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

		Hours					I						II						III						IV						V						VI						VII				
	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**	**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 Entrepreneuship	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	8	30	30			E	3																						
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	120	40		80		40		80		E	14																																		
11	Physics	105	30	60	15									30				2	15	30				3	15		15			5																
12	Introduction to Anatomy and Physiology	30		30																30				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	30					2					
17	Practice																																			4										
18	Bachelor Project	45				45																																						45	15
	ELECTRONICS AND BIOMEDICAL INFORMATICS	**1110**	**380**	**405**	**235**	**90**	**65**	**105**	**130**			**28**	**120**	**150**	**90**	**45**		**32**	**90**	**120**				**13**	**45**	**30**	**15**			**9**	**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	4															
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				3	30		30		E	4															
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			15			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			3			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			4															
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	4															
33	Medical Image Analysis	60	30		30																										30		30		E	5										
		1515	645	60	510	300													75	30	90			17	135		135	45		21	165	30	120	60		28	165		105	105		24	105		60	90	15
	Total	**2625**	**1025**	**465**	**745**	**390**	**65**	**105**	**130**			**28**	**120**	**150**	**90**	**45**		**32**	**165**	**150**	**90**			**30**	**180**	**30**	**150**	**45**		**30**	**195**	**30**	**120**	**60**		**30**	**195**		**105**	**105**		**30**	**105**		**60**	**135**	**30**
		Total/Hours per week							**300**			**20**			**405**			**27**			**405**			**27**			**405**			**27**			**405**			**27**			**405**			**27**			**300**			**20**

Programme valid from the academic year: 2023/2024