



Field of Study: **Chemical Technology**

Major: **Chemistry of polymers for medical-biological purposes**

Ivanovo State University of Chemistry and Technology, Russia  
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<b>Awarded degree or qualification:</b>	Bachelor
<b>Language of instruction:</b>	Russian (Preparatory Department for studying Russian language is available)
<b>Form of training:</b>	Full-time
<b>Duration:</b>	4 years
<b>Possibility of free training:</b>	Yes (see more)
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## 1. Programme description

Today, science and technology related to the life of humans and other living organisms occupy a fundamental place in the modern world. Higher molecular compounds are firmly established in modern medicine and are successfully used in various fields as components of medicines, implants in surgery, traumatology, orthopedics, urology, dentistry, ophthalmology, materials of artificial human organs, sanitation and hygiene items, parts for the production of equipment and tools, etc. The field related to the production, research and application of such materials has been formed in recent decades and is actively developing taking into account the specific requirements for the material depending on the field and conditions of its application. The introduction of new excipients from the polymer class into medical practice has played a revolutionary role in drug technology, and has led to the emergence of new drug forms such as microcapsules, aerosols, skeletal tablets, and a variety of therapeutic systems.

The educational programme allows to prepare highly qualified specialists in the field of synthesis, research and use of polymers for medical and biological purposes, taking into account the specificity of the interaction of polymers with living organisms. The training programme provides knowledge in various fields, in particular, in the field of polymer chemistry, medicine, biology, nanotechnology, materials science, composite materials.

## 2. Programme objectives

The graduate will be able to:

- manage effectively the technological processes of industrial production of polymers for medical and biological purposes and the creation of new biocompatible



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polymers and materials based on them for various fields of medicine and pharmacology;

- carry out the organization of work locations, technical equipment, layout planning;
- carry out incoming inspection of raw materials;
- control the quality of products using standard methods;
- perform mathematical modelling of processes and objects based on application software packages for scientific research.

### **3. The field of professional activity of graduates**

The professional activity of the graduate is aimed at implementing modern technologies in the production of polymer composite materials for medical and biological purposes. A graduate will be able to carry out professional activities in industrial enterprises and research organizations engaged in research and production of polymers, including special-purpose polymer composite materials and products based on them.

### **4. The educational programme prepares:**

- qualified personnel for enterprises and organizations of small, medium-sized and large businesses engaged in the synthesis and processing of polymers and polymer materials for special purposes;
- researchers in the laboratory for the creation and control of new materials and technologies in the field of obtaining polymers for medical and biological purposes.

### **5. Major disciplines:**

- "Introduction to Biomaterial Science"
- "Technology of polymers for medical-biological purposes"
- "Chemistry of raw materials for polymer biomaterials"
- "Technology of modified polymer biomaterials"
- "Methods of analysis, control and certification of biomedical polymers"
- "Methods of processing plastics into medical and biological products"