BIOMEDICAL ENGINEERING, 1st CYCLE (BACHELOR)
SCOPE OF DIPLOMA: MEDICAL INFORMATICS AND ARTIFICIAL INTELLIGENCE

		Hours						I							II							III							IV							V							VI							VII						
	Basic courses	**Total**	**W**	**C**	**L**	**P**	**S**	**W**	**C**	**L**	**P**	**S**	**E**	**ECTS**	**W**	**C**	**L**	**P**	**S**	**E**	**ECTS**	**W**	**C**	**L**	**P**	**S**	**E**	**ECTS**	**W**	**C**	**L**	**P**	**S**	**E**	**ECTS**	**W**	**C**	**L**	**P**	**S**	**E**	**ECTS**	**W**	**C**	**L**	**P**	**S**	**E**	**ECTS**	**W**	**C**	**L**	**P**	**S**	**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	7	30	30				E	4																							
8	Informatics And Basics Of Programming	**30**	**10**		**20**			10		20				3																																					
9	Engineering Graphics	**30**			**30**					30				3																																					
10	Fundamentals Of Biomedical Engineering modul I	**60**	**20**		**40**			20		40			E	6																																					
11	Fundamentals Of Biomedical Engineering modul II	**45**	**15**		**30**			15		30			E	5																																					
12	Physics	**105**	**30**	**60**	**15**											30					3	15	30					4	15		15				3																	
13	Chemistry	**25**	**10**		**15**			10		15				3																																					
14	Introduction to Anatomy and Physiology	**20**	**20**																			20						1																							
15	Biomedical Data	**60**			**60**												60			E	5																														
16	Engineering Technologies In Medicine And Sports	**60**	**30**		**30**										30		30			E	5																														
17	Iintroduction To Problem Based Learning	**45**				**45**												45			6																														
18	Elective Course UBZO	**150**	**150**												30						2	30						2	30						2	30						2	30						2						
19	Practice																																																		
20	Bachelor Project	**45**				**45**																																													
	MEDICAL INFORMATICS AND ARTIFICIAL INTELLIGENCE	**1110**	**405**	**375**	**240**	**90**		**70**	**105**	**135**				**28**	**120**	**150**	**90**	**45**			**32**	**110**	**90**					**14**	**45**	**30**	**15**				**7**	**30**						**2**	**30**						**6**				**45**		**15**
M1	**Fundamentals of Human Sciences**																																																		
1	Introduction to Medical Sciences	**15**	**15**																			15						1																							
2	Radiological Anatomy	**15**	**15**																										15						1															
M2	**Informatics**																																																		
3	Computer Programming	**60**	**30**		**30**																	30		30			E	4																							
4	Algorithms and Data Structures	**30**	**15**		**15**																								15		15				2															
5	Numerical Methods	**60**	**30**		**30**																								30		30			E	5															
6	Object-Oriented Programming	**60**	**15**		**30**	**15**																							15		30				3				15			2									
7	Computer-Aided Calculations	**60**			**30**	**30**																									30	30			4															
8	Databases and Medical Data Archiving	**45**	**15**		**30**																															15		30				3									
9	Computer Networks and Communication in Medicine	**60**	**15**		**30**	**15**																																					15		30	15			4			
10	Design of Applications with Graphical User Interface	**90**	**30**		**30**	**30**																																										30		30	30		4
11	Graphical Programming	**45**	**15**		**15**	**15**																																										15		15	15		3
12	Computer Graphics	**30**	**15**		**15**																																											15		15			2
M3	**Biomedical Data Processing**																																																		
13	Statisitics in Data Analysis	**30**	**15**		**15**																	15		15				2																							
14	Biomedical Data Acquisition	**30**				**30**																			30				2																						
15	Medical Imaging Techniques	**60**	**30**		**15**	**15**																30		15	15		E	5																							
16	Medical Signal Processing	**45**	**15**		**30**																								15		30				3															
17	Medical Image Analysis	**90**	**15**		**30**	**45**																														15		30	15		E	5				30		2				
18	Data Mining	**75**	**15**		**30**	**30**																														15		30				3				30		2				
19	Bioimage Informatics	**60**	**15**		**15**	**30**																																									15		15	30		4
M4	Artificial Intelligence																																																		
20	Introduction to Artificial Intelligence	**30**	**15**		**15**																								15		15				2															
21	Machine Learning	**60**	**15**		**15**	**30**																														15		15	30		E	5									
22	Text Mining	**60**	**15**		**15**	**30**																														15		15	30			4									
23	Deep Learning	**60**	**15**		**15**	**30**																																									15		15	30		E	5
24	Multimodal data analysis	**60**	**15**		**15**	**30**																																									15		15	30		E	5
M5	Medical Equipment																																																		
25	Circuit Theory	**30**	**15**		**15**																	15		15			E	2																							
26	Introduction to Electronics	**45**	**30**		**15**																								30		15				3															
27	Embedded Systems	**45**	**15**		**30**																															15		30				3									
28	Electronic Medical Equipment	**45**	**30**			**15**																														30			15			3									
29	Reliability of Biomedical Systems	**30**	**15**		**15**																																												15		15			2
30	Artificial Organs	**30**				**15**	**15**																																												15	15	2
M6	Other courses																																																		
31	Scientific Text Typesetting	**30**	**15**		**15**																																												15		15			2
32	Foreign Language in Biomedical Engineering	**30**		**30**																																														30				2
		1515	**510**	**30**	**555**	**405**	**15**															**105**		**75**	**45**			**16**	**135**		**165**	**30**			**23**	**120**		**150**	**105**			**28**	**75**		**90**	**165**			**24**	**75**	**30**	**75**	**60**	**15**	**15**
	Total	**2625**	**915**	**405**	**795**	**495**	**15**	**70**	**105**	**135**				**28**	**120**	**150**	**90**	**45**			**32**	**215**	**90**	**75**	**45**			**30**	**180**	**30**	**180**	**30**			**30**	**150**		**150**	**105**			**30**	**105**		**90**	**165**			**30**	**75**	**30**	**75**	**105**	**15**	**30**
		Total/Hours per week						**310**						**21**	**405**						**27**	**425**						**28**	**420**						**28**	**405**						**27**	**360**						**24**	**285**					**19**

Programme valid from the academic year: 2026/2027