National Research University Higher School of Economics (HSE)

Curriculum

Field of study 11.04.02 Infocommunication Technologies and Systems

Educational Programme "Internet of Things and Cyber-physical Systems"

Trajectories: "Artficial Intelligence Software and Hardware", "Internet of Things"

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

2 nd, 2024/2025 academic year

APPROVED

10.04.2024

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** | **294** | **110** | **124** | **62** | **4** | |
| | **Internet of Things (Applied track)** | | | **60,00** | **2 280** | **300** | **110** | **124** | **62** | **4** | |
| | **Major** | | | **21,00** | **798** | **220** | **90** | **100** | **30** | | |
| 1 | Machine learning and artificial intelligence | C | School of Electronic Engineering | 6,00 | 228 | 60 | 30 | 30A | | | |
| 2 | Methods and Systems for Processing Big Data | C | School of Electronic Engineering | 6,00 | 228 | 60 | | 30 | 30A | | |
| 3 | Sensor data processing | C | School of Electronic Engineering | 3,00 | 114 | 30 | 30A | | | | |
| 4 | Building distributed systems and cloud computing | C | School of Electronic Engineering | 6,00 | 228 | 70 | 30 | 40A | | | |
| | **Final State Certification (FSC)** | | | **3,00** | **114** | **2** | | | | **2** | |
| 1 | Final Qualification Paper | C | | 3,00 | 114 | 2 | | | | 2A | |
| | **Key Seminars** | | | **6,00** | **228** | **74** | **20** | **24** | **30** | | |
| 1 | Internet of Things (mentor workshop) | C | School of Electronic Engineering | 3,00 | 114 | 24 | 8 | 8 | 8A | | |
| | **Magolego** | | | **3,00** | **114** | | | | | | |
| 1 | All-university Pool MAGOLEGO Courses | E | | 3,00 | 114 | | | | | | |
| | **Internship** | | | **27,00** | **1 026** | **4** | | | **2** | **2** | |
| | **Research Internship** | | | **15,00** | **570** | **2** | | | | **2** | |
| 1 | - | C | | 15,00 | 570 | 2 | | | | 2 | |
| | **Professional Internship** | | | **12,00** | **456** | **2** | | | **2** | | |
| 1 | Work Experience Internship | C | | 12,00 | 456 | 2 | | | 2A | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| | **General Components** | | | **3,00** | **114** | **50** | **12** | **16** | **22** | | |
| | **Key Seminars** | | | **3,00** | **114** | **50** | **12** | **16** | **22** | | |
| 1 | Project Seminar | C | School of Electronic Engineering | 3,00 | 114 | 50 | 12 | 16 | 22A | | |
| | **Artficial Intelligence Software and Hardware (Applied track)** | | | **60,00** | **2 280** | **290** | **140** | **84** | **62** | **4** | |
| | **Major** | | | **21,00** | **798** | **210** | **120** | **60** | **30** | | |
| 1 | Computer Architectures | C | School of Electronic Engineering | 3,00 | 114 | 30 | 30A | | | | |
| 2 | Multithreaded Programming | C | School of Electronic Engineering | 3,00 | 114 | 30 | | | 30A | | |
| 3 | Programming of neurocomputer systems | C | School of Electronic Engineering | 3,00 | 114 | 30 | 30A | | | | |
| 4 | Industrial Programming | C | School of Electronic Engineering | 3,00 | 114 | 30 | | 30A | | | |
| 5 | Circuitry of Computing Systems and Devices | C | School of Electronic Engineering | 3,00 | 114 | 30 | 30A | | | | |
| 6 | Digital Signal Processing | C | School of Electronic Engineering | 6,00 | 228 | 60 | 30 | 30A | | | |
| | **Final State Certification (FSC)** | | | **3,00** | **114** | **2** | | | | **2** | |
| 1 | Final Qualification Paper | C | | 3,00 | 114 | 2 | | | | 2A | |
| | **Key Seminars** | | | **6,00** | **228** | **74** | **20** | **24** | **30** | | |
| 1 | Hardware and software systems for AI (mentor workshop) | C | School of Electronic Engineering | 3,00 | 114 | 24 | 8 | 8 | 8A | | |
| | **Magolego** | | | **3,00** | **114** | | | | | | |
| 1 | All-university Pool MAGOLEGO Courses | E | | 3,00 | 114 | | | | | | |
| | **Internship** | | | **27,00** | **1 026** | **4** | | | **2** | **2** | |
| | **Research Internship** | | | **15,00** | **570** | **2** | | | | **2** | |
| 1 | - | C | | 15,00 | 570 | 2 | | | | 2 | |
| | **Professional Internship** | | | **12,00** | **456** | **2** | | | **2** | | |
| 1 | Work Experience Internship | C | | 12,00 | 456 | 2 | | | 2A | | |

***Curriculum agreed:***

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|---|---|---|
| Academic Supervisor | IVANOV I.A. | 28.02.2024 |
| Dean | KROUK E.A. | 01.03.2024 |
| Head of Centre for Educational Model Design | LEPESHKIN I.A. | 10.04.2024 |

* Subject type:

| | |
|---|---|
| Compulsory course | C |
| Elective course | E |