

Документ подписан простой электронной подписью
Информация о владельце:
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Должность: Ректор
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A. A. Voronov

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)"

ACADEMIC PLAN

Qualification Master

Year of enrollment 2024

Statutory duration of a study course 2 years

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
Director for Digital Education
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															
		Examination	Graded test ("-" - simple)				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																	
																1	2	3	4	1	2	3					4	State Examination	Laboratory classes	Total classroom sessions	Lectons	Laboratory classes	Practical lessons, seminars, exercises, etc.	Practice	Independent study	Hours for preparation and examinations	Coursework and test papers	1 course	
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			
														90	60				60			30		2			4								90	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/(He) тот Физтех: история и культура МФТИ с незапамятных времен до	1												60	30	30						30	30	2	2										90	2	2		
M.1.3	Everyday Economic Philosophy: A Simple View on (Un)Complicated Issues/Экономическая философия на каждый день: просто о (не)сложном		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	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					2								90	45							45														90	2		2
M.1.B.13	Machine Learning/Машинное обучение					2								90	45	15			30			45						1		2						90	2		2
M.1.B.14	Applied Statistics/Прикладная статистика					2								45	15	15						30						1								45	1		

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		Examination						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																																														
		1	2	3	4	1	2	3	4	1	2	3	4	lect	lab							sem	lect	lab	sem		lect	n6	sem	lect	lab	sem	19	20	21	22																		
1	2	3				4						5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22																									
	Elective Set of Courses 4/Блок дисциплин по выбору 4												150	75	45		30		75	30							180	4		4																								
M.1.B.15	Random Graphs. Part 2/Случайные графы. Часть 2			3									150	75	45		30		75	30				3	2			180	4		4																							
M.1.B.16	Computer Vision/Компьютерное зрение			3									150	75					75	30							180	4		4																								
	Elective Set of Courses 5/Блок дисциплин по выбору 5												105	60	30		30		45	30							135	3		3																								
M.1.B.17	Additive Combinatorics/Аддитивная комбинаторика			3									105	60	30		30		45	30				2	2			135	3		3																							
M.1.B.18	Natural Language Processing/Обработка естественного языка			3									105	60					45	30							135	3		3																								
	Elective Set of Courses 6/Блок дисциплин по выбору 6												90	45	15		30		45								90	2		2																								
M.1.B.19	Complex Networks/Сложные сети							3					90	45	15		30		45				1	2			90	2		2																								
M.1.B.20	Algorithmic Game Theory/Алгоритмическая теория игр							3					90	45					45								90	2		2																								
M.1.B.21	Reinforcement Learning/Обучение с подкреплением							3					90	45					45								90	2		2																								
M.1.B.22	Applied Discrete Optimization/Прикладная дискретная оптимизация			3									105	60	30		30		45	30				2	2			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		30								45	1		1																								
M.2	Practice/Практика												3 030					3 030		30							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		30							2 520	56	56																									
M.2.2.1	Personal Research Project/Научно-исследовательская работа												2 490					2 490		30							2 520	56	56																									
								2					675					675									675	15	15																									
				3									690					690		30							720	16	16																									
													1 125					1 125									1 125	25	25																									
M.3	State Final Certification/Государственная итоговая аттестация												285						285	30							315	7	7																									
M.3.1	Performance of and Defence of Graduation Thesis/Выполнение и защита выпускной квалификационной работы				4							4	285						285	30							315	7	7																									
TOTAL:		Number of examinations and pass/fail tests												Obl. ECs.	Distribution of hours by type of lesson												8	Distribution of classroom hours per week by semester												Total hours	Total number of credits													
	Examinations												Pass/Fail tests																																									
	Fixed (without State Final Examination)	3	2	4		6	6	1	1				5 100		990	450		540	3 030	1 080	300	27	23	16		5 400		120	72	48																								
	Extracurriculars																																																					
	State Final Examination				1																																																	
															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																																				

Head of Academic Management Office I. R. Garayshina