

## EDUCATION PROGRAM DESCRIPTION

### Transport Business and

### Railway Operating

3. Awarded degree    Diplomaed Specialist

4. Term of studies    5 years

5. Language of the program    Russian

6. List of subjects (with summary)

|   | Title  | Summary  |
|---|--|--|
| <b>HUMANITIES, SOCIAL STUDIES AND ECONOMICS</b> |  |  |
|   | <b>Main Subjects</b>   |  |
| 1   | History  |  |
| 2   | Philosophy   |  |
| 3   | Political Science  |  |
| 4   | Study of Culture   |  |
| 5   | Economics  |  |
| 6   | Law  |  |
| 7   | Russian Language and Speech Culture                            |  |
| 8   | Foreign Language   |  |
| 9   | Social Studies   |  |
| 10  | Psychology and Pedagogy  |  |
| 11  | Outsourcing in the Spheres of Transport Business and Logistics | Outsourcing: concept and classification. Advantages and disadvantages of outsourcing.              |
|   | <b>Variant Subjects</b>  |  |
|   | <b>Compulsory Subjects</b>                                     |  |
| 1   | History of Technology  | Main Ideas about transport. Inventions that help to develop transport.                             |
|   | <b>Optional Subjects</b>                                       |  |
| 1   | Law Basics for Transport Safety                                | Main goals and objectives for transport safety. Law basis for transport safety.                    |
| 2   | Business Law   | A Concept and a subject of a business law. Commercial contract. Business law issues and solutions. |
| <b>MATHEMATICS AND NATURAL SCIENCES</b>         |  |  |
|   | <b>Main Subjects</b>   |  |
| 1   | Mathematics  |  |
| 2   | Physics  |  |
| 3   | Theoretical Mechanics  | Statics. Kinematics. Main theorems of the dynamics.  |
| 4   | Applied Mechanics:<br>StC 4 5.1W-3(o)-3(-3(y)-6(a              |  |

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|-------------------------------|--|--|
| 6                             | Information Science  |  |
| 7                             | Chemistry  |  |
| 8                             | Ecology  |  |
| 9                             | Mathematical analysis for systems and processes              |  |
| 10                            | Engineering & Computer Graphics                              |  |
| 11                            | Information Technologies in Transport Business and Logistics | Information Flows and Logistic Information Systems. Information Resources for Transport Logistics. EDIFACT standards.  |
|                               | <b>Variant Subjects</b>                                      |  |
|                               | <b>Compulsory Subjects</b>                                   |  |
| 1                             | Accounting and Railway Statistics                            | Statistics: concept, objectives and functions. Statistic information. Railway Statistics.  |
| 2                             | Ergonomics   | Ergonomics: concept, objectives and methods. Ergonomic criteria. Economic efficiency of ergonomic measures.  |
|                               | <b>Optional Subjects</b>                                     |  |
| 1                             | Metrology, Standardization and Certification                 | Metrology and standardization in transport process. Certification systems.   |
| 2                             | Network Information Resources                                | Network architecture. Network models. Local network technology. Internet: protocols, browsers, search technologies, e-mail.  |
| <b>MAJOR RELATED SUBJECTS</b> |  |  |
|                               | <b>Main Subjects</b>   |  |
| 1                             | Material Science   | Macro- and Micro-analysis. Mechanical properties. Iron and its alloys. Metal materials. Non-ferrous metals and alloys.   |
| 2                             | General Electrotechnics & Electronics                        | Linear AC circuits. Linear DC circuits. Three-phase linear circuits. Magnetic chains.  |
| 3                             | Human Safety   | HS: basic concepts, terms and definitions. HS law basis. Nature perils and threats. Anthropogenic perils and protection. Social and medical security.                            |
| 4                             | Marketing Basics   | Marketing as a concept of production management. Market research. Product research. Marketing environment.   |
| 5                             | Transport Business Basics                                    | Modern methods of transportation management. Transport business features. Organizational forms of business.  |
| 6                             | Refrigerated Transport and Heat Engineering Basics           | Perishable goods (PG): storage and transportation specifics. Refrigeration in transport & economics. Refrigerated transport economics. Refrigeration and heat engineering basics |
| 7                             | Transport in General   | Basic concepts of transport, transport systems. Global development tendencies for various means of transportation.   |
| 8                             | Transport Economics  | Transport system in Russia. Freight and passenger traffic. Transport labor management. Transport fares.  |
| 9                             | Means of Communication                                       | General and other means of communication. Track structure. Roadbed foundation.   |
| 10                            | Non-traction Rolling Stock                                   | General information about the car fleet. Car characteristics. Containers.  |
| 11                            | Railway Traction   | General information about the rolling stock. Train motion theory. Train brake power.   |
| 12                            | Freight Management   | Cargo concept. Classification of cargo. Packaging and marking. Transportation and storage.   |
| 13                            | Transport & Cargo Systems                                    | TCS: definition, classification, structure. Bridge and jib cranes. Elevators. Production lines.  |

|    |   |   |
|----|---|---|
| 14 | Railway Automatics, Telemechanics and Communication   | General notions of railway traffic organization. Communication lines classification. Railway Automatics and Telemechanics objects of control. |
| 15 | Railway Stations and Junctions                        | General review of Russian and foreign railway stations and junctions current condition. Classification of stations. Classification yard.      |
| 16 | Freight and Business Management                       | Railway freight fares and its classification. Container transportation.   |
| 17 | Transport Law   | Main principals of railway law regulations. Contract of carriage. Law basis for transportation of passengers, luggage, mail, etc.             |
| 18 | Transport Service                                     | Service: main definitions. Transport services. Service centers at the railway stations.   |
| 19 | Interaction Between Different Means of Transportation | Functional characteristics of means of transportation. Conditions for interaction of MT. Economic indicators for MT.                          |
| 20 | Railway Transport Maintenance and Traffic             |   |

|   |   |   |
|---|---|---|
|   | Services  |   |
| 2 | Development of Perishable Goods Transportation Technology | Perishable goods: storage conditions and preparation for transportation. Cold storages and its classification. Refrigerating cars.      |
| 3 | Up-to-date Reconstruction Issues of Stations and Hubs     | Interaction of different means of transport at the transport hubs. Classification of transport hubs. Development of the transport hubs, |
|   | Physical Education  |   |
|   | Practice, Research  |   |
|   | Practical Study   |   |
|   | Internship  |   |
|   | State Final Examination                                   |   |

#### 7. Amount of credits, hours for each subject, forms of knowledge control

| Title   | Credits | Hours | Form of control |
|---|---------|-------|-----------------|
| <b>HUMANITIES, SOCIAL STUDIES AND ECONOMICS</b> | 38      | 1368  |                 |
| <b>Main Subjects</b>                            | 28      |       |                 |
| History   | 4       | 144   | Exam            |

|   |     |      |      |
|---|-----|------|------|
| <b>Compulsory Subjects</b>                                | 4   | 144  |      |
| Accounting and Railway Statistics                         | 2   | 72   | Test |
| Ergonomics  | 2   | 72   | Test |
| <b>Optional Subjects</b>                                  | 2   | 72   |      |
| Metrology, Standardization and Certification              | 2   | 72   | Test |
| Network Information Resources                             |     |      |      |
| <b>MAJOR RELATED SUBJECTS</b>                             | 146 | 5256 |      |
| <b>Main Subjects</b>                                      | 142 | 5112 |      |
| Material Science  | 3   | 108  | Test |
| General Electrotechnics & Electronics                     | 4   | 144  | Exam |
| Human Safety  | 3   | 108  | Test |
| Marketing Basics  | 2   | 72   | Test |
| Transport Business Basics                                 | 3   | 108  | Exam |
| Refrigerated Transport and Heat Engineering Basics        | 4   | 144  | Exam |
| Transport in General                                      | 4   | 144  | Exam |
| Transport Economics                                       | 4   | 144  | Exam |
| Means of Communication                                    | 4   | 144  | Exam |
| Non-traction Rolling Stock                                | 4   | 144  | Exam |
| Railway Traction  | 5   | 180  | Exam |
| Freight Management  | 4   | 144  | Exam |
| Transport & Cargo Systems                                 | 4   | 144  | Exam |
| Railway Automatics, Telemechanics and Communication       | 4   | 144  | Exam |
| Railway Stations and Junctions                            | 13  | 468  | Exam |
| Freight and Business Management                           | 9   | 324  | Exam |
| Transport Law   | 4   | 144  | Exam |
| Transport Service   | 2   | 72   | Test |
| Interaction Between Different Means of Transportation     | 4   | 144  | Exam |
| Railway Transport Maintenance and Traffic Security        | 3   | 108  | Exam |
| Railway Transport Security Technologies                   | 3   | 108  | Exam |
| Transport Safety  | 2   | 72   | Test |
| Transport Logistics                                       | 2   | 72   | Test |
| Terminal & Logistic Complexes                             | 2   | 72   | Test |
| Operating Procedure at the Border Stations                | 2   | 72   | Test |
| Overseas High-speed Railways and Passenger Stations       | 2   | 72   | Test |
| Business Planning of Transport                            | 3   | 108  | Test |
| Multimodal Centers for Transport & Logistics              | 3   | 108  | Test |
| Supply Chain Management Basics                            | 3   | 108  | Exam |
| Project Management in Transport Business & Logistics      | 3   | 108  | Test |
| Information Support for Transport Business                | 3   | 108  | Exam |
| <b>Variant Subjects</b>                                   | 4   | 144  |      |
| <b>Compulsory Subjects</b>                                | 2   | 72   |      |
| Container Transport System                                | 2   | 72   | Test |
| <b>Optional Subjects</b>                                  | 2   | 72   |      |
| Marketing of Transport Services                           | 2   | 72   | Test |
| Development of Perishable Goods Transportation Technology |     |      |      |
| Up-to-date Reconstruction Issues of Stations and Hubs     |     |      |      |
| Physical Education  | 2   | 400  | Test |
| Practice, Research  | 30  |      |      |
| Practical Study   | 6   | 216  | Test |
| Internship  | 24  | 364  | Test |
| State Final Examination                                   | 22  | 792  |      |

**8. Education Level required for the program:** general (full) secondary, secondary or primary professional education (diploma must certify the completion of general (full) secondary education course).