National Research University Higher School of Economics (HSE)

Basic Curriculum

Field of study 11.04.02 Infocommunication Technologies and Systems
Educational Programme "Artficial Intelligence Software and Hardware"
Trajectories: "Artficial Intelligence Software and Hardware"
Implementing unit: Tikhonov Moscow Institute of Electronics and Mathematics, HSE - Moscow

APPROVED
07.04.2025
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	
	Artficial 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	
	Free		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
	Preparation of the Graduate Thesis		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
	Fixed		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-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	
	Elective Courses		12,00	6,00	6,00	

№	Discipline		Credits			Competencies
1	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
2	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
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	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
	Обязательные дисциплины программы		54,00	36,00	18,00	
1	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
2	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
3	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
4	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
5	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
6	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
7	Multithreaded Programming in C++	C	6,00		6,00	GPC-2.ITS, GPC-3.ITS, PC-1, PC-2, UC-1, UC-4
8	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
	Magolego		9,00	3,00	6,00	
1	All-university Pool MAGOLEGO Courses	C	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	Нефедов С.И.	26.03.2025
Dean	Kovalenko D.G.	31.03.2025

Head of Centre for
 Educational Model Design   LEPESHKIN I.A.   02.04.2025