

Biomedical Engineering Available Subjects for Incoming Students, 2024-2025



Term	Code /Study*	Subject	Course	ECTS	Language	Conditions
1st	24047 /GEBM	Biomechanics II	2	6	English	The subjects contains three block: (i) motion capture & analysis; (ii) nonlinear continuum mechanics; (iii) fluids dynamics. Students need to pass the evaluation of each of the three blocks to pass the subject. Previous competencies in particle mechanics, statics and algebra are mandatory.
	24050 /GEBM	Biocomputing	3	6	English	
	22119 /GEBM	Systems Physiology I	2	5	Catalan / Spanish	
	22135 /GEBM	Organs and Systems Modelling	3	4	English	
	24043 /GEBM	Project Management and Innovation in Biomedical Engineering	4	4	English	
	24044 /GEBM	Introduction to Drug Research and Development	4	4	English	
	22133 /GEBM	Systems Biology	4	5	English	Recommendation: The subject uses modeling tools that it is explained in more detail at Biocomputing.
	22148 /GEBM	Advanced Synthetic Biology	Elective	4	English	
	26585 /GEBM	Microfluidics	Elective	4	English	
	25030 /GEBM	Nanomedicine and Nanobiotechnology: Introduction and Applications	Elective	4	English	
2nd	24040 /GEBM	Biosignals and Biosystems	2	4	Catalan / Spanish	(1) It is a subject taught in Catalan/Spanish (although the material is in English). Therefore, students should understand at least one of the two languages. (2) It is the continuation of Signals and Systems. Hence, students should have a background in Signals.
	24041 /GEBM	Bioinstrumentation and Biosensors	2	5	Catalan / Spanish	It is a subject taught in Catalan/Spanish (but all the the materials, including the exams, are in English).
	24049 /GEBM	Biomedical Imaging Systems	3	5	English	
	22130 /GEBM	Analysis of Biomedical Images	3	5	English	
	22134 /GEBM	Control Theory and Self-Regulation	3	5	English	
	22213 /GEBM	Healthcare Organization and Regulation	4	4	English	
	25369 /GEBM	Machine Learning for Biomedical Applications	Elective	4	English	
	22172 /GEBM	Advanced Analysis of Neuronal Signals	Elective	4	English	
2nd & 3rd	26226 /GEBM	Advanced Modelling in Biomechanics and Systems Mechanobiology	Elective	4	English	Full time participation to the Virtual Physiological Human Summer School (from 9:30 am to 7:30 pm), during the first week of June is mandatory.
	22121 /GEBM	Biomaterials	2	4	English	It includes seminars a visit to a local implant manufacture, which can be in Spanish - Practical works are strongly oriented towards materials and tissue finite element modelling. Previous competencies in nonlinear continuum mechanics are mandatory.

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3rd	22125 /GEBM	Cell and Tissue Engineering	2	5	English	
	24046 /GEBM	Numerical Methods	2	4	English	
	26590 /GEBM	Advanced Analysis of Biomedical Images	Elective	4	English	
	22170 /GEBM	Computational Neuroscience	Elective	4	English	
	22141 /GEBM	Imaging for Planning and Guidance of Minimally Invasive Surgery	Elective	4	English	
	26227 /GEBM	Data Science and Computational Models in Biomedicine	Elective	4	English	

***Studies code:**

GEBM: Bachelor's Degree in Biomedical Engineering (3378)

Barcelona, September 2024