

Module Template for New and Revised Modules

Module Code	ME7B24
Module Name	Experimental and Research Methods in Biomedical Engineering
ECTS Weighting	5 ECTS
Semester taught	Semester 1
Module Coordinator/s	Assoc. Prof. David Hoey
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. Critically analyse current scientific/engineering topics and clearly and concisely present their findings in a literature review</p> <p>LO2. Write high quality scientific reports and research proposals</p> <p>LO3. Understand some of the more useful tools for data analysis</p> <p>LO4. Understand the ethical issues involved in biomedical engineering</p> <p>LO5. Be able to work on an engineering team to achieve</p> <p>LO6. Utilise the scientific search engines to uncover relevant literature/patents/reports</p> <p>LO7. Understand good practice in scientific/engineering experiments</p> <p>Graduate Attributes: levels of attainment</p> <p>To act responsibly - Enhanced</p> <p>To think independently - Enhanced</p> <p>To develop continuously - Enhanced</p> <p>To communicate effectively - Enhanced</p>
Module Content	<p>This module's goal is to educate students in the field of: biomechanical experimental practice, data analysis, scientific literature scrutiny and report writing. The course introduces students to a number of experimental data analysis tools, experimental methods, report writing skills, statistical tools, and good practice investigational methods when analysing engineering/scientific literature. There are 18 lectures on topics that will aid students to perform robust scientific experiments and write high-quality engineering/scientific reports.</p> <ul style="list-style-type: none"> • Lectures on report/literature review drafting skills • Endnote, Pubmed and GraphPad workshops • Practical experimental sessions on the material properties of biological tissues • Ethical issues in biomedical engineering

Teaching and Learning Methods

The module is taught using a combination of lectures, laboratories and workshops.

Assessment Details 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
	Assignment	Group literature review	LO1-7	25	6
	Report	Data Analysis	LO1-7	10	8
	Assignment	Group research proposal	LO1-7	35	11
	Lab report	Group lab report associated with a bone testing lab	LO1-7	20	12
	Presentation	Video Presentation detailing their research project	LO1-7	10	13
Reassessment Requirements	Reassessment will consist of a written assignment and interview.				
Contact Hours and Indicative Student Workload Error! Bookmark not defined.	Contact hours: 44				
	Independent Study (preparation for course and review of materials): 18				
	Independent Study (preparation for assessment, incl. completion of assessment): 58				
Recommended Reading List	<ul style="list-style-type: none"> • Mind the Stop: A Brief Guide to Punctuation with a Note on Proof-correction by Gordon Vero Carey • Alley, M. (1996). The Craft of Scientific Writing. 				
Module Pre-requisite					
Module Co-requisite	MEU44BM5/ME5M19 Biomechanics				
Module Website					
Are other Schools/Departments involved in the delivery of this module? If yes, please provide details.	No				
Module Approval Date	09/04/2020				
Approved by	Assoc. Prof. David Hoey				

Academic Start Year	2019
Academic Year of Date	2023