

Документ подписан простой электронной подписью
 Информация о владельце:
 ФИО: Ливанов Дмитрий Викторович
 Должность: Ректор
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Ministry of Science and Higher Education of the Russian Federation
 The Federal State Autonomous Educational Institution of Higher Education
 "Moscow Institute of Physics and Technology (National Research University)"

Qualification Master

Year of enrollment 2024

Statutory duration of a study course 2 years

ACADEMIC PLAN

APPROVED

Vice Rector for Academic Affairs

Domain of study: 01.04.02 - Applied Mathematics and Informatics
Orientation (specialty): Contemporary Combinatorics/Современная комбинаторика
 "Pusk" Online and Supplementary Education Centre
 Chair of Discrete Mathematics

AGREED

Директор по цифровизации образования

L.S.

A. A. Voronov

D. I. Grits

Specialty: Contemporary Combinatorics/Современная комбинаторика

№ in order	Name of disciplines, practices, State Final Examination	Form of final control by semesters			Hours									Coursework and test papers	hours in week				TOTAL HOURS	Credit points		
		Examinations	Graded test ("_" - simple)	State Examination	Laboratory classes	of them						Hours for preparation and examinations	Distribution by courses and semesters				Total	Basic		Elective		
						Total classroom sessions	Lectons	Laboratory classes	Practical lessons, seminars, exercises, etc.	Practice	Independent study		1 course		2 course							
													1 sem. 15 weeks		2 sem. 15 weeks	3 sem. 15 weeks					4 sem. 15 weeks	
																						lect.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
M.1	Courses (Modules)/Дисциплины (модули)				1 785	990	450		540		795	240	8					2 025	45	9	36	
M.1.1	Foreign Languages/Иностранные языки				180	120			120		60		4					180	4	4		
				-1	90	60			60		30		2		4			90	2	2		
			2		90	60			60		30		2			4		90	2	2		
	Humanitarian and Social Cycle/Гуманитарный и социальный цикл				165	60	60				105	60	4					225	5	5		
M.1.2	(N)ever the Same Phystech: History and Culture of MIPT from Ancient Times to the Present Day/(Не) тот Физтех: история и культура МФТИ с незапамятных времен до наших дней	1			60	30	30				30	30	2	2				90	2	2		
M.1.3	Digital Transformation: Social and Economic Challenges/Цифровая трансформация: социальные и экономические вызовы	2			105	30	30				75	30	2		2			135	3	3		
	Core science/Профильные дисциплины				1 395	795	390		405		600	180						1 575	35	35		
M.1.B.1	Theory of Probability/Теория вероятностей			1	90	60	30		30		30			2	2			90	2	2		
M.1.B.2	Introduction to Combinatorics/Введение в комбинаторику	1			105	60	30		30		45	30		2	2			135	3	3		
M.1.B.3	Linear Algebra/Линейная алгебра			1	90	60	30		30		30			2	2			90	2	2		
M.1.B.4	Introduction to Graph Theory/Введение в теорию графов			1	90	60	30		30		30			2	2			90	2	2		
M.1.B.5	Fundamentals of Python Programming/Основы программирования на Python	1			105	60	30		30		45	30		2	2			135	3	3		
	Elective Set of Courses 1/Блок дисциплин по выбору 1				135	90	45		45		45							135	3	3		
M.1.B.6	Random Graphs. Part 1/Случайные графы. Часть 1			2	135	90	45		45		45				3	3		135	3	3		
M.1.B.7	Applied Mathematical Modeling/Прикладное математическое моделирование			2	135	90					45							135	3	3		
M.1.B.8	Machine Learning with Graphs/Машинное обучение на графах			2	135	90					45							135	3	3		
	Elective Set of Courses 2/Блок дисциплин по выбору 2				105	60	30		30		45	30						135	3	3		
M.1.B.9	Advanced Graph Theory/Современная теория графов	2			105	60	30		30		45	30			2	2		135	3	3		
M.1.B.10	Game Theory/Теория игр	2			105	60					45	30						135	3	3		
	Elective Set of Courses 3/Блок дисциплин по выбору 3				90	45	15		30		45							90	2	2		
M.1.B.11	Computability and Complexity/Вычислимость и вычислительная сложность			2	90	45	15		30		45				1	2		90	2	2		
M.1.B.12	Software Development and Data Engineering/Разработка ПО и системы хранения данных			2	90	45					45							90	2	2		

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		1		2		3		4				1		2		3				4		1 course				2 course														
		1		2		3		4		1		2		3		4		1 sem. 15 weeks		2 sem. 15 weeks		3 sem. 15 weeks		4 sem. 15 weeks		19		20		21		22								
		lect.	lab.	sem	lect.	lab.	sem	lect.	lab.	sem	lect.	lab.	sem	lect.	lab.	sem	lect.	lab.	sem	lect.	lab.	sem	lect.	lab.	sem	lect.	lab.	sem	lect.	lab.	sem	lect.	lab.	sem						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22																			
M.1.B.13	Machine Learning/Машинное обучение				2				90	45	15			30				90	2		2																			
M.1.B.14	Applied Statistics/Прикладная статистика				2				45	15	15							45	1		1																			
	Elective Set of Courses 4/Блок дисциплин по выбору 4								150	75	45			30				180	4		4																			
M.1.B.15	Random Graphs. Part 2/Случайные графы. Часть 2		3						150	75	45			30				180	4		4																			
M.1.B.16	Computer Vision/Компьютерное зрение		3						150	75								180	4		4																			
	Elective Set of Courses 5/Блок дисциплин по выбору 5								105	60	30			30				135	3		3																			
M.1.B.17	Additive Combinatorics/Аддитивная комбинаторика		3						105	60	30			30				135	3		3																			
M.1.B.18	Natural Language Processing/Обработка естественного языка		3						105	60								135	3		3																			
	Elective Set of Courses 6/Блок дисциплин по выбору 6								90	45	15			30				90	2		2																			
M.1.B.19	Complex Networks/Сложные сети						3		90	45	15			30				90	2		2																			
M.1.B.20	Algorithmic Game Theory/Алгоритмическая теория игр						3		90	45								90	2		2																			
M.1.B.21	Reinforcement Learning/Обучение с подкреплением						3		90	45								90	2		2																			
M.1.B.22	Applied Discrete Optimization/Прикладная дискретная оптимизация		3						105	60	30			30				135	3		3																			
M.1.B.23	Scientific Workshop: Modern Topics in Applied Mathematics and Computer Science/Научный семинар: Современные проблемы прикладной математики и информатики					1			45	15				15				45	1		1																			
M.2	Practice/Практика								3 030					3 030				3 060	68	56	12																			
M.2.1	Educational Practice/Учебная практика								540					540				540	12		12																			
M.2.1.B.1	Introductory Practical Training/Ознакомительная практика					-1			540					540				540	12		12																			
M.2.2	Industrial Practice/Производственная практика								2 490					2 490				2 520	56	56																				
M.2.2.1	Personal Research Project/Научно-исследовательская работа								2 490					2 490				2 520	56	56																				
						2			675					675				675	15	15																				
			3						690					690				720	16	16																				
								4	1 125					1 125				1 125	25	25																				
M.3	State Final Certification/Государственная итоговая аттестация								285					285				315	7	7																				
M.3.1	Performance of and Defence of Graduation Thesis/Выполнение и защита выпускной квалификационной работы				4			4	285					285				315	7	7																				
TOTAL:		Number of examinations and pass/fail tests				Distribution of hours by type of lesson								Distribution of classroom hours per week by semester				Total hours	Total number of credits																					
		Examinations		Pass/Fail tests		Obl.		ECs.																																
		3	2	4	6	6	1	1	5	100	990	450	3	540	3 030	1 080	300	8	27	23	16	5 400	120	72	48															
		State Final Examination																																						
					Distribution of hours of contact work by years and semesters												Total hours																							
					853				323								1 176																							
					450		403		289		34																													
					Distribution of credits by years and semesters																																			
					60				60																															
	29		31		28		32																																	

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		Examinations				Graded test (" - simple)			Laboratory classes	of them						Hours for preparation and examinations	Distribution by courses and semesters								TOTAL HOURS	Total	Basic	Elective		
										Total classroom sessions	Lectons	Laboratory classes	Practical lessons, seminars, exercises, etc.	Practice			Independent study	1 course				2 course								
																		1 sem. 15 weeks		2 sem. 15 weeks		3 sem. 15 weeks							4 sem. 15 weeks	
		1	2	3	4	1	2	3										4	State Examination	6	7	8	9						10	11
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22									

Acting Head of Academic Management
Office

T. F. Artemenko