

Module Code	CE7M04
Module Name	M4: Engineering Project
ECTS Weighting¹	5 ECTS
Semester taught	Semester 2
Module Coordinator/s	Asst Prof. John Gallagher (J.Gallagher@tcd.ie)
Module Learning Outcomes with reference to the Graduate Attributes and how they are developed in discipline	<p>On successful completion of this module, students should be able to:</p> <p>LO1. Appraise the effectiveness of existing tools, methods, and literature in supporting sustainability initiatives in engineering projects.</p> <p>LO2. Explain the contribution of engineering in ongoing transdisciplinary projects across different sectors.</p> <p>LO3. Develop and design the beyond state-of-the-art from ongoing research and practice in engineering.</p> <p>LO4. Demonstrate the application of ISO standards for life cycle assessment (LCA) and circular economy (CE) to inform evidence-based sustainable practice in engineering projects.</p>
Module Content	<p>This module will introduce students of the key aspects of research in engineering; research methods & designs; data collection, synthesis and analysis; critical appraisal of scientific writing; sustainability perspectives within engineering practice; research philosophies in engineering; research in academia, research scopes & problems; characteristics of good research and choice of research topic; software training (LCA), report writing and presentation.</p> <p>This module aims to:</p> <ul style="list-style-type: none"> • Develop a critical outlook in students regarding embedding sustainability within research and practice. • Support students in the development of their research project. • Expose students to the organisation, conduct & implementation of research in universities and institutes. <p>Enable students to utilise the available research resources and develop a supportive research environment.</p>

¹ [TEP Glossary](#)

Teaching and Learning Methods

Lunchtime talks given by internal and guest lecturers from academia, industry and non-profits

Individual learning of use of LCA tools and guidance to support sustainable practice in engineering projects.

Systematic approach to literature reviews (LR) and critical appraisal of writing through peer-review (PR) activities.

(lecture notes and presentation will all be available online in 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	
		Lunchtime Lectures	Six 2-page critical appraisal reports (600-700 words) on lunchtime lectures.	LO1-3	30%	Sem 2, wk7 (3 reports); Sem 2, wk12 (3 reports)
		LCA Assignment	Report of a life cycle assessment of an engineering project	LO1,4	30%	Sem 2, wk10
		Lit review and meta-analysis reports	Systematic literature review, peer review and meta-analysis of dataset	LO1-3	40%	Sem 2, wk5; Sem 2 wk10

Reassessment Requirements

Resubmission of failed coursework components.

Contact Hours and Indicative Student Workload²	Contact hours: 24 (8 lunchtime lectures, 10 LCA and 6 LR & PR-MA).
	Independent Study (preparation for course and review of materials): 30 (0 for lunchtime lectures, 20 for LCA and 10 for LR & PR-MA).
	Independent Study (preparation for assessment, incl. completion of assessment): 69 hours (16 for lunchtime lectures, 25 for LCA and 28 for LR & PR-MA).

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

Recommended Reading List	Suggested literature provided as part of embedded activities within the module.
Module Pre-requisite	
Module Co-requisite	
Module Website	
Are other Schools/Departments involved in the delivery of this module? If yes, please provide details.	No
Module Approval Date	
Approved by	
Academic Start Year	
Academic Year of Date	