



National Research University Higher School of Economics (HSE)

Basic Curriculum

Field of study 01.04.02 Applied Mathematics and Informatics
Educational Programme "Машинное обучение в цифровом продукте"
Trajectories: "Machine Learning in a Digital Product"
Implementing unit: Faculty of Computer Science, HSE - Moscow

APPROVED
14.04.2025
Vice Rector
ROSHCHIN S.Y.
Signed with EDS

Years of Study: 2025/2026 - 2026/2027

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	
	Machine Learning in a Digital Product (General track)		120,00	60,00	60,00	
	Key Seminars		15,00	6,00	9,00	
1	Mentor's Seminar "Machine Learning in a Digital Product"	C	15,00	6,00	9,00	GPC-2.AMI, GPC-3.AMI, PC-1, PC-4, PC-6, UC-2
	Internship		24,00	6,00	18,00	
	Preparation of the Graduate Thesis		18,00		18,00	
1	Graduation Work	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
	Fixed		6,00	6,00		
1	Course Project	C	6,00	6,00		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		63,00	39,00	24,00	
	Basic Components		39,00	39,00		
1	Probability Theory and Mathematical Statistics	C	6,00	6,00		GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, PC-1, UC-2
2	Optimization Methods	C	6,00	6,00		GPC-1.AMI, GPC-2.AMI, PC-1, PC-10, UC-2
3	Algorithms in Python	C	6,00	6,00		GPC-2.AMI, PC-2, PC-3, PC-6, UC-2

4	Natural Language Processing	C	6,00	6,00		GPC-2.AMI, PC-1, PC-2, PC-4, PC-8, UC-2
5	Introduction to MLOps	C	3,00	3,00		GPC-2.AMI, PC-2, PC-5, PC-8, UC-2
6	Backend Development	C	3,00	3,00		GPC-2.AMI, PC-2, PC-5, UC-2
7	GPU and Distributed Computing	C	3,00	3,00		GPC-2.AMI, PC-4, PC-6, PC-8, UC-2
8	Deep Learning	C	6,00	6,00		GPC-2.AMI, PC-1, PC-2, PC-6, UC-1, UC-2
	Elective Components (Courses)		24,00		24,00	
1	Mechanism Design	E	3,00		3,00	GPC-1.AMI, PC-4, PC-6, UC-4
2	Recent Advances in Auction Theory	E	3,00		3,00	GPC-1.AMI, PC-10, PC-2, UC-2, UC-4
3	Large Language Models	E	6,00		6,00	GPC-4.AMI, PC-1, PC-2, PC-4, PC-6, UC-2, UC-3
4	Computer Vision	E	6,00		6,00	GPC-1.AMI, GPC-2.AMI, PC-1, PC-2, PC-3, PC-4, PC-6, UC-2
5	Reinforcement Learning	E	6,00		6,00	GPC-2.AMI, PC-1, PC-2, PC-4, PC-6, UC-2
6	Recommender Systems	E	6,00		6,00	GPC-2.AMI, PC-1, PC-2, PC-3, PC-4, PC-6, PC-7, UC-2
7	Python Advanced	E	6,00		6,00	GPC-2.AMI, PC-1, PC-2, PC-5, UC-2
8	Dynamic Pricing and Elasticity	E	6,00		6,00	GPC-2.AMI, GPC-3.AMI, PC-1, PC-10, PC-2, PC-5, UC-2, UC-3
9	Deep Learning in Audio and Video Processing	E	6,00		6,00	GPC-2.AMI, PC-1, PC-2, PC-3, PC-4, PC-6, UC-1, UC-2
	Magolego		15,00	9,00	6,00	
1	All-university Pool MAGOLEGO Courses	E	15,00	9,00	6,00	GPC-4.AMI, PC-1, PC-10, PC-8, UC-2, 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	НИКИТИН И.С.	01.04.2025
Dean	ARZHANTSEV I.V.	02.04.2025
Head of Centre for Educational Model Design	LEPESHKIN I.A.	11.04.2025

* Subject type:

Compulsory course

C

Elective course

E