



National Research University Higher School of Economics (HSE)

Basic Curriculum

Field of study 11.04.02 Infocommunication Technologies and Systems
 Educational Programme "Artificial Intelligence Software and Hardware"
 Trajectories: "Artificial Intelligence Software and Hardware"

Implementing unit: Tikhonov Moscow Institute of Electronics and Mathematics, HSE - Moscow

Years of Study: 2024/2025 - 2025/2026

Length of Programme: 2 years

Mode of Study: Full Time

Degree: Master's degree / MBA

APPROVED

17.04.2024

Vice Rector

ROSHCHIN S.Y.

Signed with EDS

Block Code	Course	Subject type	Credits	Credits by Years		Planned Educational Programme Development Results
				1	2	
	Degree Programme		120,00	60,00	60,00	
	Artificial Intelligence Software and Hardware (Applied track)		120,00	60,00	60,00	
	Key Seminars		16,00	10,00	6,00	
1	Hardware and Software Systems of Artificial Intelligence (Mentor Seminar)	C	16,00	10,00	6,00	GPC-1.ITS, GPC-2.ITS, GPC-3.ITS, GPC-4.ITS, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Internship		26,00	5,00	21,00	
	Project Internship		8,00	5,00	3,00	
1	Project	C	8,00	5,00	3,00	GPC-1.ITS, GPC-2.ITS, GPC-3.ITS, GPC-4.ITS, PC-1, PC-2, PC-3, PC-4, PC-5, PC-6, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Professional Internship		9,00		9,00	
1	Work Experience Internship	C	9,00		9,00	GPC-1.ITS, GPC-2.ITS, GPC-3.ITS, GPC-4.ITS, PC-1, PC-2, PC-4, PC-5, PC-6, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Research Internship		9,00		9,00	
1	Graduation Thesis	C	9,00		9,00	GPC-1.ITS, GPC-2.ITS, GPC-3.ITS, GPC-4.ITS, PC-1, PC-2, PC-3, PC-4, PC-5, PC-6, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Major		66,00	42,00	24,00	
	Обязательные дисциплины программы		54,00	36,00	18,00	

1	Digital Signal Processing for Artificial Intelligence Systems	C	6,00	6,00		GPC-3.ITS, GPC-4.ITS, PC-1, PC-2, PC-4, PC-6, UC-6
2	Basics of the Statistical Theory of Signal Detection and Pattern Recognition in Artificial Intelligence	C	6,00	6,00		GPC-2.ITS, PC-1, PC-2, UC-5
3	Neural Networks and Machine Learning for Artificial Intelligence Systems	C	6,00	6,00		GPC-2.ITS, GPC-4.ITS, PC-1, PC-2, UC-3, UC-5
4	Architecture of Computing Systems and Neuroaccelerators	C	6,00	6,00		GPC-2.ITS, GPC-3.ITS, PC-1, PC-2, PC-4, UC-2, UC-3, UC-6
5	Programming in C. Algorithms and Data Structures	C	6,00	6,00		GPC-1.ITS, GPC-3.ITS, PC-1, PC-2, UC-4, UC-5
6	C++ Programming Language	C	12,00	6,00	6,00	GPC-3.ITS, GPC-4.ITS, PC-3, PC-4, PC-5, UC-5, UC-6
7	Circuit Design of Computer Systems and Artificial Intelligence Devices	C	6,00		6,00	GPC-3.ITS, GPC-4.ITS, PC-1, PC-2, UC-4, UC-5
8	Multithreaded Programming in C++	C	6,00		6,00	GPC-2.ITS, GPC-3.ITS, PC-1, PC-2, UC-1, UC-4
Elective Courses			12,00	6,00	6,00	
1	Advanced Programming in HDL	E	6,00		6,00	GPC-2.ITS, GPC-3.ITS, PC-1, PC-2, UC-1, UC-4, UC-6
2	Assembler. Linux System Programming	E	6,00	6,00		GPC-2.ITS, GPC-3.ITS, PC-5, PC-6, UC-1, UC-4, UC-6
3	Production of Microelectronics Components for Artificial Intelligence Hardware and Software Systems	E	6,00		6,00	GPC-3.ITS, GPC-4.ITS, PC-1, PC-2, UC-4, UC-5
4	Development and Design of Element Base for Hardware and Software Complexes of Artificial Intelligence	E	6,00	6,00		GPC-3.ITS, GPC-4.ITS, PC-1, PC-2, UC-4, UC-5
Magolego			9,00	3,00	6,00	
1	All-university Pool MAGOLEGO Courses	E	9,00	3,00	6,00	GPC-1.ITS, GPC-2.ITS, GPC-3.ITS, GPC-4.ITS
Final State Certification (FSC)			3,00		3,00	
1	Final Qualification Paper	C	3,00		3,00	GPC-1.ITS, GPC-2.ITS, GPC-3.ITS, GPC-4.ITS, PC-1, PC-2, PC-3, PC-4, PC-5, PC-6, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6

Curriculum agreed:

Academic Supervisor

03.04.2024

Dean

KROUK E.A.

05.04.2024

Head of Centre for
Educational Model Design

LEPESHKIN I.A.

17.04.2024

* Subject type:

Compulsory course

C

Elective course

E