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			2															
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																																													
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**			**6**	**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				3	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			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	5															
33	Medical Image Analysis	**60**	**30**		**30**																										30		30		E	5										
		1515	**645**	**60**	**510**	**300**													**75**	**30**	**90**			**17**	**135**		**135**	**45**		**24**	**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