Module Code	MEP77E01
Module Name	Research Project
ECTS Weighting	30
Semester taught	Full Academic Year
Module Coordinator/s	Dr. Amir Pakdel
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: **LO1.** Frame a research question that can be addressed within a limited time period and with limited resources. **LO2.** Identify, assess, and synthesise existing literature and research findings relating to an unfamiliar scientific problem. **LO3.** Develop and justify an appropriate research project design. **LO4.** Apply a range of standard and specialised research tools and techniques. **LO5.** Apply and develop relevant theoretical, scientific, and mathematical principles. **LO6.** Apply and develop engineering analysis and design tools. **LO7.** Design and conduct experiments, and analyse and interpret data. **LO8.** Demonstrate the research skills required to complete the research work undertaken. **LO9.** Discuss and critically evaluate the research findings. **LO10.** Reflect on the strengths and limitations of the research. **LO11.** Assess the implications of the project outcomes for engineering practice. **LO12.** Write a research dissertation to an appropriate professional and academic standard. **LO13.** Present complex ideas and material to an academic supervisor and respond effectively to questions and criticism. **LO14.** Contribute individually to the development of scientific and/or technological knowledge in one or more areas of their engineering stream. **Graduate Attributes: levels of attainment** To act responsibly - Enhanced To think independently - Attained To develop continuously - Enhanced To communicate effectively - Attained
Module Content	As a key component of the MSc in Mechanical Engineering, students are required to complete an individual research project on a topic of engineering research interest. This work must be presented in a research dissertation, which provides the main basis for project assessment. This is a key element of the MSc programme and, together with the supporting modules **MEP55E03** (5 credits) and **MEP55B25** (10 credits), accounts for 45 of the 90 credits of the programme and contributes to the overall degree assessment.

Projects will involve a substantial element of laboratory or field experimental work and/or engineering analysis and computation. Projects are allocated in areas aligned with the research expertise and interests of academic staff in the School of Engineering. The project content is determined by the supervisor for each individual project. The nature and content of the project are discussed by the supervisor and student during the first few weeks of the first semester.

Research topics and project titles will be proposed by academic staff based on their ongoing research activity. The project may be undertaken in conjunction with a research group and/or in collaboration with industry or another university, where appropriate. Where a project involves significant collaboration with an industrial or other external partner, an external co-supervisor may also be appointed.

Teaching and Learning Methods

There are no formal timetabled hours associated with the project. However, students are expected to dedicate the time necessary to make reasonable progress and to maintain regular contact with their supervisor. It is recommended that students make a formal arrangement with their supervisor to meet on a weekly or fortnightly basis, preferably at a regular scheduled time.

Student timetables include free blocks that can accommodate project work. Project titles will be assigned in the second week of term, and research work should commence immediately thereafter. There are also substantial periods between the first and second semesters, and during the summer semester, during which research can be undertaken.

Where access to laboratories or other facilities is restricted, less emphasis may be placed on hands-on research activity in the first semester. Nevertheless, students are expected to actively research the background to their project and undertake remote activities where possible, such as CAD, FEA, simulation, data analysis, or similar activities. Hands-on experimental work should commence as soon as access to the required facilities is available.

MEP77E01 is assessed on the basis of the written dissertation, which will be marked by both the project supervisor and an assigned second reader. Students should consult the MSc handbook for important information regarding dissertation guidelines, formatting requirements, grading criteria, and submission details. A thesis template will be provided on Blackboard.

Assessment and Workload Details

Assessment Component	Assessment Description	LO Addressed	% of Total	Week Due
Written Thesis	Final Thesis	1-14	100	50

Reassessment	There is no reassessment for the MSc project.

Contact Hours and Indicative Student Workload	Contact hours: **1 hour per week/fortnight** with supervisor Independent Study (preparation for assessment, including completion of assessment): average of **20-25 hours per week**
Recommended Reading List	Journal articles and case studies related to research topic
Module Co-requisite	**MEP55B25** Research Programme Definition
Module Website	https://tcd.blackboard.com/
Other Schools/Departments involved in the deliver o this module	N/A
Module Approval Date	
Approved by	
Academic Start Year	
Academic Year of Date	