Bachelor Program: Technological machines and equipment

Field of Studies: digital desing technology and production equipment management

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 of engineering production \*\*\* | 7 | 108 | 3 |
| Б.1.1.5 | Maths | /1,/3/2 | /540 | /15 |
| Б.1.1.5 | Maths | 1 | 180 | 5 |
| Б.1.1.5 | Maths | 2 | 180 | 5 |
| Б.1.1.5 | Maths | 3 | 180 | 5 |
| Б.1.1.6 | Physics | /2,/3/1 | /432 | /12 |
| Б.1.1.6 | Physics | 1 | 144 | 4 |
| Б.1.1.6 | Physics | 2 | 144 | 4 |
| Б.1.1.6 | Physics | 3 | 144 | 4 |
| Б.1.1.7 | Chemistry | 1 | 144 | 4 |
| Б.1.1.8 | Ecology | 3 | 108 | 3 |
| Б.1.1.9 | Object oriented programming | /1/2 | /216 | /6 |
| Б.1.1.9 | Object oriented programming | 1 | 144 | 4 |
| Б.1.1.9 | Object oriented programming | 2 | 72 | 2 |
| Б.1.1.10 | Theoretical mechanics | /2/3 | /288 | /8 |
| Б.1.1.10 | Theoretical mechanics | 2 | 180 | 5 |
| Б.1.1.10 | Theoretical mechanics | 3 | 108 | 3 |
| Б.1.1.11 | Engineering Graphics (plotting) | 1 | 72 | 2 |
| 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 | Technical mechanics | /3-5 | /432 | /12 |
| Б.1.1.13.1 | Strength of materials | 3 | 144 | 4 |
| Б.1.1.13.2 | Theory of mechanisms and machines | 4 | 144 | 4 |
| Б.1.1.13.3 | Machine parts | 5 | 144 | 4 |
| Б.1.1.14 | Materials Science | 2 | 144 | 4 |
| Б.1.1.15 | Technology of construction materials | 3 | 108 | 3 |
| Б.1.1.16 | Metrology, standardization and certification | 5 | 216 | 6 |
| Б.1.1.17 | electrical and Electronics | 4 | 144 | 4 |
| Б.1.1.18 | Fluid and gas mechanics | 4 | 108 | 3 |
| Б.1.1.19 | Design basics | 4 | 108 | 3 |
| Б.1.1.20 | Fundamentals of Engineering Technology | 6 | 144 | 4 |
| Б.1.1.21 | 3D modeling and CAD basics | 4 | 72 | 2 |
| Б.1.1.22 | Life safety | 5 | 108 | 3 |
| Б.1.1.23 | Physical Culture | 1 | 72 | 2 |
|  | **Total in the basic part** |  | **4248** | **118** |
| **Б.1.2** | **Variable part** |  |  |  |
| Б.1.2.1 | History of Science and Technology | 2 | 72 | 2 |
| Б.1.2.2 | Philosophy of Science and Technology | 6 | 72 | 2 |
| Б.1.2.3 | Automated Databases and Knowledge Bases | 4 | 180 | 5 |
| Б.1.2.4 | Information and reference, information retrieval systems | 3 | 108 | 3 |
| Б.1.2.5 | Programming for CNC machines | 7 | 72 | 2 |
| Б.1.2.6 | Finishing and finishing methods | 8 | 216 | 6 |
| Б.1.2.7 | Information technologies for solving standard problems of technological preparation of production | 7 | 108 | 3 |
| Б.1.2.8 | Automation of production processes in mechanical engineering | 8 | 180 | 5 |
| Б.1.2.9 | Equipment for machining complexes and methods for their design | 6 | 108 | 3 |
| Б.1.2.10 | Technological equipment of machining complexes | 7 | 216 | 6 |
| Б.1.2.11 | Technical measurements, devices, equipment | 5 | 108 | 3 |
| Б.1.2.12 | CAD processes | 6 | 180 | 5 |
| Б.1.2.13 | Engineering Technology | /7/6 | /396 | /11 |
| Б.1.2.13 | Engineering Technology | 6 | 144 | 4 |
| Б.1.2.13 | Engineering Technology | 7 | 252 | 7 |
| Б.1.2.14 | Intelligent technology in mechanical engineering | 7 | 108 | 3 |
| Б.1.2.15 | Designs of modern automated machines | 8 | 72 | 2 |
| **Б.1.3** | **Elective Courses** |  |  |  |
| Б.1.3.1.1 | Psychology\*\*\*\* | 4 | 108 | 3 |
| Б.1.3.1.2 | Engineering Psychology | /4 | /108 | /3 |
| Б.1.3.2.1 | History of Russian Culture | 1 | 72 | 2 |
| Б.1.3.2.2 | World Cultural Heritage | /1 | /72 | /2 |
| Б.1.3.3.1 | Forming surfaces of parts in mechanical engineering | 5 | 216 | 6 |
| Б.1.3.3.2 | Mathematical and computer simulation methods for designing technological systems | /5 | /216 | /6 |
| Б.1.3.4.1 | Integrated computer technology for design and production (CAD / CAM systems) | 6 | 180 | 5 |
| Б.1.3.4.2 | Computer-aided design of workpieces | /6 | /180 | /5 |
| Б.1.3.5.1 | Design and technological informatics | 4 | 72 | 2 |
| Б.1.3.5.2 | Copyright and intellectual property | /4 | /72 | /2 |
| Б.1.3.5.3 | Military training | /4 | /72 | /2 |
| Б.1.3.6.1 | Foreign language for professional communication | /4/5 | /180 | /5 |
| Б.1.3.6.1 | Foreign language for professional communication | 4 | 72 | 2 |
| Б.1.3.6.1 | Foreign language for professional communication | 5 | 108 | 3 |
| Б.1.3.6.2 | Technical translation | /4/5 | /180 | /5 |
| Б.1.3.6.2 | Technical translation | /4 | /72 | /2 |
| Б.1.3.6.2 | Technical translation | /5 | /108 | /3 |
| Б.1.3.6.3 | Military training | /4,5 | /144 | /4 |
| Б.1.3.6.3 | Military training | /4 | /72 | /2 |
| Б.1.3.6.3 | Military training | /5 | /72 | /2 |
| Б.1.3.7.1 | Technological management of the quality and performance properties of parts | 7 | 216 | 6 |
| Б.1.3.7.2 | Flexible processes and systems in engineering | /7 | /216 | /6 |
| Б.1.3.7.3 | Military training | /7 | /180 | /5 |
| Б.1.3.8.1 | Technological optimization methods | 8 | 72 | 2 |
| Б.1.3.8.2 | Mathematical modeling of technological processes | /8 | /72 | /2 |
| Б.1.3.8.3 | Military training | /8 | /108 | /3 |
| Б.1.3.9.1 | Modern systems for the automated preparation of control programs for CNC and GPS machines | 5 | 72 | 2 |
| Б.1.3.9.2 | Automation of multi-product manufacturing systems | /5 | /72 | /2 |
| Б.1.3.9.3 | Military training | /5 | /72 | /2 |
| Б.1.3.10.1 | Computer modeling of product forming processes | 6 | 144 | 4 |
| Б.1.3.10.2 | Computer-aided design of technological equipment | /6 | /144 | /4 |
| Б.1.3.10.3 | Military training | /6 | /180 | /5 |
| Б.1.3.11.1 | Team sports | /2-6 | /328 | 0 |
| Б.1.3.11.1 | Team sports | 2 | 82 | 0 |
| Б.1.3.11.1 | Team sports | 3 | 82 | 0 |
| Б.1.3.11.1 | Team sports | 4 | 82 | 0 |
| Б.1.3.11.1 | Team sports | 5 | 38 | 0 |
| Б.1.3.11.1 | Team sports | 6 | 44 | 0 |
| Б.1.3.11.2 | Sports and fitness types | /2-6 | /328 | 0 |
| Б.1.3.11.2 | Sports and fitness types | /2 | /82 | 0 |
| Б.1.3.11.2 | Sports and fitness types | /3 | /82 | 0 |
| Б.1.3.11.2 | Sports and fitness types | /4 | /82 | 0 |
| Б.1.3.11.2 | Sports and fitness types | /5 | /38 | 0 |
| Б.1.3.11.2 | 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 | Internship\*\* | 6 | 108 | 3 |
| Б.2.4 | Production practice (technological) | 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 |  |  |
| Ф.2 | Protection of intellectual property in the Russian Federation | 4 |  |  |
| Ф.3 | Automation of production processes in mechanical engineering | 6 |  |  |
| 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 |  |