

BIOMEDICAL ENGINEERING, 1st CYCLE (BACHELOR)
SCOPE OF DIPLOMA: DESIGN OF BIOMECHATRONIC DEVICES

		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			
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 Entrepreneurship	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							2	15	30			3	15		15			2															
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	Introduction To Problem Based Learning	45				45										45		6																											
16	Elective Course	150	150										30					2	30					2	30					2	30							2	30						
17	Practice																																												
18	Bachelor Project	45				45																																							
	DESIGN OF BIOMECHATRONIC DEVICES	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	Basics of Mechanical Engineering																																												
1	Mechanics	60	30			30													30			30	E	6																					
2	Strength of Materials	75	15		30	30																		15		30	30	E	6																
3	Multibody Dynamics	45	15		30																				15		30				4														
M2	Engineering Design																																												
4	Zapis konstrukci	30			30																30			3																					
5	Design and optimization of medical equipment	60	15			45																		15			45		4																
6	Basics of machine construction	90	30			60													15			15		2	15		30	E	4			15		2											
7	Computer-Aided Design	30			30																					30				2															
8	Fundamentals of Materials Science	30	10		20														10		20			2																					
9	Certification of Medical Devices	45	15		30																				15		30			2															
M3	Applied Biomechanics																																												
10	Structure and Functions of the Human Musculoskeletal System	45	30	15																				30	15			3																	
11	Engineering Biomechanics	60	30		30																			30		30			5																
12	Movement Analysis of Living Organisms	60	15		45																																								
13	Sports Biomechanics	45	15		30																																								
14	Biomechanics of Sports Injuries	45	15			30																																							
15	Modeling and Identification of Loads in the Human Musculoskeletal System	45	15		30																																								
M4	Engineering Calculations																																												
16	Engineering Calculations and Optimization Methods	45	15		30														15		30			4																					
17	Research Methodology and Statistical Analysis of Biomedical Data	45	15		30																																								
M5	Modern Technologies Supporting Rehabilitation and Sport																																												
18	Modern Methods of Physiotherapy in the Treatment of Diseases and Dysfunctions of the Musculoskeletal System	45	15		30																				15		30		E	4															
19	Engineering Assistance in the Selection and Design of Orthopedic Equipment	45	15		30																																								
20	Medical Robots	45	15			30																																							
21	Computer-Aided Systems for Diagnosing and Treatment the Human Musculoskeletal System	45	15		30																																								
22	Engineering Support for Manual Therapy, Speech Therapy and Oligophrenopedagogics	45	15		30																																								