Module Specification

Module Summary Information

1	**Module Title**	Embedded Systems and Control
2	**Module Credits**	20
3	**Module Level**	6
4	**Module Code**	ENG6067

5	Module Overview

The MEng Electronic Engineering Programme aims to develop an understanding of the broad nature of electronic engineering through a themed approach encompassing analogue electronics, digital electronics, communications, embedded systems and business.

The aim of this module is to develop an appropriate knowledge of embedded systems such that on completion of the module you are able to specify, design, implement and test microprocessor-based hardware and software for real-time applications.

Embedded Systems and Control gives in-depth practical experience of designing and building real-time embedded systems, from both hardware and software perspectives. It has been designed to provide a high level of practical embedded systems knowledge which, when combined with the digital and analogue electronics knowledge gained from underpinning and parallel modules, will produce graduate electronic engineers capable of having an immediate impact in the industry.

6	Indicative Content

Systems engineering: Requirements definition, system specification.

Real-time system requirements: Hardware; processor choice, peripheral mapping, interrupts; Software analysis and design.

Control Systems; simple control theory and implementation.

Embedded target system design and implementation; design of schematic, programming and use in a real application.

7	**Module Learning Outcomes**
	On successful completion of the module, students will be able to:
1	Specify and design embedded microcontroller hardware systems.
2	Identify possible control algorithms
3	Design, develop and implement a real-time control algorithm for a particular application.
4	Assess and evaluate the overall developed system.

8	Module Assessment			
Learning Outcome				
	Coursework	Exam	In-Person	
1			20%	
1 and 2			20%	
1, 2, 3 and 4	60%			

9	Breakdown Learning and Teaching Activities	
Learning Activities		Hours
Scheduled Learning (SL) includes lectures, practical classes and workshops, peer group learning, Graduate+, as specified in timetable		48
Directed Learning (DL) includes placements, work-based learning, external visits, on-line activity, Graduate+, peer learning, as directed on VLE		0
Private Study (PS) includes preparation for exams		152
Total Study Hours:		200