



National Research University Higher School of Economics (HSE)

Curriculum  
 Field of study 03.03.02 Physics  
 Educational Programme "Physics"  
 Specializations: "Quantum Field Theory", "Solid State Physics"  
 Implementing unit: St. Petersburg School of Mathematics,  
 Physics and Computer Science, HSE, HSE - Saint Petersburg  
 3 rd, 2023/2024 academic year

APPROVED  
 03.05.2023  
 Vice Rector  
 ROSHCHIN S.Y.  
 Signed with EDS

Length of Programme: 4 years  
 Years of Study: 2021/2022 - 2024/2025  
 Mode of Study: Full Time  
 Degree: Bachelor's degree

Block Code	Course	Subject type	Department	Credits	Total Academic Hours	Contact Hours	Allocation of Contact Hours				Additional Information
							1	2	3	4	
<b>Degree Programme</b>				<b>60,00</b>	<b>1 634</b>	<b>711</b>	<b>146</b>	<b>134</b>	<b>313</b>	<b>476</b>	
<b>Data Culture</b>				<b>4,00</b>	<b>152</b>	<b>8</b>				<b>8</b>	
1	Introduction to Python for Data Science	C	Informatics Department	3,00	114	6				6A	Online Course
2	Independent Data Science Test. Intermediate	C	отдел развития цифровых компетенций	1,00	38	2				2A	Online Course
<b>Major</b>				<b>43,00</b>	<b>988</b>	<b>578</b>	<b>118</b>	<b>102</b>	<b>278</b>	<b>438</b>	
<b>Core Professional Block (Major)</b>				<b>22,00</b>	<b>836</b>	<b>360</b>	<b>118</b>	<b>102</b>	<b>76</b>	<b>64</b>	
<b>Subject Areas</b>				<b>22,00</b>	<b>836</b>	<b>360</b>	<b>118</b>	<b>102</b>	<b>76</b>	<b>64</b>	
<b>Computational Physics</b>				<b>3,00</b>	<b>114</b>	<b>52</b>	<b>28</b>	<b>24</b>			
1	Approximate Methods of analytical calculations	C	Department of Physics (at HSE University in St.Petersburg)	3,00	114	52	28	24A			
<b>Mathematics</b>				<b>4,00</b>	<b>152</b>	<b>64</b>	<b>34</b>	<b>30</b>			
1	Probability Theory	C	Informatics Department	4,00	152	64	34	30A			
<b>Theoretical Physics</b>				<b>15,00</b>	<b>570</b>	<b>244</b>	<b>56</b>	<b>48</b>	<b>76</b>	<b>64</b>	
1	Quantum Mechanics	C	Department of Physics (at HSE University in St.Petersburg)	8,00	304	124	28	24A	40	32A	
2	Condensed Condition Physics	C	Department of Physics (at HSE University in St.Petersburg)	3,00	114	68			36	32A	Online Course
3	Electrodynamics of Continuos Media	C	Department of Physics (at HSE University in St.Petersburg)	4,00	152	52	28A	24A			
<b>Elective Professional Block (Major)</b>				<b>21,00</b>	<b>152</b>	<b>218</b>			<b>202</b>	<b>374</b>	
<b>-</b>				<b>17,00</b>		<b>204</b>			<b>188</b>	<b>374</b>	

Дисциплины специализации "Квантовая теория поля"				17,00	646	204			108	96	
1	Differential Geometry and Topology	E	Department of Physics (at HSE University in St.Petersburg)	5,00	190	68			36	32A	
2	Quantum field theory 1	E	Department of Physics (at HSE University in St.Petersburg)	5,00	190	64				64A	Foreign language
3	Group theory	E	Department of Physics (at HSE University in St.Petersburg)	7,00	266	72			72A		
Дисциплины специализации "Физика твёрдого тела"				17,00	646	172			108	64	
1	Introduction to Nanotechnology	E	Department of Physics (at HSE University in St.Petersburg)	5,00	190	36			36A		
2	Quantum field theory 1	E	Department of Physics (at HSE University in St.Petersburg)	5,00	190	64				64A	Foreign language
3	Group theory	E	Department of Physics (at HSE University in St.Petersburg)	7,00	266	72			72A		
Проектный семинар				4,00	152	14			14		
1	Project seminar on quantum field theory	E	Department of Physics (at HSE University in St.Petersburg)	4,00	152	14			14A		
2	Project seminar on solid state physics	E	Department of Physics (at HSE University in St.Petersburg)	4,00	152	14			14A		
Minor				10,00	380	120	28	32	32	28	
1	Minor	E		10,00	380	120	28	32A	32	28A	
English						3			3		
Examinations						3			3		
1	Independent English Exam	C	School of Foreign Languages			3			3A		Foreign language
Internship				3,00	114	2				2	
Professional Internship				3,00	114	2				2	
1	Educational Internship	C		3,00	114	2				2A	

**Curriculum agreed:**

Academic Supervisor	SHENDEROVICH I.E.	27.04.2023
Dean		27.04.2023
Deputy Director	KUZMIN P.V.	27.04.2023
Head of Centre for Educational Model Design	LEPESHKIN I.A.	29.04.2023

\* Subject type:

Compulsory course

Elective course

Optional course

C  
E  
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