

Industrial Ecology and Biotechnologies

National Research ITMO University

Degree or qualification is awarded: **Ph.D in Industrial Ecology and Biotechnologies**

Language of study: **Russian**

Mode of study: **full-time**

Duration: **3 years**

Availability of free education: **yes**

Price: **299 000 RUB per year**

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Upon completion of their Ph.D. program, graduates will be able to work in the following fields: studying, preparing and using of enzymes, viruses, microorganisms, cell cultures, plants and animals, products of their biosynthesis and biotransformation; creation of technologies for the production of new products, including products obtained using microbiological synthesis, biocatalysis, genetic engineering and nanobiotechnology; creation and implementation of energy and resource conservation, environmentally safe technologies in the production of basic inorganic chemicals, products of basic and fine chemicals, polymer materials, refined petroleum products, gas and solid fuels, microbiological synthesis, pharmaceuticals and food products; providing environmental safety of industrial factories and facilities.

The graduates will have an understanding of microorganisms, cell cultures, plants and animals, viruses, enzymes, biologically active chemical substances; biomass, equipment of biotechnological processes; regulations on the production of biotechnology products, international standards; basic chemicals, petrochemicals and biotechnology industries and processes and devices in chemical engineering, petrochemical and biotechnology; industrial installations and technological schemes; artificial intelligence in chemical engineering, petrochemical and biotechnology.

Specializations within this programme

Technology of meat, dairy and fish products and refrigerative production

Biotechnology of food and active ingredients

Processes and devices of food production