Module Definition Form (MDF)

Module code: MOD010262	**Version:** 3 **Date Amended:** 10/Nov/2025

1. Module Title
Manufacturing and Materials Project

2a. Module Leader
Dominic Martyn

2b. School
School of Engineering and the Built Environment

2c. Faculty
Faculty of Science and Engineering

3a. Level
4

3b. Module Type
Standard (fine graded)

4a. Credits
30

4b. Study Hours
300

5. Restrictions

Type	Module Code	Module Name	Condition
Pre-requisites:	None		
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:	None		

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

Apply your learning through project based learning, where you will have both individual work and group work where you will be in a multidisciplinary range of students from the engineering group. This module is designed to provide you with a basic understanding of design and manufacturing processes, from the in-class theoretical briefings to hands on practical activities. You will gain insight on the need of selecting the most appropriate materials and manufacturing processes, designing and building of basic mechanical products. You will be introduced to modern equipment such as CNC machines, 3D printers and 3D modelling. The behaviour and properties of a range of materials will also be introduced.
You will learn how to conform to the regulations relating to safe workshop practices and applying your materials and structural knowledge for their design and prototypes.

6b. Outline Content

- Methods and applications of cutting, forming, and sheet metal processing.
- Comparison and contrast of forming and joining methods and applications.
- Basic machine processes such as milling, drilling and grinding.
- Economic selection of speeds and feeds.
- Planning and manufacture of a simple product.
- Applying fundamental mechanical engineering principles in a practical application.
- Safe working in the workshop and laboratories.
- Basics of metallic and non-metallic materials.

6c. Key Texts/Literature

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

6d. Specialist Learning Resources

Mechanical Workshop and 3D CAD room.

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	Understand basic knowledge of CAD, and manufacturing concepts
2	Knowledge and Understanding	Understand basic knowledge of engineering materials
3	Intellectual, practical, affective and transferrable skills	Use practical workshop skills to complete a complex mechanical project, considering the safe use of the workshop
4	Intellectual, practical, affective and transferrable skills	Function effectively as an individual or member of a team. Adopt and appreciate the benefits of supporting equality, diversity, and inclusion.
5	Intellectual, practical, affective and transferrable skills	Communicate complex engineering matters to a technical and non-technical audience

8a. Module Occurrence to which this MDF Refers				
Year	**Occurrence**	**Period**	**Location**	**Mode of Delivery**
2026/7	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	24	1-5	Introduction to the projects, lectures/tutorial WKs 1-7, 3 hours per week WKs 8-10, 1 hour per week
Other teacher managed learning	48	1-5	WKs 1-7, 3 hours per week; WKs 8-10, 5 hours per week; WKs 11-12, 6 hours per week,
Student managed learning	228	1-4	Self-directed learning
TOTAL:	300		

9. Assessment for the above Module Occurrence

The assessment for some modules includes a presentation (see below for details on how this particular module is assessed). We recognise that presenting, especially to a large group, can cause significant anxiety or distress for some students. If this may affect you, please contact your Module Leader or the Disability and Neurodiversity Service as early as possible. We will work with you to consider appropriate reasonable adjustments. Depending on your individual needs, these might include, for example, presenting to a smaller group or presenting only to a member of academic staff.

Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
010	Coursework	1-5	80 (%)	Fine Grade	30 (%)

Multiple components equivalent to 3500 words, maps to Engineering Council Learning Outcomes C6, C12, C15, C16, C17

Assessment components for Element 010				
Component No.	**Assessment Title**	**Submission Method**	**Weighting (%)**	**Components needed for Mark Calculation?**
010/1	Group product manafacture and logbook (2000 words equivalent)		60 (%)	All
010/2	Individual Report (2000 words equivalent)		40 (%)	

Assessment No.	**Assessment Method**	**Learning Outcomes**	**Weighting (%)**	**Fine Grade or Pass/Fail**	**Qualifying Mark (%)**
011	Coursework	1,2,5	20 (%)	Fine Grade	30 (%)
Multiple components equivalent to 2500 words, maps to Engineering Council Learning Outcome C2					

Assessment components for Element 011				
Component No.	**Assessment Title**	**Submission Method**	**Weighting (%)**	**Components needed for Mark Calculation?**
011/1	Group Oral presentation equivalent to 1000 words		30 (%)	All
011/2	In-Class test (equivalent to 1500 words)		70 (%)	

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]