National Research University Higher School of Economics (HSE)

Curriculum

Field of study 09.04.01 Information Science and Computation Technology

Educational Programme "Computer Systems and Networks"

Trajectories: "Computer Networks", "Computing Systems and Complexes", "Digital Twins of Electronics and Computer Products", "Highload Systems and Code Optimization"

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

2 nd, 2024/2025 academic year

APPROVED

15.04.2024

Vice Rector

ROSHCHIN S.Y.

Signed with EDS

Length of Programme: 2 years
Years of Study: 2023/2024 - 2024/2025
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**	**230**	**114**	**100**	**18**	**4**	
	Highload Systems and Code Optimization (Applied track)			**60,00**	**2 280**	**294**	**94**	**100**	**96**	**4**	
	Major			**24,00**	**912**	**228**	**76**	**80**	**72**		
1	IT Product Management	C	School of Computer Engineering	3,00	114	48			48A		
2	Multithreaded Programming	C	School of Computer Engineering	6,00	228	48	24	24A			
3	Operating Systems	C	School of Computer Engineering	6,00	228	48		24	24A		
4	Advanced Programming in Python	C	Department of Applied Mathematics	6,00	228	60	28	32A			
5	IT-Projects and IT-Processes Management	C	School of Computer Engineering	3,00	114	24	24A				
	Final State Certification (FSC)			**3,00**	**114**	**2**				**2**	
1	Final Qualification Paper	C		3,00	114	2				2A	
	Key Seminars			**9,00**	**342**	**58**	**18**	**20**	**20**		
1	Highload systems and code optimization	C	School of Computer Engineering	6,00	228	22	6A	8	8A		
2	Project Seminar	C	School of Computer Engineering	3,00	114	36	12	12	12A		
	Magolego			**6,00**	**228**						
1	All-university Pool MAGOLEGO Courses	E		6,00	228						
	Internship			**18,00**	**684**	**6**			**4**	**2**	

	Research Internship			**9,00**	**342**	**2**				**2**	
1	Graduation Thesis	C		9,00	342	2				2	
	Project Internship			**2,00**	**76**	**2**			**2**		
1	Project	C		2,00	76	2			2A		
	Professional Internship			**7,00**	**266**	**2**			**2**		
1	Graduation Internship	C		7,00	266	2			2A		
	Computing Systems and Complexes (Applied track)			**60,00**	**2 280**	**236**	**114**	**100**	**18**	**4**	
	Major			**21,00**	**798**	**154**	**84**	**70**			
1	The Architecture of the Computing Cores of Modern Microprocessors	C	School of Computer Engineering	6,00	228	34	12	22A			
2	Neural Networks: Tasks and Computation	C	School of Computer Engineering	6,00	228	48	24	24A			
3	Architecture Features Support in the Operating Systems Development	C	School of Computer Engineering	6,00	228	48	24	24A			
4	IT-Projects and IT-Processes Management	C	School of Computer Engineering	3,00	114	24	24A				
	Final State Certification (FSC)			**3,00**	**114**	**2**				**2**	
1	Final Qualification Paper	C		3,00	114	2				2A	
	Key Seminars			**9,00**	**342**	**76**	**30**	**30**	**16**		
1	Research Seminar	C	School of Computer Engineering	3,00	114	28	14	14A			
2	Project Seminar	C	School of Computer Engineering	3,00	114	36	12	12	12A		
3	Mentor's Seminar "Computing Systems and Complexes"	C	School of Computer Engineering	3,00	114	12	4	4	4A		
	Magolego			**9,00**	**342**						
1	All-university Pool MAGOLEGO Courses	E		9,00	342						
	Internship			**18,00**	**684**	**4**			**2**	**2**	
	Research Internship			**9,00**	**342**	**2**				**2**	
1	Graduation Thesis	C		9,00	342	2				2	
	Professional Internship			**9,00**	**342**	**2**			**2**		
1	Work Experience Internship	C		9,00	342	2			2A		
	Computer Networks (Applied track)			**60,00**	**2 280**	**250**	**126**	**102**	**18**	**4**	
	Major			**21,00**	**798**	**168**	**96**	**72**			
1	Security of Computer Systems and Computer Networks	C	School of Computer Engineering	6,00	228	48	24	24A			
2	Wireless Networks and Portable Systems	C	School of Computer Engineering	6,00	228	48	24	24A			
3	IT-Projects and IT-Processes Management	C	School of Computer Engineering	3,00	114	24	24A				
4	Management and Monitoring of Computer Networks	C	School of Computer Engineering	6,00	228	48	24	24A			
	Final State Certification (FSC)			**3,00**	**114**	**2**				**2**	
1	Final Qualification Paper	C		3,00	114	2				2A	
	Key Seminars			**9,00**	**342**	**76**	**30**	**30**	**16**		

1	Research Seminar	C	School of Computer Engineering	3,00	114	28	14	14A			
2	Project Seminar	C	School of Computer Engineering	3,00	114	36	12	12	12A		
3	Mentor's Seminar "Computer Networks"	C	School of Computer Engineering	3,00	114	12	4	4	4A		
	Magolego			**9,00**	**342**						
1	All-university Pool MAGOLEGO Courses	E		9,00	342						
	Internship			**18,00**	**684**	**4**			**2**	**2**	
	Research Internship			**9,00**	**342**	**2**				**2**	
1	Graduation Thesis	C		9,00	342	2				2	
	Professional Internship			**9,00**	**342**	**2**			**2**		
1	Work Experience Internship	C		9,00	342	2			2A		
	Digital Twins of Electronics and Computer Products (Applied track)			**60,00**	**2 280**	**182**	**86**	**86**	**6**	**4**	
	Major			**12,00**	**456**	**120**	**60**	**60**			
1	Comprehensive Study of Physical Processes in Devices by Means of Computer Modeling	C	School of Computer Engineering	3,00	114	36		36A			
2	Methods and Instruments of Measurement, Test and Control	C	School of Computer Engineering	6,00	228	48	24	24A			
3	Fundamentals of Devices Dependability	C	School of Computer Engineering	3,00	114	36	36A				
	Final State Certification (FSC)			**3,00**	**114**	**2**				**2**	
1	Final Qualification Paper	C		3,00	114	2				2A	
	Key Seminars			**18,00**	**684**	**56**	**26**	**26**	**4**		
1	Research Seminar "Modern Methods of Creating Electronic Layouts and Digital Doubles"	C	School of Computer Engineering	6,00	228	28	14	14A			
2	Project Seminar "Standardization in the Field of Design of Electronic and Computer Equipment Products"	C	School of Computer Engineering	9,00	342	16	8	8A			
3	Mentor's Seminar «Digital Transformation of Highly Reliable Product Design Processes»	C	School of Computer Engineering	3,00	114	12	4	4A	4A		
	Magolego			**9,00**	**342**						
1	All-university Pool MAGOLEGO Courses	E		9,00	342						
	Internship			**18,00**	**684**	**4**			**2**	**2**	
	Research Internship			**9,00**	**342**	**2**				**2**	
1	Graduation Thesis	C		9,00	342	2				2	
	Professional Internship			**9,00**	**342**	**2**			**2**		
1	Work Experience Internship	C		9,00	342	2			2A		

Curriculum agreed:

Academic Supervisor VISHNEKOV A.V. 11.04.2024

Dean	KROUK E.A.	11.04.2024
Head of Centre for Educational Model Design	LEPESHKIN I.A.	12.04.2024

* Subject type:

Compulsory course	C
Elective course	E