Faculty of Computer Science and Material Science

Discipline: Biomedical engineering

Specialty: **MEDICAL INFORMATICS**

three-year engineer`s studies

full-time studies

valid from academic year 2012/2013

General courses - specialty **MEDICAL INFORMATICS**										I year										II year										III year										IV year				
										sem. 1					sem.2					sem.3					sem. 4					sem. 5					sem. 6					sem.7				
										15 weeks					15 weeks					15 weeks					15 weeks					15 weeks					15 weeks					15 weeks				
No.		Module name	E/C	Total	incl.				ECTS	Lectures	Class ex.	laborat.	semin.	ECTS	Lectures	Class ex.	laborat.	semin.	ECTS	Lectures	Class ex.	laborat.	semin.	ECTS	Lectures	Class ex.	laborat.	semin.	ECTS	Lectures	Class ex.	laborat.	semin.	ECTS	Lectures	Class ex.	laborat.	semin.	ECTS	Lectures	Class ex.	laborat.	semin.	ECTS
					Lectures	Class ex.	Laborat.	semin.																																				
Basic content P	01	Mathematics I	E	60	30	30	0	0	6	30	30			6																														
	02	Mathematics II	E	60	30	30	0	0	6						30	30			6																										
	03	Physics	E	60	30	0	30	0	5	30		30		5																														
	04	Chemistry	E	60	30	0	30	0	5	30		30		5																														
	05	Material science	E	60	30	0	30	0	5						30		30		5																										
	06	Statistics and probability calculus	E	45	15	30	0	0	4											15	30			4																					
	07	Electrotechnics and electronics	E	60	30	0	30	0	5											30		30		5																					
	08	Mechanics and strength of materials	E	60	30	30	0	0	5											30	30			5																					
Total **P** – Basic content				**465**	**225**	**120**	**120**	**0**	**41**	**90**	**30**	**60**	**0**	**16**	**60**	**30**	**30**	**0**	**11**	**75**	**60**	**30**	**0**	**14**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

General courses - specialty **MEDICAL INFORMATICS**											I year									II year									III year									IV year				
											sem.1					sem.2					sem.3					sem.4					sem.5					sem.6					sem.7				
											15 weeks					15 weeks					15 weeks					15 weeks					15 weeks					15 weeks					15 weeks				
No.		Module name	E/C	Total	Incl.				ECTS	Lectures	Class ex.	laborat.	semin.	ECTS	Lectures	Class ex.	laborat.	semin.	ECTS	Lectures.	Class ex.	laborat.	semin.	ECTS	Lectures	Class ex.	laborat.	semin.	ECTS	Lectures	Class ex.	laborat.	semin.	ECTS	Lectures	Class ex.	laborat.	semin.	ECTS	Lectures	Class ex.	laborat.	semin.	ECTS
					Lectures	Class ex.	laborat.	semin.																																			
Directional content of biomedical engineering	K	01 Anatomy and physiology	E	45	15	0	30	0	5	15		30		5																												
		02 Propaedeutics of medical sciences	C	15	15	0	0	0	1						15				1																								
		03 Biochemistry	C	30	0	0	30	0	3								30		3																								
		04 Biophysics	C	30	0	0	30	0	2								30		2																								
		05 Metrology	C	30	15	0	15	0	3						15		15		3																								
		06 Sensors and measuring non-electrical quantities	C	30	15	0	15	0	2						15		15		2																								
		07 Biomaterials	E	45	15	0	30	0	4											15		30		4																		
		08 Computer-aided engineering design	C	45	15	0	30	0	3											15		30		3																		
		09 Implants and artificials organs	E	45	15	0	30	0	3																15		30		3													
		10 Medical imaging techniques	E	45	15	0	30	0	4																15		30		4													
		11 Automation and robotics	E	45	15	0	30	0	3																15		30		3													
		12 Digital signal processing	E	30	0	0	30	0	3																		30		3													
		13 Medical electronic equipment	C	45	15	0	30	0	3																15		30		3													
		14 Biomechanics engineering	C	30	0	30	0	0	3																	30			3													
Total **K** - directional content of biomedical engineering				**510**	**150**	**30**	**330**	**0**	**42**	**15**	**0**	**30**	**0**	**5**	**45**	**0**	**90**	**0**	**11**	**30**	**0**	**60**	**0**	**7**	**60**	**30**	**150**	**0**	**19**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

General courses - specialty **MEDICAL INFORMATICS**										I year										II year										III year										IV year				
										sem.1					sem.2					sem.3					sem.4					sem.5					sem.6					sem.7				
										15 weeks					15 weeks					15 weeks					15 weeks					15 weeks					15 weeks					15 weeks				
No.		Module name	E/C	Total	Incl.				ECTS	Lectures	Class ex.	laborat.	semin.	ECTS	Lectures	Class ex.	laborat.	semin.	ECTS	Lectures	Class ex.	laborat.	semin.	ECTS	Lectures	Class ex.	laborat.	semin.	ECTS	Lectures	Class ex.	laborat.	semin.	ECTS	Lectures	Class ex.	laborat.	semin.	ECTS	Lectures	Class ex.	laborat.	semin.	ECTS
					Lectures	Class ex.	laborat.	semin.																																				
I - specialization content in Computer Science	01	Information technology	C	30	0	30	0	0	1		30			1																													
	02	Programming languages	E	45	15	0	30	0	4	15		30		4																													
	03	Computer graphics	E	30	15	0	15	0	2						15		15		2																									
	04	Algorithms and complexity	E	45	15	0	30	0	3						15		30		3																									
	05	Architecture of computer systems	C	45	15	0	30	0	4											15		30		4																			
	06	Operating systems	C	45	15	0	30	0	3											15		30		3																			
	07	Data bases	C	45	15	0	30	0	3																15		30		3													
	08	Software engineering	E	45	15	0	30	0	4																15		30		4													
	09	Artificial intelligence	E	45	15	0	30	0	3																					15		30		3								
	10	Embedded systems	E	45	15	0	30	0	4																					15		30		4								
	11	Network technologies	C	30	0	0	30	0	3																							30		3								
Total **I** - specialization content in Computer Science				**450**	**135**	**30**	**285**	**0**	**34**	**15**	**30**	**30**	**0**	**5**	**30**	**0**	**45**	**0**	**5**	**30**	**0**	**60**	**0**	**7**	**30**	**0**	**60**	**0**	**7**	**30**	**0**	**90**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

General courses - specialty **MEDICAL INFORMATICS**											I year										II year										III year										IV year				
											sem.1					sem.2					sem.3					sem.4					sem.5					sem.6					sem.7				
											15 weeks					15 weeks					15 weeks					15 weeks					15 weeks					15 weeks					15 weeks				
No.		Module name	E/C	Total	Incl.				ECTS	Lectures	Class ex.	laborat.	semin.	ECTS	Lectures	Class ex.	laborat.	semin.	ECTS	Lectures	Class ex.	laborat.	semin.	ECTS	Lectures	Class ex.	laborat.	semin.	ECTS	Lectures	Class ex.	laborat.	semin.	ECTS	Lectures	Class ex.	laborat.	semin.	ECTS	Lectures	Class ex.	laborat.	semin.	ECTS
					Lectures	Class ex.	laborat.	semin.																																					
Additional content **U**	01	English language I	C	30	0	30	0	0	2		30			2																														
	02	English language II	C	30	0	30	0	0	2							30			2																									
	03	English language III	C	30	0	30	0	0	2												30			2																				
	04	English language IV	E	30	0	30	0	0	2																	30			2															
	05	Physical exercises I	C	30	0	30	0	0	1		30			1																														
	06	Physical exercises II	C	30	0	30	0	0	1							30			1																									
	07	Safety and ergonomics	C	15	15	0	0	0	1	15				1																														
	08	Legal and ethical aspects of biomedical engineering	C	30	15	15	0	0	2																15	15			2															
	09	Innovation management	C	30	0	30	0	0	2																						30			2										
	10	Protection of intelectual proporty	E	45	15	30	0	0	2																										15	30			2						
	11	Fundamentals of business and economics in business	C	30	0	30	0	0	2																															30			2	
	12	Practical training after 4 semester min. 120 hours	C	0	0	0	0	0	4																																		4	
Total **U** – additional content				**330**	**45**	**285**	**0**	**0**	**23**	**15**	**60**	**0**	**0**	**4**	**0**	**60**	**0**	**0**	**3**	**0**	**30**	**0**	**0**	**2**	**15**	**45**	**0**	**0**	**4**	**0**	**30**	**0**	**0**	**2**	**15**	**30**	**0**	**0**	**2**	**0**	**30**	**0**	**0**	**6**