



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
 2 nd, 2023/2024 academic year

APPROVED
 17.03.2023
 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 | 160 | 68 | 70 | 24 | 4 | |
| Engineering in Electronics, Micro- and Nanoelectronics (Applied track) | | | | 60,00 | 2 280 | 166 | 68 | 70 | 24 | 4 | |
| Major | | | | 12,00 | 456 | 96 | 48 | 48 | | | |
| Specialization Disciplines | | | | 12,00 | 456 | 96 | 48 | 48 | | | |
| 1 | Measurement and Control of Parameters of Electronic Components and Means | C | School of Electronic Engineering | 6,00 | 228 | 48 | 24 | 24A | | | |
| 2 | CAD Systems for Micro- and Nanoelectronics Devices | C | School of Electronic Engineering | 6,00 | 228 | 48 | 24 | 24A | | | |
| Final State Certification (FSC) | | | | 6,00 | 228 | 2 | | | | 2 | |
| 1 | Final Qualification Paper | C | | 6,00 | 228 | 2 | | | | 2A | |
| Key Seminars | | | | 9,00 | 342 | 64 | 20 | 22 | 22 | | |
| 1 | Engineering in Electronics, Micro- and Nanoelectronics (mentor's workshop) | C | School of Electronic Engineering | 6,00 | 228 | 36 | 12 | 14 | 10A | | |
| 2 | Research and Design Seminar | C | School of Electronic Engineering | 3,00 | 114 | 28 | 8 | 8 | 12A | | |
| Magolego | | | | 6,00 | 228 | | | | | | |
| 1 | All-university Pool MAGOLEGO Courses | E | | 6,00 | 228 | | | | | | |
| Internship | | | | 27,00 | 1 026 | 4 | | | | 2 | 2 |
| Research Internship | | | | 18,00 | 684 | 2 | | | | | 2 |
| 1 | Graduation Thesis | C | | 18,00 | 684 | 2 | | | | | 2 |
| Professional Internship | | | | 9,00 | 342 | 2 | | | | 2 | |

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|---|--|---|----------------------------------|--------------|--------------|------------|-----------|-----------|-----------|----------|
| 1 | Graduation Internship | C | | 9,00 | 342 | 2 | | | 2A | |
| | Quantum Nanoelectronics and Materials (Applied track) | | | 60,00 | 2 280 | 166 | 68 | 70 | 24 | 4 |
| | Major | | | 12,00 | 456 | 96 | 48 | 48 | | |
| | Specialization Disciplines | | | 12,00 | 456 | 96 | 48 | 48 | | |
| 1 | Special Workshop on the Technological Foundations of Creating Nanostructures | C | School of Electronic Engineering | 6,00 | 228 | 48 | 24 | 24A | | |
| 2 | Technological Foundations of Quantum Computing and Quantum Communications | C | School of Electronic Engineering | 6,00 | 228 | 48 | 24 | 24A | | |
| | Final State Certification (FSC) | | | 6,00 | 228 | 2 | | | | 2 |
| 1 | Final Qualification Paper | C | | 6,00 | 228 | 2 | | | | 2A |
| | Key Seminars | | | 9,00 | 342 | 64 | 20 | 22 | 22 | |
| 1 | Quantum nanoelectronics and materials (mentor workshop) | C | School of Electronic Engineering | 6,00 | 228 | 36 | 12 | 14 | 10A | |
| 2 | Research and Design Seminar | C | School of Electronic Engineering | 3,00 | 114 | 28 | 8 | 8 | 12A | |
| | Magolego | | | 6,00 | 228 | | | | | |
| 1 | All-university Pool MAGOLEGO Courses | E | | 6,00 | 228 | | | | | |
| | Internship | | | 27,00 | 1 026 | 4 | | | 2 | 2 |
| | Research Internship | | | 18,00 | 684 | 2 | | | | 2 |
| 1 | Graduation Thesis | C | | 18,00 | 684 | 2 | | | | 2 |
| | Professional Internship | | | 9,00 | 342 | 2 | | | 2 | |
| 1 | Graduation Internship | C | | 9,00 | 342 | 2 | | | 2A | |
| | Technological Foundations of Quantum Computing and Quantum Communications (Applied track) | | | 60,00 | 2 280 | 166 | 68 | 70 | 24 | 4 |
| | Major | | | 12,00 | 456 | 96 | 48 | 48 | | |
| | Specialization Disciplines | | | 12,00 | 456 | 96 | 48 | 48 | | |
| 1 | Special Workshop on the Technological Foundations of Creating Nanostructures | C | School of Electronic Engineering | 6,00 | 228 | 48 | 24 | 24A | | |
| 2 | Technological Foundations of Quantum Computing and Quantum Communications | C | School of Electronic Engineering | 6,00 | 228 | 48 | 24 | 24A | | |
| | Final State Certification (FSC) | | | 6,00 | 228 | 2 | | | | 2 |
| 1 | Final Qualification Paper | C | | 6,00 | 228 | 2 | | | | 2A |
| | Key Seminars | | | 9,00 | 342 | 64 | 20 | 22 | 22 | |
| 1 | Research and Design Seminar | C | School of Electronic Engineering | 3,00 | 114 | 28 | 8 | 8 | 12A | |
| 2 | Technological Foundations of Quantum Computing and Quantum Communications (mentor's workshop) | C | School of Electronic Engineering | 6,00 | 228 | 36 | 12 | 14 | 10A | |
| | Magolego | | | 6,00 | 228 | | | | | |
| 1 | All-university Pool MAGOLEGO Courses | E | | 6,00 | 228 | | | | | |
| | Internship | | | 27,00 | 1 026 | 4 | | | 2 | 2 |

| | | | | | | | | | | | |
|---|--------------------------------|---|--|--------------|------------|----------|--|--|----|----------|--|
| | Research Internship | | | 18,00 | 684 | 2 | | | | 2 | |
| 1 | Graduation Thesis | C | | 18,00 | 684 | 2 | | | | 2 | |
| | Professional Internship | | | 9,00 | 342 | 2 | | | | 2 | |
| 1 | Graduation Internship | C | | 9,00 | 342 | 2 | | | 2A | | |

Curriculum agreed:

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|--|----------------|------------|
| Academic Supervisor | ARUTYUNOV K.Y. | 20.02.2023 |
| Dean | KROUK E.A. | 20.02.2023 |
| Head of Centre for Educational Model Design | LEPESHKIN I.A. | 02.03.2023 |

* Subject type:

Compulsory course

C

Elective course

E