Module Definition Form (MDF)

Module code: MOD011135	**Version:** 1 **Date Amended:** 10/Jul/2025

1. Module Title
Digital Systems and Robotics Design Project

2a. Module Leader
Kahtan Aziz

2b. School
School of Engineering and the Built Environment

2c. Faculty
Faculty of Science and Engineering

3a. Level
6

3b. Module Type
Standard (fine graded)

4a. Credits
30

4b. Study Hours
300

5. Restrictions

Type	Module Code	Module Name	Condition
Pre-requisite:	MOD009723	Electronic Design Project	Compulsory
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:	None		

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

In this module, you'll take on a real-world electronics and robotics engineering project. You'll start by developing your own project idea and carry out each stage of it from the planning, development, testing and evaluation. As part of your work, you'll produce and present a project report outlining and reflecting on your approach and outcomes of each of the project processes and stages. By the end of the module, you'll have develop skills such as critical thinking, analysis, reasoning, interpretation, decision-making, information literacy, and information and communication technology, and skills in professional and confident self-presentation.

6b. Outline Content

Project planning and management
Engineering ethical, legal, professional, and societal responsibilities
Technical communication skills
Digital signal processing.
Artificial Intelligence and Robotic
Embedded Systems Integration
Internet of things (IOT)
Design, testing and debugging

6c. Key Texts/Literature

The reading list to support this module is available at: https://readinglists.aru.ac.uk/

6d. Specialist Learning Resources

Laboratories, computers, hardware, ESP32 IOT Boards, MULTISIM software, test equipment, presentation media, etc., as appropriate.

7. Learning Outcomes (threshold standards)		
No.	**Type**	**On successful completion of this module the student will be expected to be able to:**
1	Knowledge and Understanding	Select and apply appropriate computational and analytical techniques to model complex problems in digital electronic engineering, recognizing the limitations of the techniques.
2	Knowledge and Understanding	Design by adapting an integrated or system approach through selecting and applying appropriate materials, equipment, engineering technologies and processes in a digital system project, and recognizing their limitations.
3	Intellectual, practical, affective and transferrable skills	Manage a project and adapt a risk management process and ethical and environmental considerations to identify, evaluate and mitigate risks associated with the project or activity.
4	Intellectual, practical, affective and transferrable skills	Function effectively as an individual, and as a member or leader of a team; Communicate effectively on engineering matters with technical and nontechnical audience

8a. Module Occurrence to which this MDF Refers				
Year	**Occurrence**	**Period**	**Location**	**Mode of Delivery**
2025/6	ZZF	Template For Face To Face Learning Delivery		Face to Face

8b. Learning Activities for the above Module Occurrence			
Learning Activities	**Hours**	**Learning Outcomes**	**Details of Duration, frequency and other comments**
Lectures	45	1-4	WKs 1- 7, 6 hours per week WKs 8-10, 1 hour per week
Other teacher managed learning	27	1-4	WKs 8-10, 5 hour per week (Electronics lab) WKs 11-12, 6 hour per week (Consultation and presentation)
Student managed learning	228	1-4	Self-directed learning
TOTAL:	300		

9. Assessment for the above Module Occurrence					
Assessment No.	**Assessment Method**	**Learning Outcomes**	**Weighting (%)**	**Fine Grade or Pass/Fail**	**Qualifying Mark (%)**
010	Coursework	1-4	50 (%)	Fine Grade	30 (%)
Individual report (Equivalent to max 2000 words) maps to Engineering Council Learning Outcome C3,C4,C9, C10 Component 2, 1500 words Physical product and individual Report maps to Engineering Council Learning Outcomes C6, C12, C13					
Assessment No.	**Assessment Method**	**Learning Outcomes**	**Weighting (%)**	**Fine Grade or Pass/Fail**	**Qualifying Mark (%)**
011	Coursework	1,2	30 (%)	Fine Grade	30 (%)
In-class test, 1.5 hrs, equivalent to 1500 words, maps to Engineering Council LO C1, C2, C3					
Assessment No.	**Assessment Method**	**Learning Outcomes**	**Weighting (%)**	**Fine Grade or Pass/Fail**	**Qualifying Mark (%)**
012	Practical	3,4	20 (%)	Fine Grade	30 (%)
Group Viva including oral presentation, equivalent of 2000 words, maps to Engineering Council LO C16,C17.					

In order to pass this module, students are required to achieve an overall mark of 40% (for modules at levels 3, 4, 5 and 6) or 50% (for modules at level 7*).

In addition, students are required to:
(a) achieve the qualifying mark for each element of fine graded assessment as specified above
(b) pass any pass/fail elements

[* the pass mark of 50% applies for all module occurrences from the academic year 2024/25 – see Section 3a of this MDF to check the level of the module and Section 8a of this MDF to check the academic year]