

Документ подписан простой электронной подписью
Информация о владельце:
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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)"

ACADEMIC PLAN

Qualification Master

Year of enrollment 2024

Statutory duration of a study course 2 years

APPROVED

Vice Rector for Academic Affairs

Domain of study: 12.04.03 - Photonics and Optical Informatics
Orientation (specialty): Photonics, Quantum Technologies & 2D
Materials/Фотоника, квантовые технологии и двумерные материалы
Landau Phystech-School of Physics & Research
Chair of the Russian Quantum Centre

AGREED

Head of Landau Phystech-School of Physics & Research

L.S.

A. A. Voronov

A. V. Rogachev

Specialty: Applied Quantum Technologies/Прикладные квантовые технологии

№ 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	Lectures	Laboratory classes	Practical lessons, seminars, exercises, etc.	Practice	Independent study		1 course		2 course								
		1	2	3	4	1	2	3	4	1	2	3	4		1 sem. 15 weeks	2 sem. 15 weeks	3 sem. 15 weeks	4 sem. 15 weeks		15	16	17	18
		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	Courses (Modules)/Дисциплины (модули)					900	405	240	30	135		495	180	8					1 080	24	9	15	
M.1.1	Foreign Languages/Иностранные языки					180	120			120		60		4					180	4	4		
						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/(He) 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					555	225	180	30	15		330	120						675	15		15	
M.1.B.1	Quantum Information Processing/Обработка квантовой информации	1				105	45	30		15		60	30	2	1				135	3		3	
M.1.B.2	Quantum Communications/Квантовая связь	1				60	30	30				30	30	2					90	2		2	
M.1.B.3	Solid-State Quantum Computing/Твердотельные квантовые вычисления	1				60	30	30				30	30	2					90	2		2	
M.1.B.4	Machine Learning for Quantum and Statistical Physics/Машинное обучение для квантовой и статистической физики			2		90	30	30				60				2			90	2		2	
M.1.B.5	Labs in Quantum Photonics and Cryptography/Лабораторный практикум по квантовой фотонике и криптографии			2		90	30		30			60				2			90	2		2	
M.1.B.6	Introduction to Quantum Metrology/Основы квантовой метрологии			2		90	30	30				60				2			90	2		2	
M.1.B.7	Physics of Quantum Fluids/Физика квантовых жидкостей	2				60	30	30				30	30			2			90	2		2	
M.2	Practice/Практика					4 020					4 020		30						4 050	90	90		
M.2.1	Industrial Practice/Производственная практика					4 020					4 020		30						4 050	90	90		
M.2.1.1	Personal Research Project/Научно-исследовательская работа					4 020					4 020		30						4 050	90	90		
				1		810					810								810	18	18		
				2		810					810								810	18	18		
				3		1 230					1 230		30						1 260	28	28		

№ in order	Name of disciplines, practices, State Final Examination	Form of final control by semesters												Hours											hours in week								Credit points				
		Examinations				Graded test ("-" - simple)				State Examination	Laboratory classes	of them						Hours for preparation and examinations	Coursework and test papers	Distribution by courses and semesters								TOTAL HOURS	Total	Basic	Elective						
		1		2		3		4				1		2		3				4		1 course				2 course											
		1		2		3		4		1		2		3		4		lect.		lab.		sem.		lect.		lab.		sem.		lect.		lab.		sem.			
		1		2		3		4		1		2		3		4		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						
											1 170						1 170												1 170	26	26						
M.3	State Final Certification/Государственная итоговая аттестация										240						240												270	6	6						
M.3.1	Performance of and Defence of Graduation Thesis/Выполнение и защита выпускной квалификационной работы				4						240						240												270	6	6						
Ф.1	Elective Subjects/Факультативы										705	315	120	60	135		390	60	2										765	17		17					
Ф.1.B.1	Military training/Военная подготовка	1	2					-2			435	225	90	60	75		210	60	2	3	2	2	3	2	3				495	11		11					
	Блок дисциплин цифровой кафедры (1 из списка)										270	90	30		60		180		2										270	6		6					
Ф.1.B.2	Продвинутые методы машинного обучения										270	90	30		60		180		2										270	6		6					
								-1			135	45	15		30		90		1	1		2						135	3		3						
Ф.1.B.3	Продуктовая аналитика							-2			135	45	15		30		90		1			1	2					135	3		3						
								-1			135	45					90		1									135	3		3						
Ф.1.B.4	Профессиональная разработка на Python							-2			135	45					90		1									135	3		3						
								-1			135	45					90		1									135	3		3						
Ф.1.B.5	Современные средства быстрой разработки							-2			135	45					90		1									135	3		3						
								-1			135	45					90		1									135	3		3						
								-2			135	45					90		1									135	3		3						
TOTAL:		Number of examinations and pass/fail tests								Obl.	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				5 160		405		240		30		135		4 020		735		240		8			13		14		5 400		120		105	15
	Fixed (without State Final Examination)								ECs.		705		315		120		60		135				390		60		2		10		11		765				
	State Final Examination				1																																
																		Distribution of hours of contact work by years and semesters								Total hours											
857								59								916																					
415				442				25				34																									
Distribution of credits by years and semesters																																					
60				60																																	
29		31		28		32																															

Acting Head of Academic Management Office

T. F. Artemenko