

Документ подписан простой электронной подписью
Информация о владельце:
ФИО: Ливанов Дмитрий Викторович
Должность: Ректор
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APPROVED

Vice Rector for Academic Affairs

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 2025

Statutory duration of a study course 2 years

AGREED

Director for Digital Education

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

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	h o u r s i n w e e k								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														
		1	2	3	4	1	2	3	4	State Examination	6	7	8										9	10	11	12	13	14	lect.					lab.	sem.	lect.	lab.	sem.	lect.	lab.	sem.	lect.	lab.
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	Search and Verification of Information for Research and its Expertise/Поиск и верификация научной информации	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							135	3		3							
M.1.B.3	Linear Algebra/Линейная алгебра					1								90	60	30			30			30		2	2	2							90	2	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							
M.1.B.13	Machine Learning/Машинное обучение					2								90	45	15			30			45					1	2					90	2									

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							of them						Hours for preparation and examinations	Distribution by courses and semesters								Total	Basic		Elective											
		Examinations				Graded test (" - " - simple)	State Examination	Laboratory classes	Total classroom sessions	Lectiоns	Laboratory classes	Practical lessons, seminars, exercises, etc.		Practice		Independent study	1 course				2 course															
		1	2	3	4												1	2	3	4	lect					lab.	sem	lect	lab.	sem	lect	lab.	sem	lect	lab.	sem
1	2	3	4	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.14	Applied Statistics/Прикладная статистика				2				45	15	15				30				1				45	1		1										
	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			1				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												
							4		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	1 176						
																	853				323															
																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