

# 2023-24

## ME IN BIOMEDICAL ENGINEERING

**GENERAL SYLLABUS:** For all entrants, including graduates of programmes other than the University of Galway BE in Biomedical Engineering

**General Conditions:**

20 ECTS Project/Thesis, 30 ECTS Advanced Subject Specific Modules, and 10 ECTS Engineering Transferrable Skills Modules.

Students must obtain approval of their module selection from the Programme Director.

Selection of modules may depend upon:

- Availability of the module in the academic year of study;
- Timetabling constraints with respect to other modules chosen;
- Completion of pre-requisite or co-requisite modules, or other required modules as identified by the Programme Director.

Students cannot take a module where they have already completed coursework of a similar content and standard.

<i>Requisite: Prereq Coreq Exreq</i>	<i>Module Code</i>	<i>Module Name</i>	<i>ECTS</i>	<i>Taught in Semester 1, 2, or Full Year</i>	<i>Examined / Submitte d in Semester (s)</i>	<i>Duration of exam (hours)</i>	<i>Lectures Shared with:</i>	<i>Bonding</i>
--	--------------------	--------------------	-------------	--	--	---	----------------------------------	----------------

### PROJECT/THESIS

	BME504	Biomedical Engineering Project/ Thesis	20	Full Year	2	c/a		
--	--------	--	----	-----------	---	-----	--	--

### ADVANCED SUBJECT SPECIFIC MODULES (30 ECTS)

(Core Biomedical Engineering Modules and General Biomedical Engineering Modules)

#### Core Biomedical Engineering Modules (15-30 ECTS)

**Specific Conditions:**

\*For students who have taken BME5104, BME501 is mandatory.

\*For Students who have not taken BME5104 or equivalent, BME5104 is mandatory and BME501 may be taken as an option.

\*\*All students must take either BME5101 or BME502. (Optional to take both) \*\*\*All students must take either ME516 or ME5106. (Optional to take both)

	BME5104	Finite Element Methods in Engineering II	5	1	1	2 + c/a	MEME, MEES, MBM, MSME	
	BME500	Advanced Biomaterials	5	1	1	c/a	MBM	
BME5104	BME5100	Advanced Computational Biomechanics	5	1	1	c/a	MBM, MEME	
	ME516	***Advanced Mechanics of Materials	5	2	2	2 + c/a	MEME	
BME5104	BME501	*Advanced Finite Element Methods	5	2	2	2 + c/a	MBM, MEME, MEES, MSME	
	BME502	**Advanced Tissue Engineering	5	2	2	c/a	MBM, MSR, MV	

	BME5101	**Mechanobiology	5	2	2	c/a	MBM	
	ME5106	***Advanced Manufacturing	5	2	2	2 + c/a	MEME	

### General Biomedical Engineering Modules

**Specific Conditions:**

**Students can select up to 15 ECTS from this General group.**

	ME4112	Computational Fluid Dynamics	5	1	1	2 + c/a		
	EE502	Bioinstrumentation Design	5	1	1	2 + c/a	MEEE	
	EE5121	UX Design for Medical Devices	5	1	1	c/a		
	MP410	Non-Linear Elasticity	5	1	1	2 + c/a	2022-23	Modules run in alternate years
	MP494	Partial Differential Equations	5	1	1	2 + c/a	2023-24 TBC	Modules run in alternate years
	EE5127	Internet of Things	5	2	2	2 + c/a	MBM, MEME, MEEE, MECE	
EE502	EE5124	Bioinstrumentation Design II	5	2	2	2 + c/a		
	MD507	Stem Cells and Gene Therapy II	5	2	2	2		
	REM502	Translational Medicine	5	2	2	c/a		
	CT5161	Introduction to Programming in Python	5	1	1	2 + c/a		

### ENGINEERING TRANSFERRABLE SKILLS MODULES (10 ECTS)

**Specific Conditions:**

**Students must select 10 ECTS from this group.**

	AY872	Financial Management I	5	1	1	2 + c/a		
	IE446	Project Management	5	1	1	c/a		
	IE450	Lean Systems	5	1	1	2		
	ME4105	Safety Engineering	5	1	1	2	MEME, MSME, BM, APE	
	ME432	Technology, Innovation & Entrepreneurship	5	1	1	c/a		
	ME521	Research Methods for Engineers	5	1	1	c/a	APE (ME520)	
	ME572	Human Reliability	5	2	2	2 + c/a		IE444
	BI5108	Green Lab Principles and Practice	5	Full year	1 + 2	c/a	MBC, MSR,	
CT5161 (or equivalent)	CT4101	Machine Learning	5	1	1	2 + c/a	MEME, MECE	