

2024-25

<i>Requisite Type:</i>	<i>Module Code</i>	<i>Module Name</i>	<i>ECTS Credits</i>	<i>Taught in Semester 1, 2, or Full Year</i>	<i>Examined/ Submitted in Semester(s)</i>	<i>Duration of exam (hours)</i>	<i>Lectures Shared With:</i>	<i>Bonded with:</i>
(1BG1) First University Examination in Engineering (Biomedical)								
	CH140	Engineering Chemistry	5	1	1	2 + c/a	All BE Programmes	
	CT1110	Engineering Computing I	5	1	1	2 + c/a	All BE Programmes, BCM	
	EI160	Engineering Graphics	5	1	1	2hr computer based exam + c/a	All BE Programmes, BCM	
	MA140	Engineering Calculus	5	1	1	2 + c/a	All BE Programmes	
	MP120	Engineering Mechanics	5	1	1	2 + c/a	All BE Programmes	
	CT1111	Engineering Computing II	5	2	2	2 + c/a	All BE Programmes	
	EI150	Engineering Design	10	2	2	c/a	All BE Programmes, BCM	
	MM140	Engineering Mathematical Methods	5	2	2	2 + c/a	All BE Programmes	
	PH140	Engineering Physics	5	2	2	2 + c/a	All BE Programmes	
	EI140	Fundamentals of Engineering	10	Full Year	1 + 2	2 + c/a	All BE Programmes	
TOTAL FOR THE COMPUTATION OF HONOURS = 60 ECTS								
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(2BG1) Second University Examination in Engineering (Biomedical)								
	AN230	Human Body Structure	5	1	1	2 + c/a		
	EE231	Electronic Instrumentation and Sensors	5	1	1	2 + c/a	All BE Progs	
	MA2101	Mathematics & Applied Mathematics I	5	1	1	2 + c/a	All BE Progs	
	ME223	Thermodynamics and Fluid Mechanics	5	1	1	2 + c/a	2BM, 2BSE, 2BE, 2BEE	
	ST1100	Engineering Statistics	5	1	1	2 + c/a	All BE Progs	
	BME200	Introduction to Biomaterials	5	2	2	c/a		
	BME2100	Materials I	5	2	2	2 + c/a	2BM	
	MA2102	Mathematics & Applied Mathematics II	5	2	2	2 + c/a	All BE Progs	
	CE227	Strength of Materials	10	Full Year	2	2 + c/a	2BM, 2BSE, 2BE, 2BCM	
	ME2105	Manufacturing Technology & CAIRDE	5	Full Year	2	2 + c/a	2BM, 3BSE	
	ME2106	Theory of Machines & CADD	5	Full Year	1	2 + c/a	2BM, 2BSE	
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(3BG1 – BE+ME pathway) Third University Examination in Engineering (Biomedical)								
	BME3132	Finite Element Methods in Engineering I	5	1	1	2 + c/a	3BM	
	BME3134	Biomedical Engineering Design I	5	1	1	2 + c/a	MBM	
	BME328	Principles of Biomaterials	5	1	1	Project		
	ME301	Fluid Dynamics	5	1	1	2 + c/a	3BM, 3BSE	
	ME304	Mechanical Analysis and Design	5	1	1	2	3BM, 3BSE, 4BEE	
	ME322	Thermodynamics and Heat Transfer	5	1	1	2 + c/a	3BM, 3BG, 3BSE, 4BG	
	BME3133	Biomedical Engineering Physiology	5	2	2	2 + c/a		
	BME3135	Biomedical Engineering Design II	5	2	2	2 + c/a	MBM	
	BME4101	Biotransport	5	2	2	2 + Project	4BG, MBM, SPE	
	ME312	Automated Systems	5	2	2	2 + c/a	3BM	
	ME353	Quality Systems	5	2	2	2 + c/a	3BM	
	PA405	Elements of Pathology	5	2	2	c/a	4BG	
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(4BG1 – BE+ME pathway) BE Degree Examination (Biomedical)								
	BME400	Biomechanics	5	1	1	2 + c/a	4BM, SPE, MBM	
	BME5104	Finite Element Methods in Engineering II	5	1	1	2+c/a	4BM	
	ME4112	Computational Fluid Dynamics	5	1	1	2+c/a	4BM	
	BME5101	Mechanobiology	5	1	1	c/a	MBM	
	BME4109	Medical Image Analysis & Modelling	5	1	1	2		
	ME4109	Materials II	5	1	1	2 + c/a	4BM	
	BME4107	Biomedical Professional Experience Programme*	20	2	2	d/a		
	ME3102	Project Management for Engineers (online module)	5	2	2	c/a	3BM	
	ME3104	Intro to Regulatory Affairs in Manufacturing (online module)	5	2	2	c/a	3BM	
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(3BG4 – BE pathway) Third University Examination in Engineering (Biomedical)								
	BME3132	Finite Element Methods in Engineering I	5	1	1	2 + c/a	3BM	
	BME3134	Biomedical Engineering Design I	5	1	1	2 + c/a		
	BME328	Principles of Biomaterials	5	1	1	Project		
	ME301	Fluid Dynamics	5	1	1	2 + c/a	3BM, 3BSE	
	ME304	Mechanical Analysis and Design	5	1	1	2	3BM, 3BSE, 4BEE	
	ME322	Thermodynamics and Heat Transfer	5	1	1	2 + c/a	3BM, 3BG, 3BSE, 4BG	
	BME3133	Biomedical Engineering Physiology	5	2	2	2 + c/a		
	BME3135	Biomedical Engineering Design II	5	2	2	2 + c/a		
	ME3102	Project Management for Engineers (online module)	5	2	2	c/a	3BM, 3BSE, 3BLE, 3BP	
	ME3104	Intro to Regulatory Affairs in Manufacturing (online module)	5	2	2	c/a	3BM, MBM, 3HF2, MECE, MEEE, MEME	
	ME312	Automated Systems	5	2	2	2 + c/a	3BM	
	ME353	Quality Systems	5	2	2	2 + c/a	3BM	
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(4BG4 – BE pathway) BE Degree Examination (Biomedical)								
	BME400	Biomechanics	5	1	1	2 + c/a	4BM, SPE, MBM	
	BME5104	Finite Element Methods in Engineering II	5	1	1	2+c/a	4BM	
	ME4112	Computational Fluid Dynamics	5	1	1	2+c/a	4BM	
	ME4109	Materials II	5	1	1	2 + c/a	4BM, 4BSE, MBM, MEME, MEC	
	BME4109	Medical Image Analysis & Modelling	5	1	1	2		
	BME4101	Biotransport	5	2	2	2 + Project	3BG1, MEB, MBM, SPE	
	PA405	Elements of Pathology	5	2	2	c/a	3BG1	
	BME4102	Biomedical Engineering Project	10	Full Year	2	C/A		
	BME502	Advanced Tissue Engineering	5	2	2	c/a	MBM, MSR, MV	
	ME572	Human Reliability	5	2	2	2 + c/a		IE444
	BME4108	Biomedical Professional Experience Programme 4 Year BE*	5	2	2	d/a		
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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:

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/ Submitted in Semester(s)</i>	<i>Duration of exam (hours)</i>	<i>Lectures Shared with:</i>	<i>Bonding</i>
PROJECT/THESIS (25ECTS)								
	BME5109	Biomedical Engineering BioInnovate project	15	Full Year	2	c/a		
	BME5112	Biomedical Engineering Individual Masters Project	10	Full Year	2	c/a		
Core Biomedical Engineering Modules (20ECTS)								
BME5104	BME501	Advanced Finite Element Methods	5	2	2	2 + c/a		
	BME502	Advanced Tissue Engineering	5	2	2	2 + c/a		
	BME5111	Advanced Biomedical Thermodynamics	5	1	1	2+c/a		
BME5104	BME5100	Advanced Computational Biomechanics	5	1	1	2+c/a		
Optional Group 1 (choose 5-10ECTS)								
	ME516	Advanced Mechanics of Materials	5	2	2	2 + c/a		
	ME5106	Advanced Manufacturing	5	2	2	2 + c/a		

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Optional Group 2 (choose 0-5ECTS)							
** BME5104 is mandatory for those who have not taken a similar module							
	BME5104	**Finite Element Methods in Engineering II	5	1	1	2 + c/a	
	EE502	Bioinstrumentation Design	5	1	1	2 + c/a	Not running 2024-25
	EE5121	UX Design for Medical Devices	5	1	1	c/a	
	MP410	Non-Linear Elasticity	5	1	1	2 + c/a	2024-25 Modules run in alternate years
	MP494	Partial Differential Equations	5	1	1	2 + c/a	2023-24 Modules run in alternate years
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	
	CT5200	Fundamentals of Python Programming	5	1	1	2 + c/a	
Optional Group 3 (choose 5ECTS)							
Students who do not meet the requirements for CT4101, may choose CT5200 in this group.							
	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
CT5161 (or equivalent)	CT4101	**Machine Learning	5	1	1	2 + c/a	MEME, MECE
	EE4104	Machine Learning and Artificial Intelligence for Engineering Applications	5	1	1	CA	