



National Research University Higher School of Economics (HSE)

Curriculum

Field of study 03.04.02 Physics

Educational Programme "Physics"

Trajectories: "Condensed Matter Physics", "Hydrogen Energy",
"Low Temperature Physics", "Nanoelectronics and Photonics",
"Quantum Optics and Nanophotonics", "Quantum
Technologies", "Space Physics", "Theoretical Physics"

Implementing unit: Faculty of Physics, HSE - Moscow

2 nd, 2025/2026 academic year

APPROVED

28.04.2025

Vice Rector

ROSHCHIN S.Y.

Signed with EDS

Length of Programme: 2 years

Years of Study: 2024/2025 - 2025/2026

Mode of Study: Full Time

Degree: Master's degree / MBA

Block Code	Course	Subject type	Department	Credits	Total Academic Hours	Contact Hours	Allocation of Contact Hours				Additional Information
							1	2	3	4	
	Degree Programme			60,00	2 280		38	32	20	12	
	Hydrogen Energy (Research track)			60,00	2 280	102	38	32	20	12	
	Major			3,00	114	6	6				
1	Introduction to Machine Learning	C	Faculty of Physics	3,00	114	6	6A				Online Course
	Final State Certification (FSC)			3,00	114	6				6	
1	Final Qualification Paper	C		3,00	114	6				6A	
	Key Seminars			3,00	114	36	16	16	4		
1	Mentor's Seminar	C	Faculty of Physics	3,00	114	36	16	16	4A		
	Internship			51,00	1 938	54	16	16	16	6	
	Research Internship			51,00	1 938	54	16	16	16	6	
1	Research project	C		48,00	1 824	48	16	16	16A		
2	Preparation of the Graduate Thesis	C		3,00	114	6				6A	
	Quantum Optics and Nanophotonics (Research track)			60,00	2 280	94	38	32	20	4	
	Major			3,00	114	6	6				
1	Introduction to Machine Learning	C	Faculty of Physics	3,00	114	6	6A				Online Course
	Final State Certification (FSC)			3,00	114	2				2	
1	Final Qualification Paper	C		3,00	114	2				2A	
	Key Seminars			3,00	114	36	16	16	4		
1	Mentor's Seminar	C	базовая кафедра квантовой оптики и нанофотоники Института спектроскопии РАН	3,00	114	36	16	16	4A		
	Internship			51,00	1 938	50	16	16	16	2	

	Research Internship			51,00	1 938	50	16	16	16	2	
1	Research Project	C		48,00	1 824	48	16	16	16A		
2	Preparation of the Graduate Thesis	C		3,00	114	2				2A	
	Quantum Technologies (Research track)			60,00	2 280	46	22	16	4	4	
	Major			3,00	114	6	6				
1	Introduction to Machine Learning	C	Faculty of Physics	3,00	114	6	6A				Online Course
	Final State Certification (FSC)			3,00	114	2				2	
1	Final Qualification Paper	C		3,00	114	2				2A	
	Key Seminars			3,00	114	36	16	16	4		
1	Mentor's Seminar	C	базовая кафедра квантовых технологий Института общей физики им. А.М. Прохорова РАН	3,00	114	36	16	16	4A		
	Internship			51,00	1 938	2				2	
	Research Internship			51,00	1 938	2				2	
1	Research Project	C		48,00	1 824						
2	Preparation of the Graduate Thesis	C		3,00	114	2				2	
	Nanoelectronics and Photonics (Research track)			60,00	2 280	98	38	32	20	8	
	Major			3,00	114	6	6				
1	Introduction to Machine Learning	C	Faculty of Physics	3,00	114	6	6A				Online Course
	Final State Certification (FSC)			3,00	114	2				2	
1	Final Qualification Paper	C		3,00	114	2				2A	
	Key Seminars			3,00	114	36	16	16	4		
1	Mentor's Seminar	C	базовая кафедра «Наноэлектроника и фотоника» при Институте радиотехники и электроники им. В.А. Котельникова РАН	3,00	114	36	16	16	4A		
	Internship			51,00	1 938	54	16	16	16	6	
	Research Internship			51,00	1 938	54	16	16	16	6	
1	Research project	C		48,00	1 824	48	16	16	16A		
2	Preparation of the Graduate Thesis	C		3,00	114	6				6A	
	Theoretical Physics (Research track)			60,00	2 280	94	38	32	20	4	
	Major			3,00	114	6	6				
1	Introduction to Machine Learning	C	Faculty of Physics	3,00	114	6	6A				Online Course
	Final State Certification (FSC)			3,00	114	2				2	
1	Final Qualification Paper	C		3,00	114	2				2A	
	Key Seminars			3,00	114	36	16	16	4		
1	Mentor's Seminar	C	базовая кафедра теоретической физики Института теоретической физики им. Л.Д. Ландау РАН	3,00	114	36	16	16	4A		
	Internship			51,00	1 938	50	16	16	16	2	
	Research Internship			51,00	1 938	50	16	16	16	2	
1	Research project	C		48,00	1 824	48	16	16	16A		

2	Preparation of the Graduate Thesis	C		3,00	114	2				2A	
	Condensed Matter Physics (Research track)			60,00	2 280	82	38	32	8	4	
	Major			3,00	114	6	6				
1	Introduction to Machine Learning	C	Faculty of Physics	3,00	114	6	6A				Online Course
	Final State Certification (FSC)			3,00	114	2				2	
1	Final Qualification Paper	C		3,00	114	2				2A	
	Key Seminars			3,00	114	36	16	16	4		
1	Mentor's Seminar	C	базовая кафедра физики конденсированных сред Института физики твердого тела РАН	3,00	114	36	16	16	4A		
	Internship			51,00	1 938	38	16	16	4	2	
	Research Internship			51,00	1 938	38	16	16	4	2	
1	Research Project	C		48,00	1 824	36	16	16	4A		
2	Preparation of the Graduate Thesis	C		3,00	114	2				2A	
	Space Physics (Research track)			60,00	2 280	82	38	32	8	4	
	Major			3,00	114	6	6				
1	Introduction to Machine Learning	C	Faculty of Physics	3,00	114	6	6A				Online Course
	Final State Certification (FSC)			3,00	114	2				2	
1	Final Qualification Paper	C		3,00	114	2				2A	
	Key Seminars			3,00	114	36	16	16	4		
1	Mentor's Seminar	C	базовая кафедра физики космоса Института космических исследований РАН	3,00	114	36	16	16	4A		
	Internship			51,00	1 938	38	16	16	4	2	
	Research Internship			51,00	1 938	38	16	16	4	2	
1	Research Project	C		48,00	1 824	36	16	16	4A		
2	Preparation of the Graduate Thesis	C		3,00	114	2				2A	
	Low Temperature Physics (Research track)			60,00	2 280	82	38	32	8	4	
	Major			3,00	114	6	6				
1	Introduction to Machine Learning	C	Faculty of Physics	3,00	114	6	6A				Online Course
	Final State Certification (FSC)			3,00	114	2				2	
1	Final Qualification Paper	C		3,00	114	2				2A	
	Key Seminars			3,00	114	36	16	16	4		
1	Mentor's Seminar	C	базовая кафедра физики низких температур Института физических проблем им. П.Л. Капицы РАН	3,00	114	36	16	16	4A		
	Internship			51,00	1 938	38	16	16	4	2	
	Research Internship			51,00	1 938	38	16	16	4	2	
1	Research Project	C		48,00	1 824	36	16	16	4A		
2	Preparation of the Graduate Thesis	C		3,00	114	2				2A	

Curriculum agreed:

Academic Supervisor	Лебедев В.В.	11.03.2025
Dean	TRUNIN M.R.	11.03.2025
Head of Centre for Educational Model Design	LEPESHKIN I.A.	25.04.2025

* Subject type:
Compulsory course

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