



National Research University Higher School of Economics (HSE)

Curriculum

Field of study 01.03.02 Applied Mathematics and Information Science

Educational Programme "Computing and Data Science"

Specializations: "Machine Learning and Applications", "Software Engineering"

Implementing unit: Faculty of Computer Science, HSE - Moscow  
3 rd, 2023/2024 academic year

APPROVED

05.07.2023

Vice Rector

ROSHCHIN S.Y.

Signed with EDS

Length of Programme: 0 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>2 280</b>	<b>787</b>	<b>146</b>	<b>146</b>	<b>179</b>	<b>178</b>	
<b>Data Culture</b>				<b>1,00</b>	<b>38</b>	<b>2</b>				<b>2</b>	
1	Independent Data Science Test. Advanced Level	C	отдел развития цифровых компетенций	1,00	38	2				2A	Online Course
<b>Major</b>				<b>41,00</b>	<b>1 558</b>	<b>476</b>	<b>70</b>	<b>70</b>	<b>100</b>	<b>100</b>	
<b>Core Professional Block (Major)</b>				<b>12,00</b>	<b>456</b>	<b>136</b>	<b>28</b>	<b>28</b>	<b>40</b>	<b>40</b>	
<b>Subject Areas</b>				<b>12,00</b>	<b>456</b>	<b>136</b>	<b>28</b>	<b>28</b>	<b>40</b>	<b>40</b>	
<b>Algorithms and Data Structures</b>				<b>6,00</b>	<b>228</b>	<b>56</b>	<b>28</b>	<b>28</b>			
1	Machine Learning 1	C	Department of Big Data and Information Retrieval	6,00	228	56	28	28A			Online Course
<b>Optimization Methods</b>				<b>6,00</b>	<b>228</b>	<b>80</b>			<b>40</b>	<b>40</b>	
1	Optimization Methods	C	Joint Department of Mathematical Methods in System Analysis with RAS Institute of System Analysis	6,00	228	80			40	40A	Online Course
<b>Elective Professional Block (Major)</b>				<b>29,00</b>	<b>1 102</b>	<b>340</b>	<b>70</b>	<b>70</b>	<b>100</b>	<b>100</b>	
<b>Elective Courses</b>				<b>11,00</b>	<b>418</b>	<b>136</b>	<b>28</b>	<b>28</b>	<b>40</b>	<b>40</b>	
<b>Блок 1</b>				<b>5,00</b>	<b>190</b>	<b>56</b>	<b>28</b>	<b>28</b>			
1	Computer Systems Security	E	Department of Big Data and Information Retrieval	5,00	190	56	28	28A			
2	Bioinformatics	E	Department of Big Data and Information Retrieval	5,00	190	56	28	28A			
3	Functional Programming	E	Department of Big Data and Information Retrieval	5,00	190	56	28	28A			
4	SQL Language	E	Department of Big Data and Information Retrieval	5,00	190	56	28	28A			

	<b>Блок 2</b>			<b>6,00</b>	<b>228</b>	<b>80</b>			<b>40</b>	<b>40</b>	
1	Data Analysis in Business	E	Department of Big Data and Information Retrieval	6,00	228	80			40A	40A	
2	Chapters in Applied Statistics	E	Department of Big Data and Information Retrieval	6,00	228	80			40	40A	
3	Time Series Modeling	E	Department of Big Data and Information Retrieval	6,00	228	80			40	40A	
4	Java Programming	E	Joint Department with Yandex	6,00	228	80			40	40A	
5	Database Systems	E	Department of Big Data and Information Retrieval	6,00	228	80			40	40A	
6	Topological data analysis	E	Department of Big Data and Information Retrieval	6,00	228	80			40	40A	
	<b>Научный-исследовательский семинар</b>			<b>7,00</b>	<b>266</b>	<b>68</b>	<b>14</b>	<b>14</b>	<b>20</b>	<b>20</b>	
1	Research Seminar "Machine Learning and Applications 1"	E	Department of Big Data and Information Retrieval	7,00	266	68	14A	14	20	20A	Foreign language
2	Research Seminar "Industrial Programming 1"	E	Department of Big Data and Information Retrieval	7,00	266	68	14A	14	20	20A	Foreign language
	<b>Specialization</b>			<b>11,00</b>	<b>418</b>	<b>136</b>	<b>28</b>	<b>28</b>	<b>40</b>	<b>40</b>	
	<b>Специализация "Машинное обучение и приложения"</b>			<b>11,00</b>	<b>418</b>	<b>136</b>	<b>28</b>	<b>28</b>	<b>40</b>	<b>40</b>	
1	Machine Learning 2	C	Department of Big Data and Information Retrieval	6,00	228	80			40	40A	
2	Applied Statistical Data Analysis	C	Department of Big Data and Information Retrieval	5,00	190	56	28	28A			
	<b>Специализация "Промышленное программирование"</b>			<b>11,00</b>	<b>418</b>	<b>136</b>	<b>28</b>	<b>28</b>	<b>40</b>	<b>40</b>	
1	Parallel Computing	C	Department of Big Data and Information Retrieval	6,00	228	80			40	40A	
2	Distributed Systems	C	Department of Big Data and Information Retrieval	5,00	190	56	28	28A			
	<b>Minor</b>			<b>10,00</b>	<b>380</b>	<b>304</b>	<b>76</b>	<b>76</b>	<b>76</b>	<b>76</b>	
1	Minor	E		10,00	380	304	76	76A	76	76A	
	<b>English</b>					<b>3</b>			<b>3</b>		
	<b>Examinations</b>					<b>3</b>			<b>3</b>		
1	Independent English Exam	C	School of Foreign Languages			3			3A		Foreign language
	<b>Internship</b>			<b>8,00</b>	<b>304</b>	<b>2</b>				<b>2</b>	
	<b>Project Internship</b>			<b>5,00</b>	<b>190</b>	<b>2</b>				<b>2</b>	
1	Course Project	C		5,00	190	2				2A	
	<b>Professional Internship</b>			<b>3,00</b>	<b>114</b>						
1	Work Experience Internship	C		3,00	114						

**Curriculum agreed:**

Academic Supervisor PROMYSLOV V.V. 28.06.2023

Dean ARZHANTSEV I.V. 28.06.2023

Head of Centre for Educational Model Design LEPESHKIN I.A. 04.07.2023

\* Subject type:

Compulsory course

Elective course

Optional course

C

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