

Module Code	ME7B08
Module Name	Research Project
ECTS Weighting	40
Semester taught	Full Academic Year
Module Coordinator/s	Prof. Mark Ahearne
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. Frame a research question that can be answered in a limited time period and with limited resources; LO2. Identify, assess and synthesize existing literature and research findings in respect of 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 perform the research work undertaken; LO9. Discuss and critically evaluate the research findings; LO10. Reflect on the strength and limitations of the research; LO11. Assess the implications of the project outcomes for engineering practice; LO12. Write a research dissertation to sufficient professional and academic standards; 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/technological knowledge in one or more areas of their bioengineering stream.</p> <p>Graduate Attributes: levels of attainment To act responsibly - Enhanced To think independently - Attained To develop continuously - Enhanced To communicate effectively - Attained</p>
Module Content	As a key component of the MSc in Bioengineering, students are required to complete an individual research project on a

topic of biomedical engineering research interest. This work must be presented in a research dissertation, which provides the main means of project assessment. This is a key element of the MSc, which, together with a supporting module in research methods, accounts for 50% of the programme and of the overall degree assessment. Projects will involve a substantial element of laboratory or field experimental work and/or engineering analysis/computation. Projects are allocated in areas of research expertise and interest of members of the academic staff with bioengineering expertise in the School of Engineering and the Trinity Centre for Bioengineering. The project content is decided by the supervisor for each individual project. The nature and content of the project are discussed by supervisor and student in 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 connection with industry or another university, where circumstances are appropriate. Whenever 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 but students are expected to dedicate the time necessary to make reasonable progress, and to keep in regular contact with their supervisor. It is recommended that students make a formal arrangement with their supervisors to meet on a weekly or fortnightly basis, preferably at a regular appointed time. Student timetables do facilitate free blocks which are very accommodating to the execution of the project. Project titles will be assigned in the second week of term which can be commenced immediately following this. There are ample durations between the first and second

semester and during the summer semester during which research can be performed.

UNDERSTANDING THE CURRENT IMPLICATIONS OF COVID-19 RESTRICTIONS, LESS EMPHASIS ON 'HANDS-ON' RESEARCH ACTIVITY WILL TAKE PLACE IN THE FIRST SEMESTER. NOTWITHSTANDING, STUDENTS ARE EXPECTED TO BE ACTIVELY RESEARCHING THEIR PROJECT BACKGROUND AND CONDUCTING REMOTE ACTIVITIES WHERE POSSIBLE (E.G. CAD/FEA OR SIMILAR). AT THE VERY LEAST, HANDS-ON EXPERIMENTAL WORK WILL COMMENCE IN JANUARY. ME7B08 is assessed on the basis of the research proposal, interim presentation and written dissertation, which will be marked by both the project supervisor and an assigned second reader. Please see the MSc handbook for important information regarding guidelines, formatting, grading criteria as well as submission details. A thesis template will be provided on blackboard.

Assessment Details¹ 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
	Research proposal	Written research proposal to include extensive literature review and research plan to be submitted to blackboard	1-3, 13	7.5	10
	Interim Presentation	Powerpoint Presentation	1-8, 13	7.5	33
	Written Thesis	Final thesis	1-14	85	52
Reassessment Requirements	There is no reassessment for MSc				
Contact Hours and Indicative Student Workload¹	Contact hours: 1 per week/fortnight with supervisor				

	Independent Study (preparation for assessment, incl. completion of assessment): average of 20-25 per week
Recommended Reading List	Journal articles and case studies related to research field of project
Module Co-requisite	Experimental and research methods in biomedical engineering
Module Website	
Are other Schools/Departments involved in the delivery of this module? If yes, please provide details.	Not applicable
Module Approval Date	
Approved by	
Academic Start Year	
Academic Year of Date	2024/25