



National Research University Higher School of Economics (HSE)

Basic Curriculum

Field of study 01.04.04 Applied Mathematics,
01.04.02 Applied Mathematics and Informatics

Educational Programme "Systems Analysis and Mathematical Technologies"

Trajectories: "Applied Artificial Intelligence Models", "Management Systems and Information Processing", "Mathematical Methods and Computer Technologies", "Supercomputer Simulations in Science and Engineering"

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

Years of Study: 2022/2023 - 2023/2024

Length of Programme: 2 years

Mode of Study: Full Time

Degree: Master's degree / MBA

APPROVED

13.10.2022

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	
	Supercomputer Simulations in Science and Engineering (Applied track)		120,00	60,00	60,00	
	Key Seminars		19,00	10,00	9,00	
1	Supercomputer Simulation in Science and Engineering (mentor seminar)	C	19,00	10,00	9,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-10, PC-4, PC-9, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Internship		29,00	5,00	24,00	
	Project Internship		5,00	5,00		
1	Project	E	5,00	5,00		GPC-1.APM, GPC-2.APM, GPC-3.APM, 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.APM, GPC-2.APM, GPC-3.APM, PC-2, PC-5, PC-8, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Research Internship		15,00		15,00	
1	Graduation Thesis	C	15,00		15,00	GPC-1.APM, GPC-2.APM, GPC-3.APM, PC-1, PC-10, PC-11, PC-12, PC-13, 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		54,00	42,00	12,00	

1	Models of Complex Systems	E	6,00		6,00	GPC-2.APM, GPC-3.APM, PC-1, PC-2, PC-3, PC-4, PC-6
2	Management Information System Design	E	6,00		6,00	GPC-2.APM, GPC-3.APM, PC-1, PC-2, PC-3, PC-4, PC-6
3	Numerical methods of optimization	C	6,00		6,00	GPC-1.APM, GPC-2.APM, GPC-3.APM, PC-12, PC-2, PC-4, PC-6
4	High-Level Modelling and Simulation of Digital Systems	C	6,00	6,00		GPC-2.APM, GPC-3.APM, PC-1, PC-2, PC-3, PC-6
5	Data Analysis and Machine Learning	C	6,00	6,00		GPC-2.APM, GPC-3.APM, PC-1, PC-2, PC-3, PC-4, PC-6, PC-7
6	Stochastic Methods for Engineering Applications	C	6,00	6,00		GPC-1.APM, GPC-2.APM, GPC-3.APM, PC-1, PC-4, PC-6
7	Population Models in Genomics (offered in a foreign language)	C	3,00	3,00		GPC-1.APM, GPC-2.APM, PC-1, PC-2, PC-4, PC-8
8	Machine Learning for a Model Construction	C	3,00	3,00		GPC-1.APM, GPC-2.APM, GPC-3.APM, PC-1, PC-12, PC-2, PC-4, PC-8
9	Selected Chapters of Quantum Mechanics	C	6,00	6,00		GPC-1.APM, GPC-2.APM, GPC-3.APM
10	Supercomputer workshop	C	6,00	6,00		GPC-2.APM, GPC-3.APM, PC-12, PC-2, PC-3, PC-6, PC-8
11	Modeling in Hydrodynamics	E	6,00	6,00		GPC-1.APM, GPC-2.APM, GPC-3.APM
12	Symmetries, Representations and Complex Analysis	E	6,00	6,00		GPC-1.APM, GPC-2.APM, GPC-3.APM
13	Introduction to numerical methods of optimization	E	6,00	6,00		GPC-3.APM, PC-1, PC-2, PC-3, PC-6
	Magolego		15,00	3,00	12,00	
1	All-university Pool MAGOLEGO Courses	E	15,00	3,00	12,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI
	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-11, PC-12, PC-13, 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
	Management Systems and Information Processing in Engineering (Applied track)		120,00	60,00	60,00	
	Key Seminars		19,00	10,00	9,00	
1	Control and information processing systems (mentor seminar)	C	19,00	10,00	9,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-10, PC-2, PC-4, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Internship		29,00	5,00	24,00	
	Project Internship		5,00	5,00		
1	Project	E	5,00	5,00		GPC-1.APM, GPC-2.APM, GPC-3.APM, PC-10, PC-2, PC-4, PC-9, 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.APM, GPC-2.APM, GPC-3.APM, PC-1, PC-2, PC-3, PC-4, PC-6, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Research Internship		15,00		15,00	
1	Graduation Thesis	C	15,00		15,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-10, PC-11, PC-12, PC-13, 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		54,00	42,00	12,00	
1	Management Information System Design	E	6,00		6,00	GPC-2.APM, GPC-3.APM, PC-1, PC-2, PC-3, PC-4, PC-6
2	Basics of cybersecurity	E	6,00		6,00	GPC-2.APM, GPC-3.APM, PC-1, PC-2, PC-3, PC-4, PC-6
3	Network Modeling	E	6,00		6,00	PC-10, PC-4
4	High-Level Modelling and Simulation of Digital Systems	C	6,00	6,00		GPC-2.APM, GPC-3.APM, PC-1, PC-2, PC-6
5	Data Analysis and Machine Learning	C	6,00	6,00		GPC-2.APM, GPC-3.APM, PC-1, PC-2, PC-3, PC-4, PC-6, PC-7
6	Stochastic Methods for Engineering Applications	C	6,00	6,00		GPC-1.APM, GPC-2.APM, GPC-3.APM, PC-1, PC-10, PC-4, PC-6, PC-7
7	Systems Analysis	C	6,00	6,00		GPC-2.APM, GPC-3.APM, PC-1, PC-2, PC-3, PC-4, PC-6
8	Modern Control Theory Methods	C	6,00	6,00		GPC-2.APM, GPC-3.APM, PC-1, PC-2, PC-3, PC-4
9	Applications of the Theory of Operators and Functional Analysis	C	6,00	6,00		GPC-2.APM, GPC-3.APM, PC-1, PC-2, PC-3, PC-4, PC-6
10	Modeling in Hydrodynamics	E	6,00	6,00		GPC-1.APM, GPC-2.APM, GPC-3.APM, PC-2
11	Symmetries, Representations and Complex Analysis	E	6,00	6,00		GPC-1.APM, GPC-2.APM, GPC-3.APM, PC-2
12	Filtering and Predicting Data	E	6,00	6,00		GPC-3.APM, PC-1, PC-2, PC-3, PC-6
	Magolego		15,00	3,00	12,00	
1	All-university Pool MAGOLEGO Courses	E	15,00	3,00	12,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI
	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-11, PC-12, PC-13, 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
	Mathematical Methods and Computer Technologies (Applied track)		120,00	60,00	60,00	

	Key Seminars		19,00	10,00	9,00	
1	Mathematical methods and computer technology (mentor seminar)	C	19,00	10,00	9,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-10, PC-2, PC-4, PC-9, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Internship		29,00	5,00	24,00	
	Project Internship		5,00	5,00		
1	Project	E	5,00	5,00		GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-10, PC-2, PC-4, 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.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-2, PC-4, PC-6, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Research Internship		15,00		15,00	
1	Graduation Thesis	C	15,00		15,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-10, PC-11, PC-12, 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		54,00	42,00	12,00	
1	Basics of cybersecurity	E	6,00		6,00	GPC-2.AMI, GPC-3.AMI, PC-1, PC-2, PC-3, PC-4, PC-6
2	Methods and Tools for Big Data Processing	E	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-6
3	Multiscale Modeling and Supercomputer Architectures (offered in a foreign language)	E	6,00		6,00	GPC-2.AMI, GPC-3.AMI, PC-1, PC-2, PC-3, PC-4, PC-6
4	High-Level Modelling and Simulation of Digital Systems	C	6,00	6,00		GPC-2.AMI, GPC-3.AMI, PC-1, PC-2, PC-3, PC-6
5	Data Analysis and Machine Learning	C	6,00	6,00		GPC-2.AMI, GPC-3.AMI, PC-1, PC-2, PC-3, PC-4, PC-6
6	Stochastic Methods for Engineering Applications	C	6,00	6,00		GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-4, PC-6
7	Functional Integrals and Functional Derivatives in Mathematical Modelling	C	6,00	6,00		GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI
8	Analysis of nonlinear and multiphase processes	C	6,00	6,00		GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-10, PC-4, PC-6, PC-9
9	Computer Molecular Biology and Medicine (offered in a foreign language)	C	6,00	6,00		GPC-2.AMI, GPC-3.AMI, PC-4, PC-6, PC-9
10	Modeling in Hydrodynamics	E	6,00	6,00		GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-2

11	Symmetries, Representations and Complex Analysis	E	6,00	6,00		GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI
12	Filtering and Predicting Data	E	6,00	6,00		GPC-3.AMI, PC-1, PC-2, PC-3, PC-6
	Magolego		15,00	3,00	12,00	
1	All-university Pool MAGOLEGO Courses	E	15,00	3,00	12,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI
	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-11, PC-12, 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
	Supercomputer Simulations in Science and Engineering (Research track)		120,00	60,00	60,00	
	Key Seminars		19,00	10,00	9,00	
1	Supercomputer Simulation in Science and Engineering (mentor seminar)	C	19,00	10,00	9,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-12, PC-2, PC-4, PC-8, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Internship		29,00	5,00	24,00	
	Project Internship		5,00	5,00		
1	Project	E	5,00	5,00		GPC-2.APM, GPC-3.APM, PC-1, PC-2, PC-3, PC-4, 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.APM, GPC-2.APM, GPC-3.APM, PC-1, PC-2, PC-3, PC-4, PC-6, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Research Internship		15,00		15,00	
1	Graduation Thesis	C	15,00		15,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-10, PC-11, PC-12, PC-13, 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		54,00	42,00	12,00	
1	Models of Complex Systems	E	6,00		6,00	GPC-1.APM, GPC-2.APM, GPC-3.APM, PC-1, PC-12, PC-2, PC-8
2	Management Information System Design	E	6,00		6,00	GPC-1.APM, GPC-2.APM, GPC-3.APM, PC-1, PC-12, PC-2, PC-6, PC-8
3	Numerical methods of optimization	E	6,00		6,00	GPC-1.APM, GPC-2.APM, GPC-3.APM, PC-12, PC-2, PC-4, PC-6
4	High-Level Modelling and Simulation of Digital Systems	C	6,00	6,00		GPC-2.APM, GPC-3.APM, PC-1, PC-2, PC-3, PC-6

5	Data Analysis and Machine Learning	C	6,00	6,00		GPC-2.APM, GPC-3.APM, PC-1, PC-2, PC-3, PC-4, PC-6, PC-7
6	Stochastic Methods for Engineering Applications	C	6,00	6,00		GPC-1.APM, GPC-2.APM, GPC-3.APM, PC-1, PC-4, PC-6
7	Population Models in Genomics (offered in a foreign language)	C	3,00	3,00		GPC-1.APM, GPC-2.APM, GPC-3.APM, PC-1, PC-12, PC-2, PC-4, PC-8, UC-4
8	Machine Learning for a Model Construction	C	3,00	3,00		GPC-1.APM, GPC-2.APM, GPC-3.APM, PC-1, PC-12, PC-2, PC-4, PC-6, PC-8
9	Selected Chapters of Quantum Mechanics	C	6,00	6,00		GPC-1.APM, GPC-2.APM, GPC-3.APM
10	Supercomputer workshop	C	6,00	6,00		GPC-2.APM, GPC-3.APM, PC-12, PC-2, PC-3, PC-6, PC-8
11	Modeling in Hydrodynamics	E	6,00	6,00		GPC-1.APM, GPC-2.APM, GPC-3.APM, PC-2
12	Symmetries, Representations and Complex Analysis	E	6,00	6,00		GPC-1.APM, GPC-2.APM, GPC-3.APM
13	Introduction to numerical methods of optimization	E	6,00	6,00		GPC-3.APM, PC-1, PC-2, PC-3, PC-6
	Magolego		15,00	3,00	12,00	
1	All-university Pool MAGOLEGO Courses	E	15,00	3,00	12,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI
	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-11, PC-12, PC-13, 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
	Management Systems and Information Processing in Engineering (Research track)		120,00	60,00	60,00	
	Key Seminars		19,00	10,00	9,00	
1	Control and information processing systems (mentor seminar)	C	19,00	10,00	9,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-2, PC-4, PC-5, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Internship		29,00	5,00	24,00	
	Project Internship		5,00	5,00		
1	Project	E	5,00	5,00		GPC-1.APM, GPC-2.APM, GPC-3.APM, PC-1, PC-2, PC-3, PC-4, 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-2.APM, GPC-3.APM, PC-1, PC-2, PC-3, PC-4, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Research Internship		15,00		15,00	

1	Graduation Thesis	C	15,00		15,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-10, PC-11, PC-12, PC-13, 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		54,00	42,00	12,00	
1	Management Information System Design	E	6,00		6,00	GPC-2.APM, GPC-3.APM, PC-1, PC-2, PC-3, PC-4, PC-6
2	Network Modeling	E	6,00		6,00	GPC-1.APM, GPC-2.APM, GPC-3.APM, PC-2, PC-4, PC-6
3	Basics of cybersecurity	E	6,00		6,00	GPC-2.APM, GPC-3.APM, PC-1, PC-2, PC-3, PC-4, PC-6
4	High-Level Modelling and Simulation of Digital Systems	C	6,00	6,00		GPC-2.APM, GPC-3.APM, PC-1, PC-2, PC-3, PC-6
5	Data Analysis and Machine Learning	C	6,00	6,00		GPC-2.APM, GPC-3.APM, PC-1, PC-2, PC-3, PC-4, PC-6, PC-7
6	Stochastic Methods for Engineering Applications	C	6,00	6,00		GPC-1.APM, GPC-2.APM, GPC-3.APM, PC-1, PC-2, PC-3, PC-4, PC-6, PC-7
7	Systems Analysis	C	6,00	6,00		GPC-1.APM, GPC-2.APM, GPC-3.APM, PC-11, PC-4, PC-5
8	Modern Control Theory Methods	C	6,00	6,00		GPC-1.APM, GPC-2.APM, GPC-3.APM, PC-11, PC-2, PC-4, PC-5
9	Applications of the Theory of Operators and Functional Analysis	C	6,00	6,00		GPC-1.APM, GPC-2.APM, GPC-3.APM, PC-5
10	Modeling in Hydrodynamics	E	6,00	6,00		GPC-1.APM, GPC-2.APM, GPC-3.APM, PC-2
11	Symmetries, Representations and Complex Analysis	E	6,00	6,00		GPC-1.APM, GPC-2.APM, GPC-3.APM
12	Filtering and Predicting Data	E	6,00	6,00		GPC-3.APM, PC-1, PC-2, PC-3, PC-6
	Magolego		15,00	3,00	12,00	
1	All-university Pool MAGOLEGO Courses	E	15,00	3,00	12,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI
	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-11, PC-12, PC-13, 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
	Mathematical Methods and Computer Technologies (Research track)		120,00	60,00	60,00	
	Key Seminars		19,00	10,00	9,00	

1	Mathematical methods and computer technology (mentor seminar)	C	19,00	10,00	9,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-10, PC-2, PC-4, PC-9, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Internship		29,00	5,00	24,00	
	Project Internship		5,00	5,00		
1	Project	E	5,00	5,00		GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-10, PC-2, PC-4, PC-9, 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.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-2, PC-3, PC-4, PC-6, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Research Internship		15,00		15,00	
1	Graduation Thesis	C	15,00		15,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-10, PC-11, PC-12, 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		54,00	42,00	12,00	
1	Basics of cybersecurity	E	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-6
2	Methods and Tools for Big Data Processing	E	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-6
3	Multiscale Modeling and Supercomputer Architectures (offered in a foreign language)	E	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-6
4	High-Level Modelling and Simulation of Digital Systems	C	6,00	6,00		GPC-2.AMI, GPC-3.AMI, PC-1, PC-2, PC-3, PC-6
5	Data Analysis and Machine Learning	C	6,00	6,00		GPC-2.AMI, GPC-3.AMI, PC-1, PC-2, PC-3, PC-4, PC-6
6	Stochastic Methods for Engineering Applications	C	6,00	6,00		GPC-2.AMI, GPC-3.AMI, PC-1, PC-2, PC-3, PC-4, PC-6
7	Functional Integrals and Functional Derivatives in Mathematical Modelling	C	6,00	6,00		GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI
8	Analysis of nonlinear and multiphase processes	C	6,00	6,00		GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-10, PC-4, PC-5, PC-9
9	Computer Molecular Biology and Medicine (offered in a foreign language)	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-6

10	Modeling in Hydrodynamics	E	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-6
11	Symmetries, Representations and Complex Analysis	E	6,00	6,00		GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI
12	Filtering and Predicting Data	E	6,00	6,00		GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI
	Magolego		15,00	3,00	12,00	
1	All-university Pool MAGOLEGO Courses	E	15,00	3,00	12,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI
	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-11, PC-12, 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
	Applied Artificial Intelligence Models (Applied track)		120,00	60,00	60,00	
	Key Seminars		16,00	10,00	6,00	
1	Applied Artificial Intelligence Models	C	16,00	10,00	6,00	, GPC-2.AMI, GPC-3.AMI, UC-1, UC-3, UC-4
	Internship		26,00	5,00	21,00	
	Project Internship		8,00	5,00	3,00	
1	Project	E	8,00	5,00	3,00	, GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, 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.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, 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.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Major		66,00	42,00	24,00	
	Compulsory Courses		54,00	36,00	18,00	
1	Big data distributed processing with Hadoop	C	6,00		6,00	
2	Modern data storage technologies	C	6,00		6,00	
3	Advanced Programming in Python	C	6,00		6,00	
4	Machine Learning	C	6,00	6,00		
5	Introduction to Data Analysis	C	6,00	6,00		
6	Advanced Programming in C/C++	C	6,00	6,00		
7	Neural Networks and Deep Learning	C	6,00	6,00		

8	Information Retrieval	C	6,00	6,00		
9	Multithreaded programming in C/C++	C	6,00	6,00		
Elective Courses			12,00	6,00	6,00	
1	Basics of cybersecurity	E	6,00		6,00	
2	Introduction to Deep Learning in NLP (offered in a foreign language)	E	6,00		6,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI
3	Stochastic Methods for Engineering Applications	E	6,00	6,00		
4	2D image processing (offered in a foreign language)	E	6,00	6,00		
5	Theory of formal languages for text and communication	E	6,00	6,00		
6	Corpus Linguistics	E	6,00	6,00		
Magolego			9,00	3,00	6,00	
1	All-university Pool MAGOLEGO Courses	E	9,00	3,00	6,00	GPC-1.AMI, GPC-3.AMI, UC-1, UC-3, UC-5
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, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6

Curriculum agreed:

Academic Supervisor	SLASTNIKOV S.A.	13.10.2022
Dean	KROUK E.A.	13.10.2022
Head of Centre for Educational Model Design	LEPESHKIN I.A.	13.10.2022

* Subject type:

Compulsory course	C
Elective course	E