

Module Code	MEU22M11
Module Name	Manufacturing Engineering Design
ECTS Weighting¹	5 ECTS
Semester taught	Semester 2
Module Coordinator/s	Assistant Professor Shuo Yin (yins@tcd.ie)
<u>Module Learning Outcomes</u> with reference to the <u>Graduate Attributes</u> and how they are developed in discipline	<p>On successful completion of this module, students should be able to:</p> <ol style="list-style-type: none"> 1. have a knowledge of the engineering process of problem solving 2. to design a consumer product (guitar) to meet a well-defined specification 3. have acquired knowledge of group working including task sub-division and coordinated meeting of interim deliverables 4. have acquired a knowledge of the health and safety requirements of manufacturing processes 5. have developed skills in the areas of quantitative analysis, scientific reasoning and communication 6. have developed practical experimental skills in manufacturing processes 7. have developed practical skills in project costing 8. have a knowledge of the requirements of report writing and project documentation <p>Graduate Attributes: levels of attainment</p> <p>To act responsibly - Enhanced To think independently - Enhanced To develop continuously - Enhanced To communicate effectively - Enhanced</p>

¹ [TEP Glossary](#)

Module Content

The 2MEU22M10 Manufacturing Engineering Design introduces the challenge of group based manufacturing and design. The project involves the design and construction of a metal-bodied resonator acoustic guitar and a 3D printed complex part. Each group is responsible for the design, part-sourcing and manufacture of their own works. Some of the parts may be purchased, while the remainder will be manufactured in-house. Each group will be responsible for the full conceptual design, specification and construction – including bill of materials, design drawings, assembly information, jigs and fixtures and manufacturing process specification.

Teaching and Learning Methods

The course is taught using a combination of lectures, laboratory demonstration and through project sessions at which teaching team members and teaching assistants interact with the project teams. The groups are also expected to undertake independent research and development work, with appropriate guidance and feedback, on the project.

Assessment Details²

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
Continuous Assessment	Presentations, assignments, reports	all	100%	

Reassessment Requirements

Continuous assessment

Contact Hours and Indicative Student Workload²

Contact hours: 44 hours

² [TEP Guidelines on Workload and Assessment](#)

Independent Study (preparation for course and review of materials):

Independent Study (preparation for assessment, incl. completion of assessment):

Recommended Reading List

- No prescribed texts – class notes and instruction should suffice.
- The following texts may provide useful additional information:
 - SolidWorks 2013 Bible, Matt Lombard, 1st Edition, ISBN-13: 978-1118508404
 - Introduction to Solid Modelling Using SolidWorks, William Howard, Joseph Musto, 10th Edition, ISBN-13: 978-0078021244.
 - Introduction to Finite Element Analysis Using SolidWorks Simulation 2014, 1st Edition, ISBN-13: 978-1-58503-857-2

Module Pre-requisite

Module Co-requisite

Module Website

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

Module Approval Date Nicole Byrne

Approved by 31/08/2023

Academic Start Year 2023

Academic Year of Date 2023 - 2024