Module Template for New and Revised Undergraduate Modules[1]

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	On successful completion of this module, students should be able to: LO1. Create a technical specification based on guided investigations of a problem area. LO2. Design and implement an embedded system with hardware and software components to achieve the technical specification. LO3. Analyse the performance of an embedded system with regard to a technical specification and design context. LO4. Communicate the aims, technical achievements and results of an electronic system through demonstration, presentation and written materials effectively. L05. Identify and communicate the broader impact of the embedded system in terms of sourcing and sustainability of components, health and safety and related considerations.
Module Content	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 though 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.

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[1] An Introduction to Module Design from AISHE provides information on designing and re-designing modules.

Teaching and Learning Methods	This module is an experiential learning environment predominately consisting of independent research, technical design work, practical implementation, system testing and communication of aims, technical achievements and project outcomes and impact. Students are supported in fundamental design and technical work through: • lectures covering need finding and reporting, system design techniques, technical tools and circuit analysis techniques; • lab. sessions for technical support and design and testing advice.			

Assessment Details[2]

Please include the following:
- **Assessment Component**
- **Assessment description**
- **Learning Outcome(s) addressed**
- **% of total**
- **Assessment due date**

Assessment Component	Assessment Description	LO Addressed	% of total	Week due
Design Review	Preliminary design presentation and review	L01, LO2, LO4, LO5	30%	6
Final System Demonstration	Demonstration, Design files, Application Notes, Usage Guides and Reports as appropriate	LO3, LO4, LO5	70%	12

Reassessment Requirements

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 EEU33C02: Digital Circuits; EEU22E06 Electronics.

Module Co-requisite EEU33C03: Analogue Circuits.

Module Website

Are other Schools/Departments involved in the delivery of this module? If yes, please provide details.