



National Research University Higher School of Economics (HSE)

Curriculum

Field of study 01.03.04 Applied Mathematics

Educational Programme "Applied Mathematics"

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

3 rd, 2024/2025 academic year

APPROVED

19.04.2024

Vice Rector

ROSHCHIN S.Y.

Signed with EDS

Length of Programme: 4 years

Years of Study: 2022/2023 - 2025/2026

Mode of Study: Full Time

Degree: Bachelor's degree

| Block Code                                 | Course  | Subject type | Department                          | Credits      | Total Academic Hours | Contact Hours | Allocation of Contact Hours |            |            |            | Additional Information |
|--|---|--------------|-------------------------------------|--------------|----------------------|---------------|-----------------------------|------------|------------|------------|------------------------|
|  |   |              |                                     |              |                      |               | 1                           | 2          | 3          | 4          |                        |
| <b>Degree Programme</b>                    |   |              |                                     | <b>60,00</b> | <b>2 280</b>         | <b>884</b>    | <b>180</b>                  | <b>224</b> | <b>278</b> | <b>202</b> |                        |
| <b>Data Culture</b>                        |   |              |                                     | <b>4,00</b>  | <b>152</b>           | <b>86</b>     |                             | <b>42</b>  | <b>42</b>  | <b>2</b>   |                        |
| 1  | Data Analysis and Machine Learning                                      | C            | Department of Applied Mathematics   | 3,00         | 114                  | 80            |                             | 40         | 40A        |            | Online Course          |
| 2  | External Examinations on Digital Skills. Final Level                    | C            | отдел развития цифровых компетенций |              |                      | 2             |                             | 2A         |            |            |                        |
| 3  | Data Science, AI and Generative Models Independent Test. Advanced Level | C            | отдел развития цифровых компетенций | 1,00         | 38                   | 2             |                             |            |            | 2A         | Online Course          |
| 4  | Independent Programming Test. Advanced Level                            | C            | отдел развития цифровых компетенций |              |                      | 2             |                             |            | 2A         |            | Online Course          |
| <b>Major</b>                               |   |              |                                     | <b>33,00</b> | <b>1 254</b>         | <b>612</b>    | <b>128</b>                  | <b>128</b> | <b>196</b> | <b>160</b> |                        |
| <b>Core Professional Block (Major)</b>     |   |              |                                     | <b>21,00</b> | <b>798</b>           | <b>434</b>    | <b>120</b>                  | <b>120</b> | <b>116</b> | <b>78</b>  |                        |
| 1  | Optimization Methods  | C            | Department of Applied Mathematics   | 3,00         | 114                  | 72            | 36                          | 36A        |            |            |                        |
| 2  | Operating Systems   | C            | Department of Applied Mathematics   | 3,00         | 114                  | 56            | 28A                         | 28A        |            |            |                        |
| 3  | Theory of Stochastic Processes  | C            | Department of Applied Mathematics   | 5,00         | 190                  | 96            | 28                          | 28A        | 40A        |            |                        |
| 4  | Equations of Mathematical Physics                                       | C            | Department of Applied Mathematics   | 4,00         | 152                  | 80            |                             |            | 40         | 40A        |                        |
| 5  | Functional Analysis   | C            | Department of Applied Mathematics   | 3,00         | 114                  | 56            | 28                          | 28A        |            |            |                        |
| 6  | Numerical Methods   | C            | Department of Applied Mathematics   | 3,00         | 114                  | 74            |                             |            | 36         | 38A        | Foreign language       |
| <b>Elective Professional Block (Major)</b> |   |              |                                     | <b>12,00</b> | <b>456</b>           | <b>178</b>    | <b>8</b>                    | <b>8</b>   | <b>80</b>  | <b>82</b>  |                        |
| <b>Дисциплины по выбору ОП</b>             |   |              |                                     | <b>9,00</b>  | <b>342</b>           | <b>138</b>    | <b>8</b>                    | <b>8</b>   | <b>40</b>  | <b>82</b>  |                        |

|                                       |                                   |   |                                     |              |            |            |           |           |           |           |                  |
|---------------------------------------|-----------------------------------|---|-------------------------------------|--------------|------------|------------|-----------|-----------|-----------|-----------|------------------|
| 1                                     | Asymptotical Methods              | C | Department of Applied Mathematics   | 3,00         | 114        | 44         |           |           |           | 44A       |                  |
| 2                                     | Databases                         | C | Department of Applied Mathematics   | 3,00         | 114        | 60         |           |           | 32        | 28A       |                  |
| 3                                     | Computer Practicum 3              | C | Department of Applied Mathematics   | 3,00         | 114        | 34         | 8         | 8A        | 8         | 10A       |                  |
| <b>Дисциплины по выбору студентов</b> |                                   |   |                                     | <b>3,00</b>  | <b>114</b> | <b>40</b>  |           |           | <b>40</b> |           |                  |
| 1                                     | Elective Courses                  | E |                                     | 3,00         | 114        | 40         |           |           | 40A       |           |                  |
| <b>Minor</b>                          |                                   |   |                                     | <b>10,00</b> | <b>380</b> | <b>152</b> | <b>38</b> | <b>38</b> | <b>38</b> | <b>38</b> |                  |
| 1                                     | Minor                             | E |                                     | 10,00        | 380        | 152        | 38        | 38A       | 38        | 38A       |                  |
| <b>English</b>                        |                                   |   |                                     |              |            | <b>2</b>   |           |           | <b>2</b>  |           |                  |
| <b>Examinations</b>                   |                                   |   |                                     |              |            | <b>2</b>   |           |           | <b>2</b>  |           |                  |
| 1                                     | Independent English Exam          | C | School of Foreign Languages         |              |            | 2          |           |           | 2A        |           | Foreign language |
| <b>General Courses</b>                |                                   |   |                                     | <b>4,00</b>  | <b>152</b> | <b>30</b>  | <b>14</b> | <b>16</b> |           |           |                  |
| <b>Optional General Courses</b>       |                                   |   |                                     | <b>4,00</b>  | <b>152</b> | <b>30</b>  | <b>14</b> | <b>16</b> |           |           |                  |
| 1                                     | Economics                         | C | Department of Theoretical Economics | 4,00         | 152        | 30         | 14        | 16A       |           |           | Online Course    |
| <b>Internship</b>                     |                                   |   |                                     | <b>9,00</b>  | <b>342</b> | <b>2</b>   |           |           |           | <b>2</b>  |                  |
| <b>Project Internship</b>             |                                   |   |                                     | <b>5,00</b>  | <b>190</b> | <b>2</b>   |           |           |           | <b>2</b>  |                  |
| 1                                     | Research or Applied Project (3rd) | C |                                     | 5,00         | 190        | 2          |           |           |           | 2A        |                  |
| <b>Professional Internship</b>        |                                   |   |                                     | <b>4,00</b>  | <b>152</b> |            |           |           |           |           |                  |
| 1                                     | Work Experience Internship        | C |                                     | 4,00         | 152        |            |           |           |           |           |                  |

**Curriculum agreed:**

|   |                |            |
|---|----------------|------------|
| Academic Supervisor                         | Presnova A.P.  | 12.03.2024 |
| Dean  | KROUK E.A.     | 12.03.2024 |
| Head of Centre for Educational Model Design | LEPESHKIN I.A. | 18.04.2024 |

\* Subject type:

Compulsory course

C

Elective course

E

Optional course

O