Module Code	MEP55B25
Module Name	Research Programme Definition
ECTS Weighting	10 ECTS
Semester taught	Semester 1 & 2
Module Coordinator/s	Dr. Amir Pakdel (pakdela@tcd.ie)
Module Learning Outcomes with reference to the Graduate Attributes and how they are developed in discipline	On completion of this module, the student will be able to: **LO1.** Engage in fundamental engineering research by identifying a programme of research within a relevant engineering context. **LO2.** Apply key elements of the research process, including project planning, reviewing background literature, designing and conducting experiments, analysing results, documenting processes, and reporting and presenting findings. **LO3.** Engage in individual and team-based research using current cloud-based collaborative tools. **LO4.** Communicate the results of their research to their peer group and engage in discussion and analysis of the findings. **LO5.** Demonstrate expertise in the specific tools and methods used in their chosen research field. **Graduate Attributes: levels of attainment** To act responsibly - Enhanced To think independently - Enhanced To develop continuously - Enhanced To communicate effectively - Enhanced
Module Content	In consultation with their chosen supervisor, students will formulate a programme of research for their MSc research project (**MEP77E01**). Students are expected to establish regular communication with their supervisor and research team. During the first semester, students will conduct a comprehensive literature review to formulate clear research objectives. Students will produce a research proposal document outlining the background, relevant literature, and intended methodology for their MSc research project. A timeline for completion of the research work, including key deliverables and milestones, will be established. A comprehensive risk assessment will also be conducted. In the second semester, students are expected to demonstrate the outcomes of their initial research work. This may involve training in experimental techniques,

	the design and manufacture of test rigs, validation of numerical modelling approaches, or any further techniques identified in their research proposal. Clear progress on their research work will be demonstrated through an interim oral presentation. This presentation will be delivered to a panel of academics and student peers. Progress against the stated research objectives will be assessed.
Teaching and Learning Methods	There are no formal timetabled hours associated with this module. 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 supervisors will be assigned by the second week of term, and research work should commence immediately thereafter. There are also substantial periods between the first and second semesters during which research can be undertaken.

Assessment Details
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 (provisional)
Research Proposal	Written research proposal including an extensive literature review and research plan, to be submitted on Blackboard	1,2,4	60	Week 12
Interim Oral Presentation	Powerpoint Presentation	3,4,5	40	Week 33

Reassessment Requirements	There is no reassessment for the MSc project-related module.
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 **5-10 hours/week**
Recommended Reading List	"*Research Methods for Engineers*", by Thiel, D.V. (2014). Cambridge University Press.

	"*Guide to Research Projects for Engineering Students: Planning, Writing and Presenting*", by Leong, E.C., Heah, C.L-H., and Ong, K.K.W. (2015). CRC Press. *"The Craft of Research"*, by Booth, W.C., Colomb, G.G., Williams, J.M., Bizup, J., and FitzGerald, W.T. (2024). University of Chicago Press. "*On Being a Scientist: A Guide to Responsible Conduct in Research*", by National Academy of Sciences, National Academy of Engineering, and Institute of Medicine. (2009). https://doi.org/10.17226/12192 Journal articles, review papers, standards, technical reports, and case studies relevant to the student's specific research topic.
Module Pre-requisite	NA
Module Co-requisite	NA
Module Website	https://tcd.blackboard.com/
Are other Schools/Departments involved in the delivery of this module? If yes, please provide details.	N/A
Module Approval Date	
Approved by	
Academic Start Year	
Academic Year of Date	