

Curriculum	APPROVED
Field of study 01.04.04 Applied Mathematics, 01.04.02 Applied Mathematics and Informatics	19.04.2024
Educational Programme "Systems Analysis and Mathematical Technologies"	Vice Rector
Trajectories: "Management Systems and Information Processing in Engineering", "Mathematical Methods and Computer Technologies", "Supercomputer Simulations in Science and Engineering"	ROSHCHIN S.Y.
Implementing unit: Tikhonov Moscow Institute of Electronics and Mathematics, HSE - Moscow	Signed with EDS
1 st, 2024/2025 academic year	

Length of Programme: 2 years Years of Study: 2024/2025 - 2025/2026 Mode of Study: Full Time Degree: Master's degree / MBA

					A	llocation of C	ontact Hours				
Block Code	Course	Subject type	Department	Credits	Total Academic Hours	Contact Hours	1	2	3	4	Additional Information
	Degree Programme			60,00	2 280	464	126	176	102	62	
	Mathematical Methods and Computer	Technolog	gies (Applied track)	60,00	2 280	546	126	176	142	102	
	Major				1 596	472	112	160	120	80	
	Elective Courses				228	80			40	40	
1	Stochastic Methods for Engineering Applications	E	Department of Applied Mathematics	6,00	228	80			40	40A	
2	Filtering and Predicting Data	E	Department of Applied Mathematics	6,00	228	60	28	32A			
3	Fundamental Quantum Principles and Phenomena	E	Department of Applied Mathematics	6,00	228	80			40	40A	
4	Functional Integrals and Functional Derivatives in Mathematical Modelling	E	Department of Applied Mathematics	6,00	228	80			40	40A	
	Обязательные дисциплины прогр	раммы		36,00	1 368	392	112	160	80	40	
1	Data Analysis and Machine Learning	С	Department of Applied Mathematics	6,00	228	72		32A	40A		Online Course
2	Analysis of nonlinear and multiphase processes	С	Department of Applied Mathematics	6,00	228	80			40	40A	
3	High Performance Computing	С	Department of Applied Mathematics	6,00	228	60	28	32A			
4	Computer Molecular Biology and Medicine	С	Department of Applied Mathematics	6,00	228	60	28	32A			Foreign language

5	Modeling in Hydrodynamics	С	Department of Applied Mathematics	6,00	228	60	28	32A			
6	Symmetries, Representations and Complex Analysis	С	Department of Applied Mathematics	6,00	228	60	28	32A			
	Key Seminars			10,00	380	72	14	16	22	20	
	Mathematical methods and	С	Department of Applied	10,00	380	72	14A	16	22	20A	
	computer technology (mentor		Mathematics								
1	seminar)										
	Magolego	-		3,00	114						
	All-university Pool MAGOLEGO	E		3,00	114						
1	Courses										
	Internship			5,00	190	2				2	
	Project Internship	-		5,00	190	2				2	
1	Project	С		5,00	190	2				2A	
	Management Systems and Information track)	n Process	sing in Engineering (Applied	60,00	2 280	546	98	144	174	130	
	Major			42,00	1 596	472	84	128	152	108	
	Elective Courses			6,00	228	60	28	32			
1	Modeling in Hydrodynamics	E	Department of Applied Mathematics	6,00	228	60	28	32A			
2	Symmetries, Representations and Complex Analysis	E	Department of Applied Mathematics	6,00	228	60	28	32A			
3	Filtering and Predicting Data	E	Department of Applied Mathematics	6,00	228	60	28	32A			
	0				4 0 0 0	440	EC	06	450	400	
	Compulsory Courses			36,00	1 368	412	20	90	152	100	
1	Data Analysis and Machine Learning	С	Department of Applied Mathematics	<b>36,00</b> 6,00	228	412 72	00	32A	40A	100	Online Course
1	Data Analysis and Machine Learning High Performance Computing	C C	Department of Applied Mathematics Department of Applied Mathematics	<b>36,00</b> 6,00 6,00	228 228	412 72 60	28	32A 32A	40A	108	Online Course
1 2 3	Compulsory Courses         Data Analysis and Machine         Learning         High Performance Computing         Applications of the Theory of         Operators and Functional Analysis	с с с	Department of Applied Mathematics Department of Applied Mathematics Department of Applied Mathematics	<b>36,00</b> 6,00 6,00 6,00	1 368           228           228           228           228	412 72 60 60	28	32A 32A	40A 32	 28A	Online Course
1 2 3 4	Compulsory Courses         Data Analysis and Machine         Learning         High Performance Computing         Applications of the Theory of         Operators and Functional Analysis         Systems Analysis	с с с	Department of Applied         Mathematics	36,00 6,00 6,00 6,00 6,00	1 368           228           228           228           228           228	412 72 60 60 60	28	32A 32A 32A 32A 32A	40A 32	 28A	Online Course
1 2 3 4 5	Compulsory Courses         Data Analysis and Machine         Learning         High Performance Computing         Applications of the Theory of         Operators and Functional Analysis         Systems Analysis         Modern Control Theory Methods	C C C C	Department of Applied MathematicsDepartment of Applied MathematicsDepartment of Applied MathematicsDepartment of Applied MathematicsDepartment of Applied MathematicsDepartment of Applied MathematicsDepartment of Applied Mathematics	36,00 6,00 6,00 6,00 6,00	1 368           228           228           228           228           228           228           228	412 72 60 60 60 80	28	32A 32A 32A 32A	32 40A 32 40	28A 40A	Online Course
1 2 3 4 5 6	Compulsory Courses         Data Analysis and Machine         Learning         High Performance Computing         Applications of the Theory of         Operators and Functional Analysis         Systems Analysis         Modern Control Theory Methods         Stochastic Methods for         Engineering Applications	C C C C C	Department of Applied MathematicsDepartment of Applied Mathematics	36,00 6,00 6,00 6,00 6,00 6,00	1 368           228           228           228           228           228           228           228           228           228           228	412 72 60 60 60 80 80	28	32A 32A 32A 32A	132 40A 32 40 40 40	28A 40A 40A	Online Course
1 2 3 4 5 6	Compulsory Courses         Data Analysis and Machine         Learning         High Performance Computing         Applications of the Theory of         Operators and Functional Analysis         Systems Analysis         Modern Control Theory Methods         Stochastic Methods for         Engineering Applications         Key Seminars	C C C C C	Department of Applied MathematicsDepartment of Applied Mathematics	36,00 6,00 6,00 6,00 6,00 6,00 10,00	1 368           228           228           228           228           228           228           228           228           380	412 72 60 60 60 80 80 80 72	28 28 14	32A 32A 32A 32A 32A	132 40A 32 40 40 40 22	28A 28A 40A 40A	Online Course
1 2 3 4 5 6 1	Compulsory Courses         Data Analysis and Machine         Learning         High Performance Computing         Applications of the Theory of         Operators and Functional Analysis         Systems Analysis         Modern Control Theory Methods         Stochastic Methods for         Engineering Applications         Key Seminars         Control and information processing         systems (mentor seminar)	C C C C C C	Department of Applied Mathematics	36,00 6,00 6,00 6,00 6,00 6,00 6,00 10,00	1 368           228           228           228           228           228           228           228           380	412           72           60           60           60           80           80           72           72	28 28 28 28 14	32A 32A 32A 32A 32A 16	132 40A 32 40 40 40 22 22	28A 28A 40A 40A 20A 20A	Online Course
1 2 3 4 5 6 1	Compulsory Courses         Data Analysis and Machine         Learning         High Performance Computing         Applications of the Theory of         Operators and Functional Analysis         Systems Analysis         Modern Control Theory Methods         Stochastic Methods for         Engineering Applications         Key Seminars         Control and information processing         systems (mentor seminar)	C C C C C C	Department of Applied Mathematics	36,00 6,00 6,00 6,00 6,00 6,00 6,00 10,00 10,00 3,00	1 368           228           228           228           228           228           228           228           380           380           114	412       72       60       60       60       80       80       72       72	28 28 28 28 14	32A 32A 32A 32A 32A 16	40A 32 40A 40 40 40 22 22	28A 28A 40A 40A 20 20A	Online Course
1 2 3 4 5 6 1 1	Compulsory Courses         Data Analysis and Machine         Learning         High Performance Computing         Applications of the Theory of         Operators and Functional Analysis         Systems Analysis         Modern Control Theory Methods         Stochastic Methods for         Engineering Applications         Key Seminars         Control and information processing         systems (mentor seminar)         Magolego         All-university Pool MAGOLEGO         Courses	C C C C C C C E	Department of Applied Mathematics	36,00 6,00 6,00 6,00 6,00 6,00 6,00 10,00 10,00 3,00	1 368           228           228           228           228           228           228           228           380           380           114	412         72         60         60         60         80         80         72         72         72         72         72         72         72	28 28 28 14 14A	32A 32A 32A 32A 32A 16 16	40A 32 40 40 40 22 22	28A 28A 40A 40A 20A	Online Course
1 2 3 4 5 6 1 1	Compulsory Courses         Data Analysis and Machine         Learning         High Performance Computing         Applications of the Theory of         Operators and Functional Analysis         Systems Analysis         Modern Control Theory Methods         Stochastic Methods for         Engineering Applications         Key Seminars         Control and information processing         systems (mentor seminar)         Magolego         All-university Pool MAGOLEGO         Courses	C C C C C C C E	Department of Applied         Mathematics	36,00 6,00 6,00 6,00 6,00 6,00 6,00 10,00 10,00 3,00 3,00 5,00	1 368           228           228           228           228           228           228           228           380           380           114           114           190	412 72 60 60 60 80 80 80 72 72 72 2	28 28 28 14 14A	32A 32A 32A 32A 32A 16 16	132 40A 32 40 40 40 22 22	28A 28A 40A 40A 200 20A	Online Course
1 2 3 4 5 6 1 1	Compulsory Courses         Data Analysis and Machine         Learning         High Performance Computing         Applications of the Theory of         Operators and Functional Analysis         Systems Analysis         Modern Control Theory Methods         Stochastic Methods for         Engineering Applications         Key Seminars         Control and information processing         systems (mentor seminar)         Magolego         All-university Pool MAGOLEGO         Courses         Internship         Project Internship	C C C C C C E	Department of Applied         Mathematics	36,00 6,00 6,00 6,00 6,00 6,00 6,00 10,00 10,00 3,00 3,00 5,00	1 368           228           228           228           228           228           228           228           380           380           114           114           190           190	412 72 60 60 60 80 80 80 72 72 72 2 2	28 28 28 28 14 14A	32A 32A 32A 32A 16 16	40A 32 40 40 40 40 22 22	28A 28A 40A 40A 20A 20A 20A	Online Course
1 2 3 4 5 6 1 1 1	Compulsory Courses         Data Analysis and Machine         Learning         High Performance Computing         Applications of the Theory of         Operators and Functional Analysis         Systems Analysis         Modern Control Theory Methods         Stochastic Methods for         Engineering Applications         Key Seminars         Control and information processing         systems (mentor seminar)         Magolego         All-university Pool MAGOLEGO         Courses         Internship         Project Internship	C C C C C C C C C	Department of Applied         Mathematics         Department of Applied         Mathematics	36,00 6,00 6,00 6,00 6,00 6,00 6,00 10,00 10,00 3,00 3,00 5,00 5,00	1 368           228           228           228           228           228           228           380           380           114           114           190           190	412 72 60 60 60 80 80 80 72 72 72 72 2 2 2	28 28 28 28 14 14A	32A 32A 32A 32A 16 16	40A 32 40 40 40 22 22	28A 28A 40A 40A 20A 20A 20A 20A	Online Course
1 2 3 4 5 6 1 1 1	Compulsory Courses         Data Analysis and Machine         Learning         High Performance Computing         Applications of the Theory of         Operators and Functional Analysis         Systems Analysis         Modern Control Theory Methods         Stochastic Methods for         Engineering Applications         Key Seminars         Control and information processing         systems (mentor seminar)         Magolego         All-university Pool MAGOLEGO         Courses         Internship         Project Internship         Project	C C C C C C E E e and En	Department of Applied Mathematics Department of Applied Mathematics Department of Applied Mathematics Department of Applied Mathematics Department of Applied Mathematics Department of Applied Mathematics	36,00 6,00 6,00 6,00 6,00 6,00 6,00 10,00 10,00 3,00 3,00 5,00 5,00 5,00	1 368         228         228         228         228         228         228         380         380         114         114         190         190         2280	412 72 60 60 60 80 80 80 72 72 72 72 2 2 2 2	28 28 28 14 14A	32A 32A 32A 32A 16 16	132 40A 32 40 40 40 22 22 22	28A 28A 40A 40A 20A 20A 20A 20A 20A 20A 136	Online Course

	Elective Courses				228	60	28	32			
1	Modeling in Hydrodynamics	E	Department of Applied Mathematics	6,00	228	60	28	32A			
2	Symmetries, Representations and Complex Analysis	E	Department of Applied Mathematics	6,00	228	60	28	32A			
	Compulsory Courses	36,00	1 368	404	56	96	136	116			
1	Data Analysis and Machine Learning	С	Department of Applied Mathematics	6,00	228	72		32A	40A		Online Course
2	High Performance Computing	С	Department of Applied Mathematics	6,00	228	60	28	32A			
3	Selected Chapters of Quantum Mechanics	С	Department of Applied Mathematics	6,00	228	60	28	32A			
4	Machine Learning for a Model Construction	С	Department of Applied Mathematics	3,00	114	44				44A	
5	Population Models in Genomics	С	Department of Applied Mathematics	3,00	114	28			28A		Foreign language
6	Stochastic Methods for Engineering Applications	С	Department of Applied Mathematics	6,00	228	80			40	40A	
7	Supercomputer workshop	С	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)	С	Department of Applied Mathematics	10,00	380	80	22A	16	22	20A	
	Magolego			3,00	114						
1	All-university Pool MAGOLEGO Courses	E		3,00	114						
	Internship				190						
	Project Internship			5,00	190						
1	Project	С		5,00	190						

## Curriculum agreed:

Academic Supervisor	SLASTNIKOV S.A.	10.04.2024
Dean	KROUK E.A.	12.04.2024
Head of Centre for Educational Model Design	LEPESHKIN I.A.	18.04.2024

* Subject type:	
Compulsory course	С
Elective course	E