

Module Code	EEU33C10
Module Name	Circuits and Systems Design
ECTS credit weighting	5 ECTS
Semester taught	Semester 2
Module Coordinator/s	Declan O'Loughlin
Module Learning Outcomes with embedded Graduate Attributes	<p>On successful completion of this module, students should be able to:</p> <p>L01: Create a technical specification for a concept design based on brainstorming within a team and guided exploration of a problem area.</p> <p>L02: Work as a team to design and build an embedded system with both hardware and software components to meet the technical specification.</p> <p>L03: Communicate the key features, performance, advantages and limitations of the system to a technical audience through demonstrations, reports, datasheets or other data.</p> <p>L04: Describe and explain the problem area, design features, comparative advantages and disadvantages and expected impact of the prototype to a general audience.</p> <p>L05: Plan and execute the project to ensure that all deliverables are met, taking account of relative strengths of team members; sourcing, sustainability and cost of the materials, health and safety and any relevant standards or ethical considerations.</p>
Module Content	<p>In this module, students will work in groups to design an embedded system with both hardware and software components to solve a practical problem in a community-based or non-technical field. Students will create and communicate a technical specification by researching a specific non-engineering problem and identifying the needs of the relevant stakeholders. Students will design and build an electronic system to address the identified problem identifying and balancing sustainability and reuse, power usage, performance and functionality and impact. System performance will be measured and analysed through identification of suitable metrics related to the use-case and design of a comprehensive testing strategy. The overall project will be communicated through demonstration, presentation and written materials as appropriate. Example projects could include: radio-synchronised clocks, audio synthesisers, audio processors such as guitar effects pedals, ECG monitors, blood pressure monitors, heart rate monitors etc.</p>

Assessment Details¹	Assessment Component	Assessment Description	LO Addressed	% of total	Week due
	System Communication	Preliminary design presentation and review; Demonstration, Design files, Application Notes, Usage Guides and Reports as appropriate.	LO1-LO5	100%	6-12
Reassessment Requirements	Reassessment is by project work arranged with the student.				
Contact Hours and Indicative Student Workload	Contact hours: 4 contact hours per week (44 hours).				
	Independent Study (preparation for course and review of materials): 10 hours review of fundamental concepts.				
	Independent Study (preparation for assessment, incl. completion of assessment): 70 hours of research and build time.				
Recommended Reading List					
Module Pre-requisite	Circuits; Signals and Systems; Microprocessors.				
Module Co-requisite					
Module Website					
Are other Schools/Departments involved in the delivery of this module?	No				
Module Approval Date					
Approved by:	Prof. Naomi Harte				
Academic Start Year	September 2025				
Academic Year of Date	2025/2026				