



National Research University Higher School of Economics (HSE)

Curriculum

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

Educational Programme "Systems Analysis and Mathematical
Technologies"

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

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

1 st, 2025/2026 academic year

APPROVED

20.05.2025

Vice Rector

ROSHCHIN S.Y.

Signed with EDS

Length of Programme: 2 years

Years of Study: 2025/2026 - 2026/2027

Mode of Study: Full Time

Degree: Master's degree / MBA

Block Code	Course	Subject type	Department	Credits	Total Academic Hours	Contact Hours	Allocation of Contact Hours				Additional Information
							1	2	3	4	
	Degree Programme			60,00	2 280	564	98	144	184	140	
	Mathematical Methods and Computer Technologies (Applied track)			60,00	2 280	546	126	176	142	102	
	Major			42,00	1 596	472	112	160	120	80	
	Disciplines of the Degree Programme			36,00	1 368	392	112	160	80	40	
1	Data Analysis and Machine Learning	C	Department of Applied Mathematics	6,00	228	72		32A	40A		Online Course
2	Analysis of nonlinear and multiphase processes	C	Department of Applied Mathematics	6,00	228	80			40	40A	
3	High Performance Computing	C	Department of Applied Mathematics	6,00	228	60	28	32A			
4	Computer Molecular Biology and Medicine	C	Department of Applied Mathematics	6,00	228	60	28	32A			
5	Modeling in Hydrodynamics	C	Department of Applied Mathematics	6,00	228	60	28	32A			
6	Symmetries, Representations and Complex Analysis	C	Department of Applied Mathematics	6,00	228	60	28	32A			
	Elective Courses			6,00	228	80			40	40	
1	Fundamental Quantum Principles and Phenomena	E	Department of Applied Mathematics	6,00	228	60			40	20A	
2	Functional Integrals and Functional Derivatives in Mathematical Modelling	E	Department of Applied Mathematics	6,00	228	80			40	40A	
	Key Seminars			10,00	380	72	14	16	22	20	

1	Mathematical methods and computer technology (mentor seminar)	C	Department of Applied Mathematics	10,00	380	72	14A	16	22	20A	
	Magolego			3,00	114						
1	All-university Pool MAGOLEGO Courses	C		3,00	114						
	Internship			5,00	190	2				2	
	Free			5,00	190	2				2	
1	Project	C		5,00	190	2				2A	
	Management Systems and Information Processing in Engineering (Applied track)			60,00	2 280	566	98	144	184	140	
	Major			42,00	1 596	472	84	128	152	108	
	Disciplines of the Degree Programme			42,00	1 596	472	84	128	152	108	
1	Data Analysis and Machine Learning	C	Department of Applied Mathematics	6,00	228	72		32A	40A		Online Course
2	High Performance Computing	C	Department of Applied Mathematics	6,00	228	60	28	32A			
3	Applications of the Theory of Operators and Functional Analysis	C	Department of Applied Mathematics	6,00	228	60			32	28A	
4	Systems Analysis	C	Department of Applied Mathematics	6,00	228	60	28	32A			
5	Modern Control Theory Methods	C	Department of Applied Mathematics	6,00	228	80			40	40A	
6	Stochastic Methods for Engineering Applications	C	Department of Applied Mathematics	6,00	228	80			40	40A	
7	Filtering and Predicting Data	C	Department of Applied Mathematics	6,00	228	60	28	32A			
	Key Seminars			10,00	380	92	14	16	32	30	
1	Project Seminar	C	Department of Applied Mathematics	6,00	228	20			10	10A	
2	Control and information processing systems (mentor seminar)	C	Department of Applied Mathematics	4,00	152	72	14A	16	22	20A	
	Magolego			3,00	114						
1	All-university Pool MAGOLEGO Courses	C		3,00	114						
	Internship			5,00	190	2				2	
	Free			5,00	190	2				2	
1	Project	C		5,00	190	2				2A	
	Supercomputer Simulations in Science and Engineering (Applied track)			60,00	2 280	546	78	132	198	138	
	Major			42,00	1 596	464	56	116	176	116	
	Disciplines of the Degree Programme			42,00	1 596	464	56	116	176	116	
1	Data Analysis and Machine Learning	C	Department of Applied Mathematics	6,00	228	72		32A	40A		Online Course
2	High Performance Computing	C	Department of Applied Mathematics	6,00	228	60	28	32A			
3	Selected Chapters of Quantum Mechanics	C	Department of Applied Mathematics	6,00	228	60	28	32A			
4	Machine Learning for a Model Construction	C	Department of Applied Mathematics	3,00	114	44				44A	

5	Modelling of Statistical and Nonlinear Systems	C	Department of Applied Mathematics	6,00	228	60		20	40A		
6	Population Models in Genomics	C	Department of Applied Mathematics	3,00	114	28			28A		
7	Stochastic Methods for Engineering Applications	C	Department of Applied Mathematics	6,00	228	80			40	40A	
8	Supercomputer workshop	C	Department of Applied Mathematics	6,00	228	60			28	32A	
Key Seminars				10,00	380	80	22	16	22	20	
1	Supercomputer Simulation in Science and Engineering (mentor seminar)	C	Department of Applied Mathematics	10,00	380	80	22A	16	22	20A	
Magolego				3,00	114						
1	All-university Pool MAGOLEGO Courses	C		3,00	114						
Internship				5,00	190	2				2	
Free				5,00	190	2				2	
1	Project	C		5,00	190	2				2A	

Curriculum agreed:

Academic Supervisor	Сластников С.А.	15.05.2025
Dean	Kovalenko D.G.	16.05.2025
Head of Centre for Educational Model Design	LEPESHKIN I.A.	20.05.2025

* Subject type:

Compulsory course

C

Elective course

E