

## Module Template for New and Revised Modules

<b>Module Code</b>	ME7B24
<b>Module Name</b>	Experimental and Research Methods in Biomedical Engineering
<b>ECTS Weighting</b>	5 ECTS
<b>Semester taught</b>	Semester 1
<b>Module Coordinator/s</b>	Prof. David Hoey
<b>Module Learning Outcomes with reference to the Graduate Attributes and how they are developed in discipline</b>	<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><b>Graduate Attributes: levels of attainment</b></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>
<b>Module Content</b>	<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"> <li>• Lectures on report/literature review drafting skills</li> <li>• Endnote, Pubmed and GraphPad workshops</li> <li>• Practical experimental sessions on the material properties of biological tissues</li> <li>• Ethical issues in biomedical engineering</li> </ul>

### **Teaching and Learning Methods**

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

<b>Assessment Details</b> Please include the following: <ul style="list-style-type: none"> <li>• <b>Assessment Component</b></li> <li>• <b>Assessment description</b></li> <li>• <b>Learning Outcome(s) addressed</b></li> <li>• <b>% of total</b></li> <li>• <b>Assessment due date</b></li> </ul>	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	30	12
<b>Reassessment Requirements</b>	Reassessment will consist of a written assignment and interview.				
<b>Contact Hours and Indicative Student Workload</b> Error! Bookmark not defined.	<b>Contact hours:</b> 44				
	<b>Independent Study (preparation for course and review of materials):</b> 18				
	<b>Independent Study (preparation for assessment, incl. completion of assessment):</b> 58				
<b>Recommended Reading List</b>	<ul style="list-style-type: none"> <li>• Mind the Stop: A Brief Guide to Punctuation with a Note on Proof-correction by Gordon Vero Carey</li> <li>• Alley, M. (1996). The Craft of Scientific Writing.</li> </ul>				
<b>Module Pre-requisite</b>					
<b>Module Co-requisite</b>	MEU44BM5/ME5M19 Biomechanics				
<b>Module Website</b>					
<b>Are other Schools/Departments involved in the delivery of this module? If yes, please provide details.</b>	No				
<b>Module Approval Date</b>	09/04/2020				
<b>Approved by</b>	Prof. David Hoey				
<b>Academic Start Year</b>	2019				

