

Biomedical Engineering Available Subjects for Incoming Students, 2023-2024

Term	Code	Subject	ECTS	Language	Places*	Conditions
2nd course						
1	24047	Biomechanics II	6	English	2	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
	22119	Systems Physiology I	5	English		
2	24040	Biosignals and Biosystems	4	English	2	(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 backgrpund in Signals.
	24041	Bioinstrumentation and Biosensors	5	English		
	22126	Systems Physiology II	4	English		
3	22121	Biomaterials	4	English		It includes seminars a visit to a local implent 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.
	22125	Cell and Tissue Engineering	5	English		
	22122	Scientific Communication Project	3	English		
	22123	Evolutionary Algorithms	4	English		
	24046	Numerical Methods	4	English	2	
3rd course						
1	24050	Biocomputing	6	English		
	22128	Physiopathology	5	English		
	22135	Organs and Systems Modelling	4	English		
2	24049	Biomedical Imaging Systems	5	English		
	22130	Analysis of Biomedical Images	5	English		
	22134	Control Theory and Self-Regulation	5	English		
4th course						

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Term	Code	Subject	ECTS	Language	Places*	Conditions
1	22280	Introduction to Medical Devices and their Design	5	English		Teamwork is central. Hence communication skills (At least Spanish or English) and time of dedication out of the classroom are mandatory. Requires a good level of transversal competencies in biomedical engineering, usually acquired by the end of the bachelor.
	24043	Project Management and Innovation in Biomedical Engineering	4	English		
	24044	Introduction to Drug Research and Development	4	English		
	22133	Systems Biology	5	English		
2	22213	Healthcare Organization and Regulation	4	English		
Electives						
1	22148	Advanced Synthetic Biology	4	English		
	25030	Nanomedicine and Nanobiotechnology: Introduction and Applications	4	English		
2	25369	Machine Learning for Biomedical Applications	4	English		
	22172	Advanced Analysis of Neuronal Signals	4	English		
	22150	Modelling Complex Diseases	4	English		
2-3	26226	Advanced Modelling in Biomechanics and Systems Mechanobiology	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.
3	24052	Advanced Analysis of Biomedical Images I: Segmentation and Quantification	4	English	2	
	22170	Computational Neuroscience	4	English	2	
	22141	Imaging for Planning and Guidance of Minimally Invasive Surgery	4	English		
	26227	Data Science and Computational Models in Biomedicine	4	English		
*Information: All subjects have 5 places offered if it is not specified. Group 1						