



National Research University Higher School of Economics (HSE)

Basic Curriculum

Field of study 01.04.02 Applied Mathematics and Informatics
 Educational Programme "Software Development and Data Analysis"
 Trajectories: "Software Development and Data Analysis"

APPROVED
 12.05.2023
 Vice Rector
 ROSHCHIN S.Y.
 Signed with EDS

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

Years of Study: 2023/2024 - 2024/2025

Length of Programme: 2 years

Mode of Study: Full Time

Degree: Master's degree / MBA

Block Code	Course	Subject type	Credits	Credits by Years		Planned Educational Programme Development Results
				1	2	
	Degree Programme		120,00	60,00	60,00	
	Software Development and Data Analysis (Research track)		120,00	60,00	60,00	
	Key Seminars		18,00	9,00	9,00	
1	Mentor's Seminar	C	18,00	9,00	9,00	GPC-1.AMI, PC-1, PC-3, PC-5, UC-1, UC-6
	Internship		30,00	6,00	24,00	
	Project Internship		12,00	6,00	6,00	
1	Project	C	12,00	6,00	6,00	GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-2, PC-4, PC-5, PC-6, PC-7, PC-8, UC-1, UC-2, UC-3
	Research Internship		18,00		18,00	
1	Preparation of post graduation thesis	C	18,00		18,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-10, PC-2, PC-3, PC-4, PC-5, PC-6, PC-7, PC-8, PC-9, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Major		60,00	39,00	21,00	
	Major (7 out of 9)		39,00	39,00		
1	Game Development	E	6,00	6,00		GPC-3.AMI, PC-3, PC-7, UC-1, UC-2, UC-3, UC-4
2	Software Development Management	E	3,00	3,00		GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-10, PC-3, PC-6, PC-7, PC-8, PC-9, UC-2, UC-3, UC-4
3	Effective C ++ Programming	E	6,00	6,00		GPC-3.AMI, PC-5, PC-7, PC-9, UC-2, UC-4

4	Additional Machine Learning Chapters	E	6,00	6,00		GPC-2.AMI, GPC-3.AMI, PC-3, PC-9
5	Graphics Accelerator Programming	E	6,00	6,00		GPC-3.AMI, PC-10, PC-4, PC-6, UC-6
6	Additional Machine Learning Chapters and Linear Algebra	E	6,00	6,00		GPC-2.AMI, PC-3, PC-8, UC-1
7	Web Search	E	6,00	6,00		GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-2, PC-3, PC-7, PC-9, UC-1
8	Data Management Algorithms (offered in a foreign language)	E	6,00	6,00		GPC-1.AMI, GPC-3.AMI, PC-6, PC-7, PC-9, UC-1
9	Generative Models in Machine Learning	E	3,00	3,00		GPC-3.AMI, PC-10, UC-1, UC-3, UC-6
Major Elective Block (21 Credits)			21,00		21,00	
1	Recommender Systems	E	6,00		6,00	GPC-2.AMI, PC-8, PC-9, UC-4
2	Computer Layout	E	6,00		6,00	GPC-4.AMI, PC-10, PC-4, PC-7
3	Category Theory	E	3,00		3,00	GPC-3.AMI, PC-10, PC-3, PC-7, UC-3, UC-4
4	Neural Bayesian Methods in Machine Learning	E	3,00		3,00	GPC-1.AMI, PC-10, PC-4, PC-6, PC-9, UC-6
5	Big Data Software Engineering	E	3,00		3,00	GPC-3.AMI, PC-10, PC-2, PC-3, PC-4, PC-6, PC-7, UC-1, UC-6
6	GPU Calculations	E	6,00		6,00	GPC-2.AMI, PC-10, PC-7, PC-8
Magolego			9,00	6,00	3,00	
1	All-university Pool MAGOLEGO Courses	E	9,00	6,00	3,00	UC-4, UC-5, UC-6
Final State Certification (FSC)			3,00		3,00	
1	Final Qualification Paper	C	3,00		3,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-10, PC-2, PC-3, PC-4, PC-5, PC-6, PC-7, PC-8, PC-9, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6

Curriculum agreed:

Academic Supervisor	MOSKVIN D.N.	24.04.2023
Dean		24.04.2023
Deputy Director	KUZMIN P.V.	25.04.2023
Head of Centre for Educational Model Design	LEPESHKIN I.A.	07.05.2023

* Subject type:

Compulsory course

C

Elective course

E