Bachelor Program: Automation of technological processes and production

Field of Studies: Intelligent Information Management Systems

Years of Studies: 4

Language of Training: Russian

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| № | Subject | Semester | Hours | Credits |
| **Б.1.1** | **Basic part** |  |  |  |
| Б.1.1.1 | History | 1 | 108 | 3 |
| Б.1.1.2 | Philosophy | 5 | 108 | 3 |
| Б.1.1.3 | Foreign language | /3/1,2 | /288 | /8 |
| Б.1.1.3 | Foreign language | 1 | 108 | 3 |
| Б.1.1.3 | Foreign language | 2 | 108 | 3 |
| Б.1.1.3 | Foreign language | 3 | 72 | 2 |
| Б.1.1.4 | Economics and Management \*\*\* | 4 | 108 | 3 |
| Б.1.1.5 | Maths | /1,/2/3 | /396 | /11 |
| Б.1.1.5 | Maths | 1 | 144 | 4 |
| Б.1.1.5 | Maths | 2 | 144 | 4 |
| Б.1.1.5 | Maths | 3 | 108 | 3 |
| Б.1.1.6 | Physics | /2,3/1 | /396 | /11 |
| Б.1.1.6 | Physics | 1 | 144 | 4 |
| Б.1.1.6 | Physics | 2 | 108 | 3 |
| Б.1.1.6 | Physics | 3 | 144 | 4 |
| Б.1.1.7 | Chemistry | 1 | 72 | 2 |
| Б.1.1.8 | Theoretical mechanics | 3 | 108 | 3 |
| Б.1.1.9 | Ecology | 3 | 72 | 2 |
| Б.1.1.10 | Information Technology | /1/2 | /216 | /6 |
| Б.1.1.10 | Information Technology | 1 | 108 | 3 |
| Б.1.1.10 | Information Technology | 2 | 108 | 3 |
| Б.1.1.11 | Engineering Graphics (plotting) | 1 | 108 | 3 |
| Б.1.1.12 | Descriptive Geometry and Computer Graphics | /2/3 | /180 | /5 |
| Б.1.1.12 | Descriptive Geometry and Computer Graphics | 2 | 108 | 3 |
| Б.1.1.12 | Descriptive Geometry and Computer Graphics | 3 | 72 | 2 |
| Б.1.1.13 | applied mechanics | 4 | 108 | 3 |
| Б.1.1.14 | High Level Programming | /4/3 | /324 | /9 |
| Б.1.1.14 | High Level Programming | 3 | 180 | 5 |
| Б.1.1.14 | High Level Programming | 4 | 144 | 4 |
| Б.1.1.15 | Materials Science | 2 | 72 | 2 |
| Б.1.1.16 | electrical and Electronics | 4 | 180 | 5 |
| Б.1.1.17 | Theory of Automatic Control | /6/5 | /252 | /7 |
| Б.1.1.17 | Theory of Automatic Control | 5 | 108 | 3 |
| Б.1.1.17 | Theory of Automatic Control | 6 | 144 | 4 |
| Б.1.1.18 | Technical means of automation | 4 | 144 | 4 |
| Б.1.1.19 | Technological processes of automated production | 3 | 108 | 3 |
| Б.1.1.20 | Diagnostics and reliability of automated systems | 7 | 108 | 3 |
| Б.1.1.21 | Electric and hydraulic drives | /6/7 | /252 | /7 |
| Б.1.1.21 | Electric and hydraulic drives | 6 | 180 | 5 |
| Б.1.1.21 | Electric and hydraulic drives | 7 | 72 | 2 |
| Б.1.1.22 | Life safety | 5 | 108 | 3 |
| Б.1.1.23 | Organization and planning of automated production | 8 | 72 | 2 |
| Б.1.1.24 | Engineering of technical systems of automated processes | /5/4 | /288 | /8 |
| Б.1.1.24 | Engineering of technical systems of automated processes | 4 | 108 | 3 |
| Б.1.1.24 | Engineering of technical systems of automated processes | 5 | 180 | 5 |
| Б.1.1.25 | Physical Culture | 1 | 72 | 2 |
|  | **Total in the base part** |  | **4248** | **118** |
| **Б.1.2** | **Variable part** |  |  |  |
| Б.1.2.1 | The rule of law: history and modernity | 2 | 72 | 2 |
| Б.1.2.2 | Philosophy of Science and Technology | 6 | 72 | 2 |
| Б.1.2.3 | Monitoring Automated Systems | 7 | 108 | 3 |
| Б.1.2.4 | Physical fundamentals of measuring transducers | 6 | 108 | 3 |
| Б.1.2.5 | CNC machines | 8 | 144 | 4 |
| Б.1.2.6 | Intelligent technology in mechanical engineering | 7 | 144 | 4 |
| Б.1.2.7 | Modern Automation Issues | 2 | 108 | 3 |
| Б.1.2.8 | Identification theory | 7 | 108 | 3 |
| Б.1.2.9 | Automation of technological processes and production | 6 | 180 | 5 |
| Б.1.2.10 | Designing Automated Systems | 5 | 180 | 5 |
| Б.1.2.11 | Information databases and knowledge for information management systems | 7 | 108 | 3 |
| Б.1.2.12 | Microprocessor technology in automation tasks | 5 | 72 | 2 |
| Б.1.2.13 | Management in automated production | 8 | 108 | 3 |
| Б.1.2.14 | Integrated Design and Management Systems | 6 | 144 | 4 |
| Б.1.2.15 | Computer Design Methods | 3 | 72 | 2 |
| Б.1.2.16 | Product Lifecycle Management Automation | 7 | 108 | 3 |
| Б.1.2.17 | Metrology, standardization and certification | 5 | 144 | 4 |
| Б.1.2.18 | 3D modeling and CAD basics | 4 | 72 | 2 |
| **Б.1.3** | **Elective Courses** |  |  |  |
| Б.1.3.1.1 | Psychology | 3 | 108 | 3 |
| Б.1.3.1.2 | Engineering Psychology | /3 | /108 | /3 |
| Б.1.3.2.1 | History of Russian Culture | 1 | 72 | 2 |
| Б.1.3.2.2 | History of Science and Technology | /1 | /72 | /2 |
| Б.1.3.3.1 | Technical measurements and instruments | 2 | 180 | 5 |
| Б.1.3.3.2 | Methods and means of technical measurements | /2 | /180 | /5 |
| Б.1.3.4.1 | Physical material processing | 2 | 108 | 3 |
| Б.1.3.4.2 | Control software | /2 | /108 | /3 |
| Б.1.3.5.1 | Theory of systems and systems analysis for building information management systems | 7 | 108 | 3 |
| Б.1.3.5.2 | System analysis in management tasks | /7 | /108 | /3 |
| Б.1.3.6.1 | Cloud Automation Technologies | 8 | 144 | 4 |
| Б.1.3.6.2 | Methods and tools of cloud automation technologies | /8 | /144 | /4 |
| Б.1.3.7.1 | Mathematical modeling of information management systems | 4 | 72 | 2 |
| Б.1.3.7.2 | Mathematical modeling in engineering problems | /4 | /72 | /2 |
| Б.1.3.7.3 | Military training | /4 | /72 | /2 |
| Б.1.3.8.1 | Software for engineering and scientific research in the field of automation of technological processes and production | 5 | 72 | 2 |
| Б.1.3.8.2 | Software for modeling and calculation of automated systems | /5 | /72 | /2 |
| Б.1.3.8.3 | Military training | /5 | /72 | /2 |
| Б.1.3.9.1 | Foreign language for professional communication | /4/5 | /180 | /5 |
| Б.1.3.9.1 | Foreign language for professional communication | 4 | 72 | 2 |
| Б.1.3.9.1 | Foreign language for professional communication | 5 | 108 | 3 |
| Б.1.3.9.2 | Technical translation | /4/5 | /180 | /5 |
| Б.1.3.9.2 | Technical translation | /4 | /72 | /2 |
| Б.1.3.9.2 | Technical translation | /5 | /108 | /3 |
| Б.1.3.9.3 | Military training | /4,5 | /144 | /4 |
| Б.1.3.9.3 | Military training | /4 | /72 | /2 |
| Б.1.3.9.3 | Military training | /5 | /72 | /2 |
| Б.1.3.10.1 | Circuitry control systems | 6 | 144 | 4 |
| Б.1.3.10.2 | Circuitry of microprocessor structures | /6 | /144 | /4 |
| Б.1.3.10.3 | Military training | /6 | /180 | /5 |
| Б.1.3.11.1 | Modern computer networks and operating systems | 7 | 216 | 6 |
| Б.1.3.11.2 | Modern networking technologies and operating systems | /7 | /216 | /6 |
| Б.1.3.11.3 | Military training | /7 | /180 | /5 |
| Б.1.3.12.1 | Automated testing of technological systems | 8 | 72 | 2 |
| Б.1.3.12.2 | Automated monitoring and diagnostics | /8 | /72 | /2 |
| Б.1.3.12.3 | Military training | /8 | /108 | /3 |
| Б.1.3.13.1 | Team sports | /2-6 | /328 | 0 |
| Б.1.3.13.1 | Team sports | 2 | 82 | 0 |
| Б.1.3.13.1 | Team sports | 3 | 82 | 0 |
| Б.1.3.13.1 | Team sports | 4 | 82 | 0 |
| Б.1.3.13.1 | Team sports | 5 | 38 | 0 |
| Б.1.3.13.1 | Team sports | 6 | 44 | 0 |
| Б.1.3.13.2 | Sports and fitness types | /2-6 | /328 | 0 |
| Б.1.3.13.2 | Sports and fitness types | /2 | /82 | 0 |
| Б.1.3.13.2 | Sports and fitness types | /3 | /82 | 0 |
| Б.1.3.13.2 | Sports and fitness types | /4 | /82 | 0 |
| Б.1.3.13.2 | Sports and fitness types | /5 | /38 | 0 |
| Б.1.3.13.2 | Sports and fitness types | /6 | /44 | 0 |
|  | **Total for the variable part** |  | **3856** | **98** |
| **Б.2** | **Practices (optional part)** |  |  |  |
| Б.2.1 | 1st Training Practice \* | 2 | 108 | 3 |
| Б.2.2 | 2nd Training Practice \* | 4 | 108 | 3 |
| Б.2.3 | Production (technological) practice \*\* | 6 | 108 | 3 |
| Б.2.4 | Manufacturing Practice (SRW) | 8 | 108 | 3 |
| Б.2.5 | Undergraduate practice | 8 | 216 | 6 |
| **Б.3** | **State final certification (basic part)** |  | 216 | 6 |
|  | **Total in direction** |  | **8968** | **240** |
| **Ф.** | **Optional disciplines** |  |  |  |
| Ф.1 | Military training | 8 | 252 |  |
| Ф.2 | Modeling Robotic Systems | 4 | 108 |  |
| Ф.3 | Fundamentals of Mechatronics and Robotics | 6 | 108 |  |
| Ф.4 | Military Training 01 | /6,7,8/5/4,8 | /843 |  |
| Ф.4 | Military Training 01 | 4 | 144 |  |
| Ф.4 | Military Training 01 | 5 | 144 |  |
| Ф.4 | Military Training 01 | 6 | 144 |  |
| Ф.4 | Military Training 01 | 7 | 108 |  |
| Ф.4 | Military Training 01 | 8 | 51 |  |
| Ф.5 | Military training 01 (final certification) | 8 | 252 |  |