



National Research University Higher School of Economics (HSE)

Curriculum

Field of study 01.03.02 Applied Mathematics and Information Science

Educational Programme "Computing and Data Science"

Specializations: "Industrial Programming", "Machine Learning and Applications"

Implementing unit: Faculty of Computer Science, HSE - Moscow  
2 nd, 2023/2024 academic year

APPROVED

19.06.2023

Vice Rector

ROSHCHIN S.Y.

Signed with EDS

Length of Programme: 0 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>2 424</b>         | <b>1 062</b>  | <b>226</b>                  | <b>240</b> | <b>308</b> | <b>288</b> |                        |
| <b>Data Culture</b>                                      |   |              |  |              |                      | <b>6</b>      |                             |            | <b>4</b>   | <b>2</b>   |                        |
| 1  | External Examinations on Digital Skills. Entry-level        | C            | отдел развития цифровых компетенций              |              |                      | 2             |                             |            | 2A         |            |                        |
| 2  | External Examinations on Digital Skills. Intermediate Level | C            | отдел развития цифровых компетенций              |              |                      | 2             |                             |            |            | 2A         |                        |
| 3  | Independent Programming Test. Advanced Level                | C            | отдел развития цифровых компетенций              |              |                      | 2             |                             |            | 2A         |            | Online Course          |
| <b>Major</b>   |   |              |  | <b>45,00</b> | <b>1 710</b>         | <b>604</b>    | <b>112</b>                  | <b>128</b> | <b>192</b> | <b>172</b> |                        |
| <b>Core Professional Block (Major)</b>                   |   |              |  | <b>45,00</b> | <b>1 710</b>         | <b>604</b>    | <b>112</b>                  | <b>128</b> | <b>192</b> | <b>172</b> |                        |
| <b>Subject Areas</b>                                     |   |              |  | <b>45,00</b> | <b>1 710</b>         | <b>604</b>    | <b>112</b>                  | <b>128</b> | <b>192</b> | <b>172</b> |                        |
| <b>Algebra and Geometry</b>                              |   |              |  | <b>11,00</b> | <b>418</b>           | <b>140</b>    | <b>28</b>                   | <b>32</b>  | <b>44</b>  | <b>36</b>  |                        |
| 1  | Algebra   | C            | Department of Big Data and Information Retrieval | 5,00         | 190                  | 60            | 28                          | 32A        |            |            |                        |
| 2  | Numerical Methods   | C            | Department of Big Data and Information Retrieval | 6,00         | 228                  | 80            |                             |            | 44         | 36A        |                        |
| <b>по алгоритмам и структурам данных</b>                 |   |              |  | <b>4,00</b>  | <b>152</b>           | <b>60</b>     | <b>28</b>                   | <b>32</b>  |            |            |                        |
| 1  | Algorithms and Data Structures 2                            | C            | Department of Big Data and Information Retrieval | 4,00         | 152                  | 60            | 28                          | 32A        |            |            |                        |
| <b>по архитектуре компьютера и операционным системам</b> |   |              |  | <b>8,00</b>  | <b>304</b>           | <b>120</b>    |                             |            | <b>60</b>  | <b>60</b>  |                        |
| 1  | Computer Architecture and Operating Systems                 | C            | Department of Big Data and Information Retrieval | 8,00         | 304                  | 120           |                             |            | 60         | 60A        |                        |
| <b>по математическому анализу</b>                        |   |              |  | <b>10,00</b> | <b>380</b>           | <b>144</b>    | <b>28</b>                   | <b>32</b>  | <b>44</b>  | <b>40</b>  |                        |
| 1  | Calculus 2  | C            | Department of Big Data and Information Retrieval | 10,00        | 380                  | 144           | 28                          | 32A        | 44         | 40A        |                        |
| <b>in probability theory and mathematical statistics</b> |   |              |  | <b>12,00</b> | <b>456</b>           | <b>140</b>    | <b>28</b>                   | <b>32</b>  | <b>44</b>  | <b>36</b>  |                        |

|                                |                         |   |  |              |            |            |           |           |           |           |   |
|--------------------------------|-------------------------|---|--|--------------|------------|------------|-----------|-----------|-----------|-----------|---|
| 1                              | Mathematical Statistics | C | Department of Big Data and Information Retrieval | 7,00         | 266        | 80         |           |           | 44        | 36A       |   |
| 2                              | Probability Theory      | C | Department of Big Data and Information Retrieval | 5,00         | 190        | 60         | 28        | 32A       |           |           | Online Course   |
| <b>Minor</b>                   |                         |   |  | <b>10,00</b> | <b>380</b> | <b>304</b> | <b>76</b> | <b>76</b> | <b>76</b> | <b>76</b> |   |
| 1                              | Minor                   | E |  | 10,00        | 380        | 304        | 76        | 76A       | 76        | 76A       |   |
| <b>English</b>                 |                         |   |  |              |            |            |           |           |           |           |   |
| <b>Optional Courses</b>        |                         |   |  |              |            |            |           |           |           |           |   |
| 1                              | English                 | O |  | 6,00         | 228        | 104        | 28        | 32        | 44A       |           | Foreign language, Credits only to the cumulative rating |
| <b>General Courses</b>         |                         |   |  |              | <b>144</b> | <b>144</b> | <b>36</b> | <b>36</b> | <b>36</b> | <b>36</b> |   |
| <b>Core General Courses</b>    |                         |   |  |              | <b>144</b> | <b>144</b> | <b>36</b> | <b>36</b> | <b>36</b> | <b>36</b> |   |
| 1                              | Physical Training       | C | Department of Physical Training                  |              | 144        | 144        | 36        | 36        | 36        | 36A       |   |
| <b>Internship</b>              |                         |   |  | <b>5,00</b>  | <b>190</b> | <b>4</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                              | Software Project        | C |  | 5,00         | 190        | 2          |           |           |           | 2A        |   |
| <b>Professional Internship</b> |                         |   |  |              |            | <b>2</b>   | <b>2</b>  |           |           |           |   |
| 1                              | Educational Internship  | C |  |              |            | 2          | 2A        |           |           |           |   |

**Curriculum agreed:**

|   |                 |            |
|---|-----------------|------------|
| Academic Supervisor                         | PROMYSLOV V.V.  | 15.06.2023 |
| Dean  | ARZHANTSEV I.V. | 15.06.2023 |
| Head of Centre for Educational Model Design | LEPESHKIN I.A.  | 19.06.2023 |

\* Subject type:

Compulsory course  
 Elective course  
 Optional course

C  
 E  
 O