Bachelor Program: Design and technological support of machine - building production

Field of Studies: Engineering technology

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 | Economic theory\*\*\* | 4 | 108 | 3 |
| Б.1.1.5 | Maths | /3/1,2 | /432 | /12 |
| Б.1.1.5 | Maths | 1 | 144 | 4 |
| Б.1.1.5 | Maths | 2 | 144 | 4 |
| Б.1.1.5 | Maths | 3 | 144 | 4 |
| Б.1.1.6 | Physics | /1,/2/3 | /360 | /10 |
| Б.1.1.6 | Physics | 1 | 144 | 4 |
| Б.1.1.6 | Physics | 2 | 108 | 3 |
| Б.1.1.6 | Physics | 3 | 108 | 3 |
| Б.1.1.7 | Computer science | 1 | 144 | 4 |
| Б.1.1.8 | Chemistry | 2 | 108 | 3 |
| Б.1.1.9 | Theoretical mechanics | 3 | 144 | 4 |
| Б.1.1.10 | Engineering Graphics (plotting) | 1 | 72 | 2 |
| Б.1.1.11 | Descriptive Geometry and Computer Graphics | /2/3 | /180 | /5 |
| Б.1.1.11 | Descriptive Geometry and Computer Graphics | 2 | 108 | 3 |
| Б.1.1.11 | Descriptive Geometry and Computer Graphics | 3 | 72 | 2 |
| Б.1.1.12 | Strength of materials | 3 | 180 | 5 |
| Б.1.1.13 | Theory of mechanisms and machines | 4 | 144 | 4 |
| Б.1.1.14 | Machine parts and design basics | /4/5 | /216 | /6 |
| Б.1.1.14 | Machine parts and design basics | 4 | 108 | 3 |
| Б.1.1.14 | Machine parts and design basics | 5 | 108 | 3 |
| Б.1.1.15 | Hydraulics | 6 | 108 | 3 |
| Б.1.1.16 | Technological processes in mechanical engineering | 1 | 144 | 4 |
| Б.1.1.17 | Materials Science | 2 | 144 | 4 |
| Б.1.1.18 | Electrical Engineering | 4 | 108 | 3 |
| Б.1.1.19 | Electronics | 5 | 108 | 3 |
| Б.1.1.20 | Metrology, standardization and certification | 5 | 144 | 4 |
| Б.1.1.21 | Life safety | 5 | 108 | 3 |
| Б.1.1.22 | Fundamentals of Engineering Technology | /7/6 | /252 | /7 |
| Б.1.1.22 | Fundamentals of Engineering Technology | 6 | 108 | 3 |
| Б.1.1.22 | Fundamentals of Engineering Technology | 7 | 144 | 4 |
| Б.1.1.23 | Formation processes and operations | 4 | 144 | 4 |
| Б.1.1.24 | Machine-building equipment | 6 | 144 | 4 |
| Б.1.1.25 | Physical Culture | 1 | 72 | 2 |
|  | **Total in the base part** |  | **4068** | **113** |
| **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 | Ecology | 3 | 72 | 2 |
| Б.1.2.4 | Applied computer programs for the design of technological processes | 2 | 252 | 7 |
| Б.1.2.5 | Computer simulation in technology | 3 | 144 | 4 |
| Б.1.2.6 | Computer programs for the design of engineering facilities | 4 | 72 | 2 |
| Б.1.2.7 | Mathematical Methods in Engineering | 5 | 180 | 5 |
| Б.1.2.8 | Engineering Technology | /8/7 | /288 | /8 |
| Б.1.2.8 | Engineering Technology | 7 | 180 | 5 |
| Б.1.2.8 | Engineering Technology | 8 | 108 | 3 |
| Б.1.2.9 | Automation of production processes in mechanical engineering | 7 | 108 | 3 |
| Б.1.2.10 | Tooling | 6 | 108 | 3 |
| Б.1.2.11 | Engineering design | 8 | 108 | 3 |
| Б.1.2.12 | CAD processes | 8 | 108 | 3 |
| Б.1.2.13 | Cutting tool | 5 | 180 | 5 |
| Б.1.2.14 | Metal cutting machines | 7 | 180 | 5 |
| Б.1.2.15 | Programming CNC machines | 7 | 144 | 4 |
| Б.1.2.16 | Accuracy rating and technical measurements | 6 | 108 | 3 |
| Б.1.2.17 | 3D modeling and CAD basics | 4 | 72 | 2 |
| **Б.1.3** | **Disciplines of choice** |  |  |  |
| 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 | World Cultural Heritage | /1 | /72 | /2 |
| Б.1.3.3.1 | Design and technological informatics | 4 | 108 | 3 |
| Б.1.3.3.2 | Computer Science in Engineering | /4 | /108 | /3 |
| Б.1.3.4.1 | Standard software packages and tools for modeling technological objects | 6 | 144 | 4 |
| Б.1.3.4.2 | Mathematical modeling of technological processes and systems | /6 | /144 | /4 |
| Б.1.3.5.1 | Information support of engineering design | 8 | 180 | 5 |
| Б.1.3.5.2 | Information Technology in Mechanical Engineering | /8 | /180 | /5 |
| Б.1.3.6.1 | Engineering fundamentals of volume modeling | 4 | 72 | 2 |
| Б.1.3.6.2 | Computer-aided design of workpieces | /4 | /72 | /2 |
| Б.1.3.6.3 | Military training | /4 | /72 | /2 |
| Б.1.3.7.1 | Modern systems for the automated preparation of control programs for CNC and GPS machines | 5 | 72 | 2 |
| Б.1.3.7.2 | Computer-aided design of technological equipment | /5 | /72 | /2 |
| Б.1.3.7.3 | Military training | /5 | /72 | /2 |
| Б.1.3.8.1 | Foreign language for professional communication | /4/5 | /180 | /5 |
| Б.1.3.8.1 | Foreign language for professional communication | 4 | 72 | 2 |
| Б.1.3.8.1 | Foreign language for professional communication | 5 | 108 | 3 |
| Б.1.3.8.2 | Technical translation | /4/5 | /180 | /5 |
| Б.1.3.8.2 | Technical translation | /4 | /72 | /2 |
| Б.1.3.8.2 | Technical translation | /5 | /108 | /3 |
| Б.1.3.8.3 | Military training | /4,5 | /144 | /4 |
| Б.1.3.8.3 | Military training | /4 | /72 | /2 |
| Б.1.3.8.3 | Military training | /5 | /72 | /2 |
| Б.1.3.9.1 | Integrated computer technology for design and production (CAD / CAM systems) | /6,7 | /360 | /10 |
| Б.1.3.9.1 | Integrated computer technology for design and production (CAD / CAM systems) | 6 | 144 | 4 |
| Б.1.3.9.1 | Integrated computer technology for design and production (CAD / CAM systems) | 7 | 216 | 6 |
| Б.1.3.9.2 | Computer modeling of product forming processes | /6,7 | /360 | /10 |
| Б.1.3.9.2 | Computer modeling of product forming processes | /6 | /144 | /4 |
| Б.1.3.9.2 | Computer modeling of product forming processes | /7 | /216 | /6 |
| Б.1.3.9.3 | Military training | /6,7 | /360 | /10 |
| Б.1.3.9.3 | Military training | /6 | /180 | /5 |
| Б.1.3.9.3 | Military training | /7 | /180 | /5 |
| Б.1.3.10.1 | Software and hardware for the selection of accessories for CNC machines | 8 | 72 | 2 |
| Б.1.3.10.2 | Development of technological processes and preparation of control programs in the manufacture of parts on CNC machines | /8 | /72 | /2 |
| Б.1.3.10.3 | Military training | /8 | /108 | /3 |
| Б.1.3.11.1 | Automation of methods for solving design and technological problems | 7 | 72 | 2 |
| Б.1.3.11.2 | Systems for computer-aided engineering production | /7 | /72 | /2 |
| Б.1.3.12.1 | Team sports | /2-6 | /328 | 0 |
| Б.1.3.12.1 | Team sports | 2 | 82 | 0 |
| Б.1.3.12.1 | Team sports | 3 | 82 | 0 |
| Б.1.3.12.1 | Team sports | 4 | 82 | 0 |
| Б.1.3.12.1 | Team sports | 5 | 38 | 0 |
| Б.1.3.12.1 | Team sports | 6 | 44 | 0 |
| Б.1.3.12.2 | Sports and fitness types | /2-6 | /328 | 0 |
| Б.1.3.12.2 | Sports and fitness types | /2 | /82 | 0 |
| Б.1.3.12.2 | Sports and fitness types | /3 | /82 | 0 |
| Б.1.3.12.2 | Sports and fitness types | /4 | /82 | 0 |
| Б.1.3.12.2 | Sports and fitness types | /5 | /38 | 0 |
| Б.1.3.12.2 | Sports and fitness types | /6 | /44 | 0 |
|  | **Total for the variable part** |  | **4036** | **103** |
| **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 | 252 |  |
| Ф.2 | Technological design of multinomenclature production | 6 | 72 |  |
| Ф.3 | Innovative non-waste and low-waste engineering technologies | 7 | 72 |  |
| Ф.4 | Technological support for the quality of engineering products | 8 | 72 |  |
| 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.5 | Military Training 01 | 8 | 51 |  |
| Ф.6 | Military training 01 (final certification) | 8 | 252 |  |