Bachelor Program: Heat power engineering and heat engineering

Field of Studies: Power supply

Years of Studies: 4

Language of Training: Russian

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| **№** | **Subject** | **Semester** | **Hours** | **Credits** |
| **Б.1.1** | **Mandatory part of Block 1** |  |  |  |
| Б.1.1.1 | History | 1,2 | 144 | 4 |
| Б.1.1.2 | Philosophy | 5 | 108 | 3 |
| Б.1.1.3 | Foreign language | 1,2,3 | 288 | 8 |
| Б.1.1.4 | The rule of law and modernity | 3 | 72 | 2 |
| Б.1.1.5 | Economic theory | 1 | 72 | 2 |
| Б.1.1.6 | Physical culture and sport | 1 | 72 | 2 |
| Б.1.1.7 | Basics of project activities | 3 | 72 | 2 |
| Б.1.1.8 | Time management | 1 | 72 | 2 |
| Б.1.1.9 | Business Communication Basics | 1 | 72 | 2 |
| Б.1.1.10 | Conflict management | 4 | 72 | 2 |
| Б.1.1.11 | Higher Mathematics | 1,2,3 | 612 | 17 |
| Б.1.1.12 | Physics | 2,3 | 396 | 11 |
| Б.1.1.13 | Chemistry | 2 | 144 | 4 |
| Б.1.1.14 | Computer science | 1 | 144 | 4 |
| Б.1.1.15 | Engineering and computer graphics | 1,2 | 252 | 7 |
| Б.1.1.16 | Materials science, technology of structural materials | 2 | 108 | 3 |
| Б.1.1.17 | Theoretical mechanics | 3 | 144 | 4 |
| Б.1.1.18 | Applied mechanics | 4 | 216 | 6 |
| Б.1.1.19 | Technical Thermodynamics | 3,4 | 288 | 8 |
| Б.1.1.20 | Heat and mass transfer | 4,5 | 288 | 8 |
| Б.1.1.21 | Hydrodynamics | 3 | 180 | 5 |
| Б.1.1.22 | Life safety | 7 | 108 | 3 |
| Б.1.1.23 | Metrology, thermotechnical measurements and automation | 6 | 180 | 5 |
| Б.1.1.24 | Electrical and Electronics | 4 | 144 | 4 |
| **Б.1.2** | **Variable part of Block 1** |  |  |  |
| Б.1.2.1 | Mathematical and computer methods for solving problems of heat engineering, heat power engineering and heat technology | 1,2 | 216 | 6 |
| Б.1.2.2 | Physico-chemical fundamentals of heat engineering, heat energy and heat technology processes | 5 | 216 | 6 |
| Б.1.2.3 | Energy saving in heat power engineering, heat engineering and heat technology | 7 | 180 | 5 |
| Б.1.2.4 | Alternative and renewable energy sources | 5 | 108 | 3 |
| Б.1.2.5 | Boiler plants | 6,7 | 324 | 9 |
| Б.1.2.6 | Turbines of thermal and nuclear power plants | 7,8 | 288 | 8 |
| Б.1.2.7 | Fundamentals of reliability of equipment of thermal power plants | 6 | 144 | 4 |
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| **№** | **Subject** | **Semester** | **Hours** | **Credits** |
| Б.1.2.8 | Computer technology in heat engineering calculations | 7 | 180 | 5 |
| Б.1.2.9 | District Heating Fundamentals | 6 | 144 | 4 |
| Б.1.2.10 | Thermal and nuclear power plants | 7,8 | 252 | 7 |
| Б.1.2.11 | Economics and management of energy enterprises | 8 | 72 | 2 |
| Б.1.2.12 | Repair of equipment for thermal power plants | 7 | 108 | 3 |
| Б.1.2.13 | Thermomechanical and auxiliary equipment of thermal power plants | 8 | 72 | 2 |
| Б.1.2.14 | Operation of thermal power plants equipment | 6 | 108 | 3 |
| Б.1.2.15 | Fundamentals of engineering design and CAD of thermal power plants | 8 | 72 | 2 |
| Б.1.2.16 | Physico-chemical basics of water treatment | 5 | 72 | 2 |
| **Б.1.3** | **Disciplines of choice** |  |  |  |
| Б.1.3.1.1 | Psychology | 4 | 72 | 2 |
| Б.1.3.1.2 | Engineering Psychology | 4 | 72 | 2 |
| Б.1.3.2.1 | Fundamentals of Nuclear Reactor Physics | 4 | 144 | 4 |
| Б.1.3.2.2 | Physicochemical basis for the preparation of nuclear fuel | 4 | 144 | 4 |
| Б.1.3.2.3 | Military training | 4 | 144 | 4 |
| Б.1.3.3.1 | Environmental technologies at thermal power plants | 5 | 144 | 4 |
| Б.1.3.3.2 | Environmental technology at nuclear power plants | 5 | 144 | 4 |
| Б.1.3.3.3 | Military training | 5 | 144 | 4 |
| Б.1.3.4.1 | Methods of calculating thermal schemes of thermal power plants  | 6 | 180 | 5 |
| Б.1.3.4.2 | Modeling of modern schematic and parametric calculations of thermal schemes of thermal power plants | 6 | 180 | 5 |
| Б.1.3.4.3 | Military training | 6 | 180 | 5 |
| Б.1.3.5.1 | Electrical equipment of power plants | 7 | 180 | 5 |
| Б.1.3.5.2 | Electrical part of thermal power plants | 7 | 180 | 5 |
| Б.1.3.5.3 | Military training | 7 | 180 | 5 |
| Б.1.3.6.1 | Fuel economy thermal power plants | 8 | 108 | 3 |
| Б.1.3.6.2 | Fuel preparation technology at TPPs | 8 | 108 | 3 |
| Б.1.3.6.3 | Military training | 8 | 108 | 3 |
| Б.1.3.7.1 | Game sports | 2-6 | 328 | 0 |
| Б.1.3.7.2 | Improving physical education | 2-6 | 328 | 0 |
| **Б.2.1** | **Mandatory part of Block 2** |  |  |  |
| Б.2.1.1 | Educational (fact-finding) practice | 2 | 108 | 3 |
| **Б.2.2** | **Variable part of Block 2** |  |  |  |
| Б.2.2.1 | Training (majors) practice | 4 | 108 | 3 |
| Б.2.2.2 | Production (technological) practice | 6 | 216 | 6 |

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| **№** | **Subject** | **Semester** | **Hours** | **Credits** |
| Б.2.2.3 | Production (design) practice  | 8 | 108 | 3 |
| Б.2.2.4 | Undergraduate practice | 8 | 216 | 6 |
| **Ф.** | **Optional disciplines** |  |  |  |
| Ф.1 | Military training | 8 | 252 | - |
| Ф.2 | Environmental technologies at nuclear power plants and environmental impact assessment of nuclear power plants | 5 | 108 | - |
| Ф.3 | Automated design of technological equipment for thermal power plants and nuclear power plants | 4 | 72 | - |
| Ф.4 | Military Training 01 | 5-8 | 843 | - |
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|  | **Total** |  | **240** | **8968** |