CIT Department's Curriculum for the 2020-2021 Academic Year -- Bachelor`s Degree 122 "Computer Science in Medicine" (4 year)

No. of discipline	DISCIPLINE TITLE	Exams	Tests	Coursework	Course project	ECTS credits	Total amount	Total	Lectures	Lab. work	Practical training	Independent	1 (15)	2 (18)	3 (15)	4 (18)	5 (15)	6 (18)	7 (15)	8 (13)	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
	1 MANDATORY EDUCATIONAL DISCIPLINES																				
	1.1 Disciplines of general training																				
1.1.1	Introduction to the educational process		1			2,0	60	30	15		15	30	2								
1.1.2	History of Ukraine	1				4,0	120	45	30		15	75	3								
1.1.3	History of Ukrainian culture (2a)		2			3,0	90	30	20		10	60		1,5							
1.1.4	Fundamentals of descriptive geometry and engineering graphics		1			3,0	90	45	15		30	45	3								
1.1.5	Foreign language (for professional purposes)					6,0	180	66			66	114									
	Foreign language (for professional purposes)		1			3,0	90	30			30	60	2								
	Foreign language (for professional purposes)		2			3,0	90	36			36	54		2							
1.1.6	Algorithmization and programming, medical data processing	1				4,0	120	75	30	45		45	5								
1.1.7	Object-oriented programming	2				4,0	120	72	36	36		48		4							
1.1.8	Higher mathematics					15,0	450	231	99		132	219									
	Higher mathematics	1				7,0	210	105	45		60	105	7								
	Higher mathematics	2				8,0	240	126	54		72	114		7							
1.1.9	Discrete mathematics	1				3,5	105	60	30	30		45	4								
1.1.10	Fundamentals of labor protection and life safety	6				4,0	120	54	36	9	9	66						3			
1.1.11	Entrepreneurship and enterprise economics		7			3,0	90	45	30		15	45							3		
1.1.12	Probability theory, probabilistic processes and mathematical statistics	3				4,0	120	45	30		15	75			3						
1.1.13	Ukrainian language (for professional purposes)	2				3,0	90	27			27	63		1,5							
1.1.14	Physics					11,5	345	165	99	33	33	180									
	Physics	2				6,0	180	90	54	18	18	90		5							
	Physics (section of biophysics)	3				5,5	165	75	45	15	15	90			5						
1.1.15	Philosophy* (4b)	4				4,0	120	45	27		18	75				2,5					
	Total p.1.1.:					74	2220	1035	497	153	385	1185	26,0	21,0	8,0	2,5	0,0	3,0	3,0	0,0	0,0
	1.2 Disciplines of professional training																				
1.2.1	Electronics and computer circuitry		2			3,5	105	72	36	36		33		4							
1.2.2	Numerical methods		3			3,0	90	45	30	15		45			3						
1.2.3	Theory of algorithms and graphs	3				6	180	90	45	45		90			6						
	Theory of algorithms and graphs (Coursework)			4		1	30	18			18	12				1					
1.2.4	Operating systems and system programming	4				5,5	165	108	54	54		57				6					
1.2.5	Computer networks and WEB technologies	4				7,0	210	144	72	72		66				8					
1.2.6	Geometric modeling and computer graphics	5				3,5	105	60	30	30		45					4				
1.2.7	Components of modern computer systems, medical systems		5			3,0	90	45	30	15		45					3				
1.2.8	System analysis	5				4,0	120	60	30	30		60					4				
1.2.9	Organization of databases and knowledge bases	5				6,0	180	105	45	60		75					7				
	Organization of databases and knowledge of medical purposes (Coursework)				6	1,0	30	18			18	12						1			
1.2.10	Artificial intelligence systems and data mining		6			6,0	180	90	36	54		90						7			
1.2.11	Mathematical methods of operations research	6				8,0	240	144	72	72		96						8			
	Mathematical methods of operations research (for medical applications) (Coursework)				7	1,0	30	15			15	15							1		

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
1.2.12	Technology of software products development	7				5,0	150	120	60	60		30							8		
	Technology of software products development (for medical purposes) (Coursework)				8	1,0	30	18			18	12									1
1.2.13	Technologies of distributed systems and parallel computing	8				4,0	120	72	36	36		48								4	
1.2.14	Computer-aided design and calculation of structures	7				3,0	90	45	30	15		45								3	
1.2.15	Systems modeling	7				4,5	135	75	45	30		60								5	
1.2.16	Design and project management of information systems	8				3,0	90	72	36	36		18								4	
1.2.17	Cross-platform programming and information security, protection of medical information	8				3,0	90	72	36	36		18								4	
	Total p.1.2:					**82**	**2460**	**1488**	**723**	**696**	**69**	**972**	**0**	**4**	**9**	**15**	**18**	**16**	**16**	**14**	**0**
	1.3 Practical training																				
1.3.1	Computer practice		2			3,0	90														
1.3.2	Industrial practice		4			4,5	135														
1.3.3	Industrial practice		6			4,5	135														
1.3.4	Pre-diploma practice		8			4,5	135														
	Total p.1.3:					**16,5**	**495**														
	1.4 State attestation																				
1.4.1	Bachelor's thesis	8				7,5															
	Total pp.1.2…1.3:					**24,0**	**720**						**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Total for the regulatory disciplines					**180**	**5400**	**2523**	**1220**	**849**	**454**	**2157**	**26**	**25**	**17**	**18**	**18**	**19**	**19**	**14**	**0**
	2. SELECTIVE DISCIPLINES																				
	2.1 Disciplines of general training																				
Discipline of the semester #3 - 1			3			4,0	120	45	30		15	75			3						
Discipline of the semester #3 - 2			3			3,0	90	30	20		10	60			2						
Discipline of the semester #4			4			3,0	90	36	18		18	54				2					
Discipline of the semester #5			5			3,0	90	30	20		10	60					2				
Discipline of the semester #6			6			3,0	90	36	18		18	54						2			
Discipline of the semester #7			7			3,0	90	30	20		10	60							2		
Discipline of the semester #8			8			3,0	90	26	13		13	64								2	
	Total p.2.1:					**22,0**	**660**	**233**	**139**	**0**	**94**	**427**	**0**	**0**	**5**	**2**	**2**	**2**	**2**	**2**	**0**
2.1.1	Fundamentals of biomedical engineering		3			4,0	120	45	30		15	75			3						
2.1.2	Technical mechanics		3			4,0	120	45	30		15	75			3						
2.1.3	Biomechanics		3			4,0	120	45	30		15	75			3						
2.1.4	Disciplines from other DSEA educational programs		3			4,0	120	45	30		15	75			3						
2.1.5	Human anatomy and physiology		3			3,0	90	30	20		10	60			2						
2.1.6	Jurisprudence		3			3,0	90	30	20		10	60			2						
2.1.7	Psychology		3			3,0	90	30	20		10	60			2						
2.1.8	Disciplines from other DSEA educational programs		3			3,0	90	30	20		10	60			2						
2.1.9	Fundamentals of medical terminology (Foreign language for professional purposes)		4			3,0	90	36	18		18	54				2					
2.1.10	Chemistry		4			3,0	90	36	18		18	54				2					
2.1.11	Heroic personalities of Ukraine		4			3,0	90	36	18		18	54				2					
2.1.12	Religious studies		4			3,0	90	36	18		18	54				2					
2.1.13	Ethics and aesthetics		4			3,0	90	36	18		18	54				2					
2.1.14	Disciplines from other DSEA educational programs		4			3,0	90	36	18		18	54				2					
2.1.15	Foreign language (for professional purposes)		5			3,0	90	30	20		10	60					2				
2.1.16	Ecology		5			3,0	90	30	20		10	60					2				
2.1.17	History of science and technology		5			3,0	90	30	20		10	60					2				
2.1.18	Economic and employment law		5			3,0	90	30	20		10	60					2				
2.1.19	Technologies of mental self-regulation and interaction		5			3,0	90	30	20		10	60					2				

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
2.1.20	Foundations of economic theory		5			3,0	90	30	20		10	60					2				
2.1.21	Disciplines from other DSEA educational programs		5			3,0	90	30	20		10	60					2				
2.1.22	Biomedical ethics		6			3,0	90	36	18		18	54						2			
2.1.23	Sociology		6			3,0	90	36	18		18	54						2			
2.1.24	Information wars		6			3,0	90	36	18		18	54						2			
2.1.25	Business rhetoric		6			3,0	90	36	18		18	54						2			
2.1.26	Disciplines from other DSEA educational programs		6			3,0	90	36	18		18	54						2			
2.1.27	Foreign language (for professional purposes)		7			3,0	90	30	15		15	60							2		
2.1.28	Politology		7			3,0	90	30	15		15	60							2		
2.1.29	Disciplines from other DSEA educational programs		7			3,0	90	30	15		15	60							2		
2.1.30	Foreign language (for professional purposes)		8			3,0	90	30	18		18	60								2	
2.1.31	Professional ethics		8			3,0	90	30	18		18	60								2	
2.1.32	Disciplines from other DSEA educational programs		8			3,0	90	30	18		18	60								2	
2.2 Disciplines of professional training																					
Discipline of the semester #3			3			4,5	135	60	30	30		75			4						
Discipline of the semester #4			5			5,0	150	72	36	36		78				4					
Discipline of the semester #5			6			7,0	210	60	30	30		150					4				
Discipline of the semester #6			7			7,0	210	90	36	54		120							5		
Discipline of the semester #7			7			7,0	210	75	45	30		135							5		
Discipline of the semester #8			8			7,5	225	144	72	72		81								8	
Total p.2.2:						**38,0**	**1140,0**	**501,0**	**249,0**	**252,0**	**0,0**	**639,0**	**0,0**	**0,0**	**4,0**	**4,0**	**4,0**	**5,0**	**5,0**	**8,0**	**0,0**
2.2.1	Principles of interface construction for mobile systems		3			4,5	135	60	30	30		75			4						
2.2.2	Object-oriented applications for mobile systems		3			4,5	135	60	30	30		75			4						
2.2.3	Digital processing of biomedical signals		3			4,5	135	60	30	30		75			4						
2.2.4	Disciplines from other DSEA educational programs		3			4,5	135	60	30	30		75			4						
2.2.5	Probabilistic processes and mathematical statistics in automated systems		4			5,0	150	72	36	36		78				4					
2.2.6	Automated research systems		4			5,0	150	72	36	36		78				4					
2.2.7	Methods of mathematical processing of medical biological data		4			5,0	150	72	36	36		78				4					
2.2.8	Disciplines from other DSEA educational programs		4			5,0	150	72	36	36		78				4					
2.2.9	WEB-design and programming		5			7,0	210	60	30	30		150					4				
2.2.10	Development of web-oriented application systems		5			7,0	210	60	30	30		150					4				
2.2.11	WEB-oriented medical systems		5			7,0	210	60	30	30		150					4				
2.2.12	Disciplines from other DSEA educational programs		5			7,0	210	60	30	30		150					4				
2.2.13	Computer-aided design technologies		6			7,0	210	90	36	54		120							5		
2.2.14	Components of robotic systems		6			7,0	210	90	36	54		120							5		
2.2.15	Designing and manufacturing of medical products		6			7,0	210	90	36	54		120							5		
2.2.16	Disciplines from other DSEA educational programs		6			7,0	210	90	36	54		120							5		
2.2.17	Basics of the scientific research		7			7,0	210	75	45	30		135							5		
2.2.18	Fundamentals of engineering creativity		7			7,0	210	75	45	30		135							5		
2.2.19	IT in medicine		7			7,0	210	75	45	30		135							5		
2.2.20	Disciplines from other DSEA educational programs		7			7,0	210	75	45	30		135							5		
2.2.21	Hardware Internet of Things		8			7,5	225	144	72	72		81								8	
2.2.22	Internet of Things Technologies		8			7,5	225	144	72	72		81								8	
2.2.23	Technologies for receiving and transmitting medical data		8			7,5	225	144	72	72		81								8	
2.2.24	Disciplines from other DSEA educational programs		8			7,5	225	144	72	72		81								8	
Total for the selective disciplines						**60,0**	**1800**	**734**	**388**	**252**	**94**	**1066**	**0**	**0**	**9**	**6**	**6**	**7**	**7**	**10**	**0**
Total																					
Total amount:						**240,0**	**7200**	**3257**	**1608**	**1101**	**548**	**3223**	**26**	**25**	**26**	**24**	**24**	**26**	**26**	**24**	**0**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	

Course		1 course		2 course		3 course		4 course		
Number of hours per week		**26**	**25**	**26**	**24**	**24**	**26**	**26**	**24**	**0**
Number of exams		4	4	3	3	3	3	3	3	
Number of tests		3	4	4	3	3	3	3	3	
Number of course projects and courseworks					1		1	1	1	D
No. of semester		1	2	3	4	5	6	7	8	
		60,0		**60,0**		**60,0**		**60,0**		

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
1	Physical education					13,5	405	264	4		260	141									
1.1	Physical education		1, 2b d*			6,5	195	132	4		128	63	4	4	4						
1.2	Physical education		3, 4b d*			7,0	210	132			132	78				4	4	4			
1.3	Physical education		5f*, 6f*, 7f*				section sessions												s	s	s

* Note: S - sectional classes; f - optional

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
2	Ukrainian as a foreign language (for foreign citizens and stateless persons)					13,5	540	294			294	246									
2.1	Ukrainian as a foreign language	2	1			6,0	180	99			99	81	3	3	3						
2.2	Ukrainian as a foreign language	4	3			6,0	180	99			99	81				3	3	3			
2.3	Ukrainian as a foreign language	6	5			4,0	120	66			66	54							2	2	2
2.4	Ukrainian as a foreign language	7				2,0	60	30			30	30									

Guarantor of the educational program   _____ P. Sahaida

Head of CIT dept.   _____ O. Tarasov

FAMIT's Dean   _____ S. Podlesnij