

Chemistry of Composite Materials

Kazan (Volga Region) Federal University

Degree or qualification is awarded: **Master**

Language of study: **Russian**

Mode of study: **full-time**

Duration: **2 years**

Availability of free education: **no**

Price: **180 840 rubles per year**

Programme webpage at the university website:

<https://kpfu.ru/eng/academic-units/natural-sciences/alexander-butlerov-institute-of-chemistry>

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The purpose of the educational program

Training of qualified specialists in the field of development and research of properties of modern composite materials, as well as nanomaterials

Why is it worth choosing this program?

In the era of the rapid development of science and technology, automation of industrial processes, the development of new technologies, the discovery of innovative materials, the need for highly qualified specialists who are able to solve current production problems, and control and improve the properties of existing materials, as well as create new composites and nanomaterials.

Master "Chemistry of composite materials" opens the possibility of short-term (2-year) degree with basic chemical knowledge in any area of chemistry to get the knowledge and skills to work with modern composite materials, including nanomaterials.

Description of the educational process

During the training, students will receive knowledge in the following disciplines:

Mandatory disciplines:

- Physicochemistry of the macromolecular compounds
- Fundamentals of materials science
- Research methods for materials and composites
- Composite materials
- Composite materials based on metal clusters
- Technological basis for the receipt and processing of materials
- Methods of control of materials and composites
- Functional nanomaterials
- Disciplines of choice:
- Solid state chemistry

- Binders for composites
- Physicochemistry of materials and composites
- Chemistry of biomaterials
- Fillers and fibers
- Biocoordination chemistry
- Natural composite materials
- Polymer nanocomposites
- Technologies for producing products from composite materials
- Carbon materials

- Mechanics of composites

Skills that students will acquire after completing an educational program

Students trained in the discipline "Chemistry of Composite Materials" and working in this specialty will be able to 1) find innovative solutions for urgent problems of the production of composite materials; 2) compete in the international labor market; 3) develop and apply specialized composite materials, including nanomaterials; 4) combine the acquired fundamental knowledge with modern technical solutions and apply them in solving applied problems in the field of creating new composites, monitoring and improving the properties of materials.

Professional Areas Where Graduates Have Advantages

Graduate employment options

- Research and organizational and managerial activities in universities, research centers, commercial companies engaged in research activities in the field of development of compositions and methods for manufacturing composite materials, studying their properties;
- activities in the system of transfer from science to the industry of innovative technologies in the field of development of composite materials (technology transfer centers, specialized companies and funds);
- education activity in the universities, high schools and colleges.

Specializations within this programme