



National Research University Higher School of Economics (HSE)

Curriculum

Field of study 11.04.04 Electronics and Nanoelectronics
 Educational Programme "Applied Electronics and Photonics"
 Trajectories: "Engineering in Electronics, Micro- and Nanoelectronics", "Quantum Nanoelectronics and Materials", "Technological Foundations of Quantum Computing and Quantum Communications"

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

1 st, 2022/2023 academic year

APPROVED

Vice Rector

ROSHCHIN S.Y.

Signed with EDS

Length of Programme: 2 years

Years of Study: 2022/2023 - 2023/2024

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		262	262	388	388	
Engineering in Electronics, Micro- and Nanoelectronics (Applied track)				60,00	2 280	76	90	90	140	140	
Major				42,00	1 596		74	74	118	118	
Specialization Disciplines				42,00	1 596	384	74	74	118	118	
1	Automated Systems to Ensure Reliability and Quality of Electronic Means	C	School of Electronic Engineering	6,00	228	60			30	30A	
2	Analog and Digital Devices	C	School of Electronic Engineering	12,00	456	104	22	22A	30	30A	Online Course
3	Computer-based Measurement Technologies	C	School of Electronic Engineering	6,00	228	68			34	34A	
4	Micro- and Nanoelectronics	C	School of Electronic Engineering	6,00	228	48	24	24A			
5	Fundamentals of conceptual design of innovations	C	School of Electronic Engineering	6,00	228	56	28	28A			
6	Design and Modeling of the Element Base of Microelectronics	C	School of Electronic Engineering	6,00	228	48			24	24A	
Key Seminars				6,00	228	72	16	16	20	20	
1	Engineering in Electronics, Micro- and Nanoelectronics (mentor's workshop)	C	School of Electronic Engineering	3,00	114	36	8	8	10	10A	
2	Research and Design Seminar	C	School of Electronic Engineering	3,00	114	36	8	8	10	10A	
Magolego				3,00	114						

1	Дисциплина других планов	E		3,00	114						
	Internship			9,00	342	4			2	2	
	Project Internship			6,00	228	2				2	
1	Project	E		6,00	228	2				2A	
	Professional Internship			3,00	114	2			2		
1	Work Experience Internship	C		3,00	114	2			2A		
	Quantum Nanoelectronics and Materials (Applied track)			60,00	2 280	76	86	86	124	124	
	Major			42,00	1 596		70	70	102	102	
	Specialization Disciplines			42,00	1 596	344	70	70	102	102	
1	Analytical and Numerical Modeling	C	School of Electronic Engineering	6,00	228	48	24A	24A			
2	Labs in quantum photonics and cryptography	C	School of Electronic Engineering	6,00	228	48			24	24A	
3	Materials and Instruments for Nano- and Optoelectronics	C	School of Electronic Engineering	6,00	228	48	24	24A			
4	Solid-state Electronics Materials	C	School of Electronic Engineering	6,00	228	48			24	24A	Online Course
5	Applied Quantum and Statistical Physics	C	School of Electronic Engineering	12,00	456	104	22A	22	30A	30A	
6	Experimental Methods of Photonics	C	School of Electronic Engineering	6,00	228	48			24	24A	
	Key Seminars			6,00	228	72	16	16	20	20	
1	Quantum nanoelectronics and materials (mentor workshop)	C	School of Electronic Engineering	3,00	114	36	8	8	10	10A	
2	Research and Design Seminar	C	School of Electronic Engineering	3,00	114	36	8	8	10	10A	
	Magolego			3,00	114						
1	Дисциплина других планов	E		3,00	114						
	Internship			9,00	342	4			2	2	
	Project Internship			6,00	228	2				2	
1	Project	E		6,00	228	2				2A	
	Professional Internship			3,00	114	2			2		
1	Work Experience Internship	C		3,00	114	2			2A		
	Technological Foundations of Quantum Computing and Quantum Communications (Applied track)			60,00	2 280	76	86	86	124	124	
	Major			42,00	1 596		70	70	102	102	
	Specialization Disciplines			42,00	1 596	344	70	70	102	102	
1	Analytical and Numerical Modeling	C	School of Electronic Engineering	6,00	228	48	24A	24A			
2	Labs in quantum photonics and cryptography	C	School of Electronic Engineering	6,00	228	48			24	24A	
3	Materials and Instruments for Nano- and Optoelectronics	C	School of Electronic Engineering	6,00	228	48	24	24A			
4	Solid-state Electronics Materials	C	School of Electronic Engineering	6,00	228	48			24	24A	Online Course
5	Applied Quantum and Statistical Physics	C	School of Electronic Engineering	12,00	456	104	22A	22	30A	30A	

6	Experimental Methods of Photonics	C	School of Electronic Engineering	6,00	228	48			24	24A	
Key Seminars				6,00	228	72	16	16	20	20	
1	Research and Design Seminar	C	School of Electronic Engineering	3,00	114	36	8	8	10	10A	
2	Technological Foundations of Quantum Computing and Quantum Communications (mentor's workshop)	C	School of Electronic Engineering	3,00	114	36	8	8	10	10A	
Magolego				3,00	114						
1	Дисциплина других планов	E		3,00	114						
Internship				9,00	342	4			2	2	
Project Internship				6,00	228	2				2	
1	Project	E		6,00	228	2				2A	
Professional Internship				3,00	114	2			2		
1	Work Experience Internship	C		3,00	114	2			2A		

Curriculum agreed:

Academic Supervisor

ARUTYUNOV K.Y.

Dean

KROUK E.A.

Head of Degree Programmes
Development Office

MAMONOVA M.A.

* Subject type:

Compulsory course

C

Elective course

E