hours:	72
Hours to be allocated	300
Allocated Hours	300

Reading List

The reading list for this module can be accessed via the following link:

https://uwe.rl.talis.com/index.html

Part 5: Contributes Towards

This module contributes towards the following programmes of study: