BIOMEDICAL ENGINEERING, 1st CYCLE (BACHELOR)
SCOPE OF DIPLOMA: ELECTRONICS AND BIOMEDICAL INFORMATICS

	Basic courses	Total	W	C	L	P	W	C	L	P	E	ECTS	W	C	L	P	E	ECTS	W	C	L	P	E	ECTS	W	C	L	P	E	ECTS	W	C	L	P	E	ECTS	W	C	L	P	ECTS
1	Physical Education	60		60				30						30																											
2	Foreign Language	120		120				30				2		30				2		30				2		30			E	2												
3	Techniques And Tools For Communication	30	15	15			15	15				3																														
4	Introduction To Entrepreneushiip	30	30										30					2																								
5	Intellectual Property Protection	15	15																15					1																		
6	Mathematics For Engineers	30		30				30				3																														
7	Mathematics	150	60	90									30	60			E	7	30	30			E	4																		
8	Informatics And Basics Of Programming	30	10		20		10		20		E	3																														
9	Engineering Graphics	30			30				30			3																														
10	Fundamentals Of Biomedical Engineering	105	35		70		35		70		E	11																														
11	Physics	105	30	60	15									30				3	15	30				4	15		15			3												
	Chemistry	25	10		15		10		15			3																														
12	Introduction to Anatomy and Physiology	20		20																20				2																		
13	Biomedical Data	60			60										60		E	5																								
14	Engineering Technologies In Medicine And Sports	60	30		30								30		30		E	5																								
15	Iintroduction To Problem Based Learning	45				45										45		6																								
16	Elective Course	150	150										30					2	30					2	30					2	30					2					
17	Practice																																			4					
18	Bachelor Project	45				45																																		45	15
	ELECTRONICS AND BIOMEDICAL INFORMATICS	1110	385	395	240	90	70	105	135			28	120	150	90	45		32	90	110				15	45	30	15			7	30					2	30					6				45	15
M1	Biomedical electronics	60	30	15	15														30	15	15		E	5																		
1	Circuit theory																																									
2	Electronics	60	30		15	15																			30		15	15	E	5												
M2	Sensors and microprocessor systems																																									
3	Sensors and non-electrical quantities measurements	45	15		15	15																									15		15	15		3						
4	Microcontrollers and embedded systems	90	30		30	30																									15		15	15		3	15		15	15	3					
5	Biomedical IoT systems	30	15			15																															15			15	2					
M3	Control theory																																									
6	Control and regulation theory	45	15	15	15																										15	15	15			3						
7	Medical robots	15	15																																		15				1		
M4	Biomedical equipment																																									
8	Medical electronic equipment	45	30			15																									30			15	E	4							
9	Methods and equipment of medical diagnostics	90	45	15	30														15	15				2	30		30		E	5												
10	Introduction to normalization and certification of medical products	45	30			15																															30			15	E	3					
M5	Analysis and processing of biomedical data																																									
11	Bioinformatics methods	30	15			15																															15			15	2					
12	Pattern recognition in bioelectrical signals	30	15			15																																15				15	2	
M6	Machine learning and artificial intelligence algorithms																																									
13	Machine learning	60	15		30	15																															15		30	15	E	4				
14	Deep learning and artificial intelligence algorithms	60	15		30	15																																15		30	15	3				
M7	Acquisition and processing of biomedical signals																																									
15	Introdution to digital signal processing	45	30	15																											30	15				4						
16	Biomedical Signal Processing	60	30		30																																30		30			3			
17	Bioelectric signal acquisition systems	30	15		15																																			15		15		2	
M8	Statistics																																									
18	Medical statistics	45	15		30																				15		15			2						1						
19	Multidimensional analysis	30	15		15																										15		15			2						
M9	Algorithms and data structures																																									
20	Algorithms and data structures	60	30		30														30		30			5																		
M10	Computer programming																																									
21	Computer programming	60			45	15															30			2			15	15		2												
M11	Introduction to graphical programming																																									
22	Introduction to graphical programming	60	15		15	30																																15		15	30	3				
M12	Modeling of biomedical processes																																									
23	Bionics	45	15		15	15																															15		15	15	3				
24	Biocybernetics	45	15		15	15																									15		15	15		3						
25	Artificial Organs	30	15		15																																15		15		2				
M13	Numerical analysis																																									
26	Numerical methods	60	30		30																				30		30			3												
27	Engineering calculations	30			30																15			1			15			1												
M14	Telemedicine and cybersecurity																																									
28	Personalized medicine systems	30	15			15																																15			15	2		
29	Maintaining of medical databases and systems	30	15			15																															15			15	2				
30	Medical data cybersecurity	30	15			15																																15			15	2		
M15	Medical imaging																																									
32	Medical Imaging Techniques	60	30		15	15																			30		15	15	E	5												
33	Medical Image Analysis	60	30		30																										30		30		E	5						
		1515	645	60	510	300													75	30	90			15	135		135	45		23	165	30	120	60		28	165		105	105		24	105		60	90	15
	Total	2625	1030	455	750	390	70	105	135			28	120	150	90	45		32	165	140	90			30	180	30	150	45		30	195	30	120	60		30	195		105	105		30	105		60	135	30
		Total/Hours per week							310			21			405			27			395			26			405			27			405			27			405			27			300			20

Programme valid from the academic year: 2025/2026