

Module Code	MEU33EM1
Module Name	Manufacturing Technology II
ECTS Weighting¹	5 ECTS
Semester taught	Semester 2
Module Coordinator/s	Assistant Professor Daniel Trimble dtrimble@tcd.ie

Module Learning Outcomes with reference to the Graduate Attributes and how they are developed in discipline

On successful completion of this module, students should be able to:

1. Differentiate between the different grinding and abrasive processes.
2. Identify and describe the different non-traditional machining and thermal cutting processes.
3. Assess the different heat treatment and surface finishing processes.
4. Understand and analyse the different shaping process used to manufacture plastic parts and composites.
5. Explain the steps involved in power metallurgy from power manufacture to part manufacture
6. Analyse and describe the different joining and assembly processes

Due to Covid-19, the following changes to the normal teaching methods apply, and the same will apply in case of a new possible lockdown scenario during teaching term:

- All lectures and tutorials will be delivered online using Blackboard Collaborate Ultra or Microsoft Teams. These sessions will be recorded and available for viewing at a later time.
- The end of semester exam modalities will be online/remote, although this is subject to change and will follow College guidelines (60% of the module mark)

Graduate Attributes: levels of attainment

- To act responsibly - Choose an item.
- To think independently - Choose an item.
- To develop continuously - Choose an item.
- To communicate effectively - Choose an item.

¹ [TEP Glossary](#)

Module Content

- Grinding and other abrasive processes
- Non-traditional machining and thermal cutting processes
- Heat treatment of metals
- Surface processing operations
- Shaping processes for plastics
- Processing of composites
- Powder metallurgy
- Fundamentals of welding
- Welding processes
- Brazing, soldering and adhesive bonding
- Mechanical assembly

Module description:

This module builds on previous skills and knowledge developed in Manufacturing Technology I (3B7). There is a transition from traditional metal manufacturing processes to more advanced metal manufacturing process such as finishing, non-traditional machining, heat treatment, surface processing, powder metallurgy and welding. Furthermore, shaping process for plastics and processing of composites are also covered. The focus of the module is to provide a treatment of manufacturing that is quantitative rather than just descriptive. The module will enable students to solve quantitative manufacturing problems through the use of material science and mathematical theory.

Teaching and Learning Methods

This module is taught using a combination of lecturers, tutorial problem solving sessions, multiple choice review quizzes and a group based assignment. All lecture notes, tutorial questions and solutions, multiple choice quizzes, videos and assignment briefs will be available through Blackboard.

Assessment Details² Please include the following: <ul style="list-style-type: none"> • Assessment Component • Assessment description • Learning Outcome(s) addressed • % of total • Assessment due date 	Assessment Component	Assessment Description	LO Addressed	% of total	Week due
	In-class exams	2x in-class exams	1-10	50%	continuous
	Assignment	Group assignment	2-4	20%	Week 11
	Continuous Assessment	Multiple Choice Quizzes	1-6	30%	Continuous

Reassessment Requirements

Contact Hours and Indicative Student Workload²

Contact hours: 42 Hours (33 lectures, 9 tutorials)
Independent Study (preparation for course and review of materials): 39
Independent Study (preparation for assessment, incl. completion of assessment): 39

Recommended Reading List

- Groover’s Principles of Modern Manufacturing, materials, processes, and systems. SI Version. Mikell P. Groover. ISBN: 978-1-119-24912-2.
- Manufacturing Engineering and Technology. Kalpakjian and Schmid

Covid-19 contingencies

The face-to face teaching will be moved to online teaching if Covid-19 outbreaks again.

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

29/06/2020

Approved by

Nicole Byrne

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

Academic Start Year 2020

Academic Year of Date 2020 - 2021