National Research University Higher School of Economics (HSE)

Basic Curriculum

Field of study 01.04.02 Applied Mathematics and Informatics
Educational Programme "Financial Technology and Data Analysis"
Trajectories: "Financial Technologies and Data Analysis"
Implementing unit: Faculty of Computer Science, HSE - Moscow

APPROVED
16.05.2023
Vice Rector
ROSHCHIN S.Y.
Signed with EDS

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	
	Financial Technologies and Data Analysis (General track)		120,00	60,00	60,00	
	Key Seminars		15,00	6,00	9,00	
1	Mentor's Seminar "Financial Technologies and Data Analysis"	C	15,00	6,00	9,00	GPC-4.AMI, PC-1, PC-3, PC-7, UC-1, UC-2, UC-3, UC-4
	Internship		24,00	6,00	18,00	
	Project Internship		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-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
	Research Internship		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-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	45,00	15,00	
	Basic Components		33,00	24,00	9,00	
1	Machine Learning	C	6,00	6,00		GPC-3.AMI, PC-3, PC-5, UC-1
2	Financial Technology	C	3,00	3,00		GPC-4.AMI, PC-4, PC-8, PC-9, UC-6
3	Deep Learning	C	6,00	6,00		GPC-4.AMI, PC-1, PC-4, PC-5, PC-6, UC-2, UC-3
4	Basics of Risk Management	C	6,00	6,00		GPC-4.AMI, PC-3, PC-7, UC-2, UC-3

5	Algorithms for processing large data	C	3,00	3,00		GPC-4.AMI, PC-3, PC-5, PC-6, PC-9, UC-2, UC-6
6	Text Analysis. Generative Models	C	6,00		6,00	GPC-3.AMI, PC-3, PC-4, PC-5, PC-6, UC-3
7	Bayesian Methods for Data Analysis (offered in a foreign language)	C	3,00		3,00	GPC-2.AMI, PC-3, PC-4, PC-5, UC-1
	Elective Courses 1 year. Part 1		9,00	9,00		
1	Macroeconomics	E	3,00	3,00		GPC-4.AMI, PC-4, UC-6
2	Econometrics	E	6,00	6,00		GPC-4.AMI, PC-4, UC-6
3	Programming in Python and Working with Linux	E	6,00	6,00		GPC-4.AMI, PC-2, PC-3, UC-4
4	Database Theory	E	6,00	6,00		GPC-4.AMI, PC-2, PC-3, PC-7, UC-2, UC-6
	Elective Courses 1 year. Part 2		12,00	12,00		
1	Random Processes Basics and SDE-based Simulation Models	E	6,00	6,00		GPC-4.AMI, PC-7, PC-8, UC-6
2	Time Structured Data Analysis	E	6,00	6,00		GPC-4.AMI, PC-4, PC-7, UC-2, UC-6
3	Structural Analysis and Visualization of Networks (offered in a foreign language)	E	3,00	3,00		GPC-4.AMI, PC-1, PC-4, PC-6, UC-2
4	Simulation Modeling of Financial and Economic Systems	E	6,00	6,00		GPC-4.AMI, PC-7, PC-8, UC-2, UC-3, UC-6
5	Applied Blockchain in Modern Corporate Architecture (offered in a foreign language)	E	6,00	6,00		GPC-3.AMI, PC-3, PC-4, UC-1, UC-2
6	Capital Market Regulation (offered in a foreign language)	E	6,00	6,00		GPC-3.AMI, PC-4, UC-1, UC-2
	Elective Courses. 2 year		6,00		6,00	
1	Market Simulation via Monte Carlo-best Practices	E	3,00		3,00	GPC-1.AMI, GPC-2.AMI, PC-4, PC-5, UC-1, UC-2
2	Deploying ML Models	E	6,00		6,00	GPC-3.AMI, PC-3, PC-4, PC-5, PC-6, PC-7, UC-2
3	Recommender Systems	E	3,00		3,00	GPC-2.AMI, PC-3, PC-4, PC-5, PC-6, UC-1
4	Reinforcement Learning	E	3,00		3,00	GPC-2.AMI, PC-3, PC-4, PC-5, PC-6, UC-1
	Magolego		15,00	3,00	12,00	
1	All-university Pool MAGOLEGO Courses	E	15,00	3,00	12,00	GPC-4.AMI, PC-1, PC-4, UC-2, UC-3, UC-5, UC-6
	Final State Certification (FSC)		6,00		6,00	
1	Final Qualification Paper	C	6,00		6,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, 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	MASYUTIN A.A.	05.05.2023
Dean	ARZHANTSEV I.V.	05.05.2023
Head of Centre for Educational Model Design	LEPESHKIN I.A.	16.05.2023

* Subject type:

Compulsory course	C
Elective course	E