

FACULTY: Faculty of Physics

COURSE: Physics

scientific discipline: Physics

level of education: first degree study

specialization: Medical physics

effective from the academic year: 2019/2020

educational profile: General academic

form of study: Full-time, stationary

item	MODULE NAME/COURSE NAME	USOS course code	ECTS	Exam after the sem.	Credit after the sem.	Number of classes								I year			II year			III year																				
						TOTAL	LECTURES	EXERCISES	COLLOQUIUM SEMINAR	LABS	LANGUAGE COURSES	SEMINARS/PROSEMINARS	FIELD TRIPS	1 sem.		2 sem.		3 sem.		4 sem.		5 sem.		6 sem.																
														LECTURES	EX/CS/L/LC/S&P/FT	ECTS	LECTURES	EX/CS/L/LC/S&P/FT	ECTS	LECTURES	EX/CS/L/LC/S&P/FT	ECTS	LECTURES	EX/CS/L/LC/S&P/FT	ECTS	LECTURES	EX/CS/L/LC/S&P/FT	ECTS	LECTURES	EX/CS/L/LC/S&P/FT	ECTS									
MODULE 1 (Foundation of physics)																																								
1	Introduction to physics		9	1	1	105	45		45	15				45	60	9																								
2	Classical Mechanics		8	2	2	90	30		30	30							30	60	8																					
3	Analysis of Experimental Uncertainty		2		2	30	15			15							15	15	2																					
4	Electricity and magnetism with optics		8	3	3	90	30		30	30											30	60	8																	
5	Thermodynamics		8	3	3	90	30		30	30											30	60	8																	
6	Astronomy		2		4	30	15			15														15	15	2														
7	Structure of matter		6	5	5	68	30		30	8																	30	38	6											
TOTAL			43			503	195		165	143				45	60	9	45	75	10	60	120	16	15	15	2	30	38	6												
MODULE 2 (Mathematical tools)																																								
1	Introduction to mathematics		6	1	1	75	30		45					30	45	6																								
2	Differential and integral calculus I		5	1	1	60	30		30					30	30	5																								
3	Differential and integral calculus II		6	2	2	75	30		45								30	45	6																					
4	Algebra with geometry		6	2	2	75	30		45								30	45	6																					
5	Statistical data analysis		5	3	3	75	30			45										30	45	5																		
TOTAL			28			360	150		165	45				60	75	11	60	90	12	30	45	5																		
MODULE 3 (Chosen problems of theoretical physics)																																								
1	Elements of classical electrodynamics		6	4	4	60	30		30														30	30	6															
2	Elements of quantum mechanics		6	5	5	60	30		30																	30	30	6												
TOTAL			12			120	60		60														30	30	6	30	30	6												
MODULE 4 (Tools of computer science)																																								
1	Computer tools		3		1	45	15			30				15	30	3																								
2	Programming I		5		2	60	15			45							15	45	5																					
3	Computer-aided computations		3		3	30				30											30	3																		
4	Programming II		5		4	60	15			45													15	45	5															
5	Algorithms and data structures		5		5	60	15			45																15	45	5												
6	Numerical methods		5	5	5	60	15			45																15	45	5												
TOTAL			26			315	75			240				15	30	3	15	45	5		30	3	15	45	5	30	90	10												
MODULE 5 (Application of physics in medicine and technology)																																								
1	Electronics		5		4	75	30			45													30	45	5															
2	Physics in medicine I		2		5	30	30																			30		2												
3	Physics in medicine II		2		6	30	30																							30										
4	Equipment of medical diagnostics and therapy		3		6	45	15			30																				15	30	3								
TOTAL			12			180	105			75													30	45	5	30		2	45	30	5									
MODULE 6 (Practical and specialist education)																																								

item	MODULE NAME/COURSE NAME	USOS course code	ECTS	Exam after the sem.	Credit after the sem.	TOTAL	number of classes										1 sem.			2 sem.			3 sem.			4 sem.			5 sem.			6 sem.					
							LECTURES	EXERCISES	COLLOQUIUM SEMINAR	LABS	LANGUAGE COURSES	SEMINARS/PROSEMINARS	FIELD TRIPS	LECTURES	EX/CS/L/LC/S&P/FT	ECTS	LECTURES	EX/CS/L/LC/S&P/FT	ECTS	LECTURES	EX/CS/L/LC/S&P/FT	ECTS	LECTURES	EX/CS/L/LC/S&P/FT	ECTS	LECTURES	EX/CS/L/LC/S&P/FT	ECTS	LECTURES	EX/CS/L/LC/S&P/FT	ECTS						
1	Elements of chemistry		3	1	1	45	30			15						30	15	3																			
2	Cell physiology and histology		3	3	3	45	30			15																											
3	Human anatomy and physiology		3	4	4	45	30			15														30	15	3											
4	Introduction to biophysics		4	4	4	60	30				30													30	30	4											
5	Radionuclids in medicine		3		5	45	15			15	15																15	30	3								
6	Image diagnostics		2		5	45	30				15																	30	15	2							
7	Elements of histopatology		2		5	30	20			10																		20	10	2							
8	Radiation hygiene		2		4	30	15			15														15	15	2											
TOTAL			22			345	200		70	75						30	15	3					30	15	3	75	60	9	65	55	7						

MODULE 7 (General education)

1	Foreign language course		6	2	1,2	120					120					60	3		60	3																	
2	Physical exercises		0		2,4	60		60											30	0			30	0													
3	Ethic and law in medicine		1		3	15	15														15		1														
4	Quality management		1		4	15	15																15		1												
5	Basics of entrepreneurship		2		6	30	15			15																							15	15	2		
6	History of physics		3		6	30				30																								30	3		
7	Legal aspects of scientific and professional activity		1		6	15	15																										15		1		
TOTAL			14			285	60	60	45		120					60	3		90	3	15		1	15	30	1						30	45	6			

MODULE 8 (Recapitulation of learning)

1	Elements of contemporary physics		3		4	30				30														30	3											
2	Diploma seminar		16		6	40					40																						40	16		
TOTAL			19			70				30		40												30	3							40	16			

MODULE 9 (Practical Training)

1	Practical Training		4		4	120																		120	4											
TOTAL			4			120																		120	4											

MODULE 10 (Elective)

1	Monographic lecture		<i>a</i>																																	
2	Lecture on the other Faculty		<i>b</i>																																	
TOTAL																																				

TOTAL			180			2298	965	60	505	608	120	40			150	240	29	120	300	30	135	210	28	180	375	35	185	213	31	75	115	27		
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Average number of lesson hours per week

a Number of the ECTS credits, realisation time, type (lecture, exercise, etc) depend on the offer of the Faculty. Min. ECTS = 3.

b Number of the ECTS credits is determined by the other Faculty. Min. ECTS = 1.

number ex./cr.

10	16		8	20		9	14		12	25		12	14		5	8	
26			28			23			37			27			13		
4	6		4	6		4	6		3	10		3	8		6		

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(Dean's signature and stamp)