National Technical University
«Kharkov Polytechnic Institute»

Department

«Biotechnology, Biophysics & Analytical Chemistry»
Department

Biotechnology, Biophysics & Analytical Chemistry

Department provides full-time training and learning
[Bachelor (BA); Master’s (MA); Doctor of Philosophy (PhD)]
by speciality

162 «Biotechnologies and Bioengineering»
with two specializations:

162.1. Industrial Biotechnology
162.2. Pharmaceutical Biotechnology
Areas of studying:

**BIOTECHNOLOGY** applies scientific and engineering principles to processing of materials by living organisms with the purpose of creation of commodities and services.

**Industrial BIOTECHNOLOGY** develops technologies of the use of organisms-producers in food industry, in the industrial production of biogas and biodiesel, in the production of organic acids, in a perfumery, in biosensorics and bioelectronics.

**Pharmaceutical BIOTECHNOLOGY** develops technologies of production of medicinal preparations, vaccines, hormones, immunomodulators, vitamins and other bioactive substances and supplements by the use of organisms-producers.
Areas of studying:

**Molecular BIOTECHNOLOGY** develops technologies of organisms modification at molecular level.

**AgroBIOTECHNOLOGY** develops the biotechnologies of crops production, production of fodder vitamins, amino acid and proteins, silo ferments, probiotics, entomopathogenic preparations, bacterial fertilizers and composts.

**EcoBIOTECHNOLOGY** develops the biotechnologies of processing of industrial and domestic wastes, technology of bioremediation of muddy territories, vermicomposting, biotreatment of gas extrass, enriching of air with oxygen, biodegradation of oil contaminations.
Areas of studying:

**BIOENGINEERING** applies scientific and engineering principles of biotechnology and molecular biology to solve the actual problems related to life sciences and/or their applications.

**Biomedical ENGINEERING** develops the methods of creation of artificial tissues and organs.

**Genetic ENGINEERING** develops the methods of genetic modification of organisms.

**Protein ENGINEERING** develops the methods of the molecular constructing of proteins with desired properties.

**Enzyme ENGINEERING** develops the methods of the molecular constructing of enzymes with desired activity and specificity.
Employment perspectives:

Companies:
Biotechnological, Microbiological, Food, Pharmaceutical, Agricultural, Ecological

Scientific Institutions:
Biotechnological, Ecological, Microbiological, Food, Pharmaceutical, Agricultural

Certification Laboratories & Departments:
Biotechnological, Microbiological, Food, Pharmaceutical, Agricultural, Ecological
General academic disciplines for the students of our department (bachelor’s level)

- Fundamentals of Biotechnology
- Cell Biology
- Biophysics
- Analytical Chemistry
- General Microbiology & Virology
- Biochemistry
- Biophysical Chemistry
- Methods of Biological System Analysis
- General Biotechnology
- Molecular Biology
- Genetics
Academic disciplines (bachelor’s level) for specialization Industrial Biotechnology

- AgroBiotechnology
- EcoBiotechnology
- Biological and Chemical Sensor Systems
- Molecular & Chemical Biophysics
- Fundamentals of Biochemical Engineering
- Equipment for Biotechnological Production
- Fundamentals of Design of Biotechnology Plants
- Industrial Biotechnology
Academic disciplines (bachelor’s level) for specialization Pharmaceutical Biotechnology

- Pharmaceutical Chemistry
- Essentials of Pharmacology & Pharmacognosy
- Sensor Systems in Pharmacy
- Chemical & Molecular Biophysics
- ImmunoBiotechnology
- Equipment for Biopharmaceutical Production
- Fundamentals of Design of Biopharmaceutical Plants
- Pharmaceutical Biotechnology
General academic disciplines for the students of our department (master’s level)

- Molecular Biotechnology and Bioengineering
- Bioinformatics
- BioNanotechnology
- Industrial Technologies of Biologically Active Substances
- Biotechnology of Pharmaceutical Substances and Biomedicines
- Biotechnology of Plant and Animal Cells
- Biomaterial Science
- Modelling and Optimization of Biotechnological Systems and Processes
- Microbial Synthesis Technologies
Professors and Teaching Stuff

Head of the Department
Prof. Dr. Sci. in Physics Alexander N. Ogurtsov

Professors:
Prof. Dr. Sci. in Engineering Nikolai F. Kleshchev
Prof. Dr. Sci. in Pharmacy Yuri M. Krasnopolsky
Prof. Dr. Sci. in Medicine Eugeny M. Babych
Prof. Dr. Sci. in Engineering Olga N. Bliznjuk
Prof. Dr. Sci. in Biology Elena M. Klimova
Prof. Dr. Sci. in Medicine Vasyliy V. Rossikhin

Docents: PhD in Biology Irina A. Belykh
PhD in Agricultural Sci. Leonid V. Gorbunov
PhD in Engineering Natalia Yu. Masalitina
PhD in Engineering Sergey I. Samoylenko
PhD in Engineering Aleksandra A. Varankina
PhD in Biology Oksana V. Zviahintseva

Senior Lecturers: Nadezhda V. Larintseva
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Our Biotech World = Our students came from + Our graduates work in

[Map of countries showing biotech-related work and study locations]