



Basic Curriculum

Field of study 03.04.02 Physics
Educational Programme "Physics"

Trajectories: "Condensed Matter Physics", "Physics and Technology of Nanostructures", "Quantum Field Theory"

Implementing unit: St. Petersburg School of Mathematics, Physics and Computer Science, HSE, HSE - Saint Petersburg

Years of Study: 2022/2023 - 2023/2024

Length of Programme: 2 years

Mode of Study: Full Time

Degree: Master's degree / MBA

APPROVED
20.05.2022
Vice Rector
ROSHCHIN S.Y.
Signed with EDS

Block Code	Course	Subject type	Credits	Credits by Years		Planned Educational Programme Development Results
				1	2	
	Degree Programme		120,00	60,00	60,00	
	Condensed Matter Physics (Research track)		120,00	60,00	60,00	
	Key Seminars		18,00	9,00	9,00	
1	Mentor's Seminar	C	6,00	3,00	3,00	GPC-4.PHY, UC-1, UC-6
2	Research Seminar "Physics of Strongly Disordered Systems"	C	12,00	6,00	6,00	GPC-1.PHY, GPC-2.PHY, GPC-3.PHY, PC-1, PC-2, PC-3, PC-4, PC-6, PC-7, PC-8, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Internship		51,00	15,00	36,00	
	Project Internship		15,00	3,00	12,00	
1	Projects 2	C	6,00		6,00	GPC-1.PHY, GPC-2.PHY, GPC-3.PHY, GPC-4.PHY, PC-1, PC-2, PC-3, PC-4, UC-1, UC-2, UC-3, UC-4
2	Projects	C	9,00	3,00	6,00	GPC-1.PHY, GPC-2.PHY, GPC-3.PHY, GPC-4.PHY, PC-1, PC-2, PC-3, PC-4, UC-1, UC-2, UC-3, UC-4
	Research Internship		36,00	12,00	24,00	
1	Research Internship	C	24,00	12,00	12,00	GPC-1.PHY, GPC-2.PHY, GPC-3.PHY, GPC-4.PHY, PC-1, PC-2, PC-3, PC-4, PC-6, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6

2	Preparation of Final Qualification Paper	C	12,00		12,00	GPC-1.PHY, GPC-2.PHY, GPC-3.PHY, GPC-4.PHY, PC-1, PC-2, PC-3, PC-4, PC-6, PC-7, PC-8, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Major		30,00	30,00		
	Major (5 из 6)		30,00	30,00		
1	Quantum Electrodynamics	E	6,00	6,00		GPC-1.PHY, UC-1, UC-3, UC-4
2	Quantum Many-Body Theory	E	6,00	6,00		GPC-1.PHY, GPC-2.PHY, UC-1, UC-2, UC-3
3	Physics of Low-Dimensional Systems	E	6,00	6,00		GPC-1.PHY, GPC-2.PHY, GPC-3.PHY, UC-1, UC-2, UC-3
4	Modeling of Quantum Systems	E	6,00	6,00		GPC-1.PHY, GPC-2.PHY, UC-1, UC-2, UC-3
5	Methods of Quantum Field Theory in Condensed Matter Physics	E	6,00	6,00		GPC-1.PHY, GPC-2.PHY, GPC-4.PHY, UC-1, UC-2, UC-3
6	Introduction to Nanophotonics	E	6,00	6,00		GPC-1.PHY, GPC-2.PHY, GPC-4.PHY, UC-2, UC-3, UC-5, UC-6
	Magolego		18,00	6,00	12,00	
1	All-university Pool MAGOLEGO Courses	E	18,00	6,00	12,00	GPC-1.PHY, GPC-2.PHY, UC-2, UC-3, UC-5, UC-6
	Final State Certification (FSC)		3,00		3,00	
1	Final Qualification Paper	C	3,00		3,00	GPC-1.PHY, GPC-2.PHY, GPC-3.PHY, GPC-4.PHY, PC-1, PC-2, PC-3, PC-4, PC-5, PC-6, PC-7, PC-8, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Quantum Field Theory (Research track)		114,00	60,00	54,00	
	Key Seminars		12,00	9,00	3,00	
1	Mentor's Seminar	C	6,00	3,00	3,00	GPC-4.PHY, UC-1, UC-6
2	Research Seminar "Additional Chapters of Quantum Field Theory"	C	6,00	6,00		GPC-1.PHY, GPC-2.PHY, GPC-3.PHY, PC-1, PC-2, PC-3, PC-4, PC-6, PC-7, PC-8, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Internship		51,00	15,00	36,00	
	Project Internship		15,00	3,00	12,00	
1	Projects 2	C	6,00		6,00	GPC-1.PHY, GPC-2.PHY, GPC-3.PHY, GPC-4.PHY, PC-1, PC-2, PC-3, PC-4, UC-1, UC-2, UC-3, UC-4
2	Projects	C	9,00	3,00	6,00	GPC-1.PHY, GPC-2.PHY, GPC-3.PHY, GPC-4.PHY, PC-1, PC-2, PC-3, PC-4, UC-1, UC-2, UC-3, UC-4
	Research Internship		36,00	12,00	24,00	

1	Research Internship	C	24,00	12,00	12,00	GPC-1.PHY, GPC-2.PHY, GPC-3.PHY, GPC-4.PHY, PC-1, PC-2, PC-3, PC-4, PC-6, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
2	Preparation of Final Qualificaiton Paper	C	12,00		12,00	GPC-1.PHY, GPC-2.PHY, GPC-3.PHY, GPC-4.PHY, PC-1, PC-2, PC-3, PC-4, PC-6, PC-7, PC-8, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Major		30,00	30,00		
	Major (5 из 6)		30,00	30,00		
1	Quantum Electrodynamics	E	6,00	6,00		GPC-1.PHY, UC-1, UC-3, UC-4
2	Integrable Systems 1	E	6,00	6,00		GPC-1.PHY, GPC-2.PHY, GPC-3.PHY, UC-1, UC-2, UC-3
3	Gauge Theory	E	6,00	6,00		GPC-1.PHY, GPC-2.PHY, UC-1, UC-2, UC-3, UC-4
4	Modeling of Quantum Systems	E	6,00	6,00		GPC-1.PHY, GPC-2.PHY, UC-1, UC-2, UC-3
5	Methods of Quantum Field Theory in Condensed Matter Physics	E	6,00	6,00		GPC-1.PHY, GPC-2.PHY, GPC-4.PHY, UC-1, UC-2, UC-3, UC-4, UC-5
6	Introduction to Nanophotonics	E	6,00	6,00		GPC-1.PHY, GPC-2.PHY, GPC-4.PHY, UC-2, UC-3, UC-5, UC-6
	Magolego		18,00	6,00	12,00	
1	Дисциплины по выбору из общеуниверситетского пула	E	18,00	6,00	12,00	GPC-1.PHY, GPC-2.PHY, UC-2, UC-3, UC-5, UC-6
	Final State Certification (FSC)		3,00		3,00	
1	Final Qualification Paper	C	3,00		3,00	GPC-1.PHY, GPC-2.PHY, GPC-3.PHY, GPC-4.PHY, PC-1, PC-2, PC-3, PC-4, PC-5, PC-6, PC-7, PC-8, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Physics and Technology of Nanostructures (Research track)		114,00	60,00	54,00	
	Key Seminars		12,00	9,00	3,00	
1	Mentor's Seminar	C	6,00	3,00	3,00	GPC-4.PHY, UC-1, UC-6
2	Research seminar "Methods for diagnostics of nanostructures"	C	6,00	6,00		GPC-1.PHY, GPC-2.PHY, GPC-3.PHY, PC-1, PC-2, PC-3, PC-4, PC-6, PC-7, PC-8, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Internship		51,00	15,00	36,00	
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1	Projects 2	C	6,00		6,00	GPC-1.PHY, GPC-2.PHY, GPC-3.PHY, GPC-4.PHY, PC-1, PC-2, PC-3, PC-4, UC-1, UC-2, UC-3, UC-4

Head of Centre for
Educational Model Design

LEPESHKIN I.A.

19.05.2022

* Subject type:

Compulsory course

C

Elective course

E