Master Program: Bioengineering Systems and Technologies

Field of Studies: Development and maintenance of technological processes and production in the field of bioengineering systems and technologies

Years of Studies: 2

Language of Training: Russian

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| **№** | **Subject** | **Semester** | **Hours** | **Credits** |
| М.1.1.1 | Foreign language for academic purposes | 2 | 72 | 2 |
| М.1.1.2 | Design of biotechnological systems | 3 | 108 | 3 |
| М.1.1.3 | Social and psychological communications in a professional environment | 2 | 72 | 2 |
| М.1.1.4 | State-of-the-art problems of biomedical engineering | 1 | 108 | 3 |
| М.1.1.5 | Methods of computer processing and analysis of biomedical data | 3 | 216 | 6 |
| М.1.1.6 | Research Methodology and Logic | 1 | 144 | 4 |
| М.1.1.7 | Organizing scientific research | 2 | 144 | 4 |
| M.1.2.1 | Business Communication Language | 1 | 108 | 3 |
| M.1.2.2 | Modeling of biological processes and systems | 2 | 108 | 3 |
| M.1.2.3 | Fundamentals of marketing and management at medical and technical enterprises | 2 | 72 | 2 |
| M.1.2.4 | Fundamentals of the use of physical fields in medicine | 1 | 108 | 3 |
| M.1.2.5 | Biocompatible materials and coatings for medical purposes | 3 | 144 | 4 |
| M.1.2.6 | Automation of biomedical research | 3 | 144 | 4 |
| M.1.2.7 | Intellectual Property and the Commercialization of Bioengineering Technologies | 2 | 108 | 3 |
| M.1.2.8 | Philosophical problems of science and technology | 2 | 72 | 2 |
| M.1.2.9 | Fundamentals of Entrepreneurship | 3 | 72 | 2 |
| M.1.2.10 | History and methodology of science and technology in the field of biotechnological systems and technologies | 1 | 72 | 2 |
| М.1.3.1.1 | Scientific basis and technical means of cleaning and sterilization in medicine | 1 | 180 | 5 |
| М.1.3.1.2 | Physical fundamentals of generating concentrated energy flows for medicine | 1 | 180 | 5 |
| М.1.3.2.1 | Scientific principles for the development of special equipment and apparatus | 1 | 108 | 3 |
| М.1.3.2.2 | Scientific basis for the construction of endoprostheses and exoprostheses | 1 | 108 | 3 |
| М.1.3.3.1 | Biomechanical modeling | 3 | 108 | 3 |
| М.1.3.3.2 | Сomputer modelling  of biomedical processes | 3 | 108 | 3 |
| М.2.1.1 | Educational (drawing-and-designing)  practice training | 6 | 216 | 2 |
| М.2.1.2 | Indudtrial (scientific-research) practice training | 6 | 216 | 4 |
| М.2.1.3 | Indudtrial (Industrial and technological) practice training | 3 | 108 | 4 |
| М.2.1.4 | Undergraduate practice training | 6 | 216 | 4 |
| М.2.1.5 | R&D | 1-4 | 1080 | 30 |
| М.3 | State Final Examination | 4 | 216 | 6 |
| F.2 | Pairing sensors with digital diagnostic systems | 3 | 108 | 3 |
| F.3 | Decision support systems in medicine | 2 | 108 | 3 |
|  | **Total** |  | **4320** | **120** |