

162 BIOTECHNOLOGIES AND BIOENGINEERING

EDUCATIONAL-PROFESSIONAL PROGRAM AT THE SECOND (MASTER'S) LEVEL “PHARMACEUTICAL BIOTECHNOLOGY”



Garant of the program - **Strelnikov Leonid Semenovich**
Doctor of Pharmaceutical Sciences, Professor, Head of the
Department of Biotechnology
Faculty of Pharmaceutical Technology and Management
<https://biotech.nuph.edu.ua>
email: biotech@nuph.edu.ua

Branch of knowledge	16 Chemical and Bioengineering
Specialty	162 Biotechnology and Bioengineering
Scope of the program	90 ECTS credits
The duration of the program	1 year 6 months
Form of study	Full-time

The educational and professional program “Pharmaceutical Biotechnology” is aimed at the formation and development of general and professional competencies of masters of biotechnology and bioengineering capable of comprehensive implementation of research, design and technological, production and technological works related to the use of biological agents and products their life.

Features of the educational and professional program

The Master's Degree Program provides theoretical, practical and research training; generalization of the results of scientific research, design and technological, production and technological works, implementation and protection of qualification master's work. The educational and professional program is aimed at solving current problems in the pharmaceutical industry related to the use of biotechnology and bioengineering, and has an integrated and targeted approach for training a highly qualified masters who possesses the professional competencies necessary for further professional activity.

Program components:

No	Name of the discipline
Compulsory discipline	
1	Pedagogy and psychology of higher education
2	Economics of innovation activity
3	Newest Biotechnologies for the Production of Medicines
4	GMP: quality assurance system
5	Planning and organization of scientific research

6	Immunobiotechnology
7	Biotechnology disinfection of ecosystems
8	Human Resources
Elective disciplines	
9	Marketing research in biotechnology
10	Validation of the technological process
11	Information technology in science
12	Modern problems of biotechnology
13.a	Nanobiotechnology
13.6	Biosensors
14.a	BAD technology
14.6	Biosafety of biotechnological industries
Practical training	
1	Internship
Graduates certification	
Protecting the qualification master's work	

Employment and competitive advantage of graduates of the program

Graduates of the master's program will be able to hold such primary positions under the State Classifier of professions DK 003: 2010:

2149.1: Junior Researcher (bioengineering)

2149.2: Engineer-researcher, engineer for standardization and quality, laboratory engineer, technology engineer, labor protection engineer

2211.1: Junior Researcher (Biology)

2211.2: Biotechnologist

2310.2: Assistant

2320: Teacher of vocational education and training institution

2419.3: State expert

3152: Product Quality Inspector

8259: Product and Process Quality Control Controller (Chemical Production)

It is possible to continue further education at the third (educational-scientific) level (doctoral programs), as well as advanced training and obtain additional postgraduate education.

Program learning outcomes

Upon graduation from the educational-professional program, applicants of higher education will:

- be able to perform patent search and process scientific and technical information; submit an application for an invention independently;

- know national and international copyright law. Be able to protect their copyrights and avoid copyright infringement in the process of professional activity;

- conduct technical and economic calculations of the effectiveness of design and development decisions and their consequences in the short and long term;

- be able to apply methods of mathematical modeling and optimization in the development of scientific and technical projects;

- to know the molecular organization and regulation of gene expression, replication, recombination and reparation, restriction and modification of genetic material in pro- and eukaryotes, a strategy for the creation of recombinant DNA for the purposeful design of biological agents;

- to know the basic methodical methods of cultivating eukaryotic cells of animal and plant origin, as well as technologies for their application for scientific purposes, medicine, agriculture, etc .;
- be able to work with different biological agents (isolation, identification, storage, cultivation, immobilization), optimize nutrient media, be able to choose the best methods for analysis, selection and purification of the target product, using modern biotechnological methods and techniques that are specific to a certain direction of biotechnology;
- be able to formulate the purpose and tasks of research and scientific and technical activities in the field of biotechnology, based on current trends in the development of science, technology and society;
- to be able to substantiate methods and means of protection of man and the environment from dangerous factors of anthropogenic and biological origin;
- to know the general trends in the development of advanced biotechnology in advanced countries, to be able to assess the effectiveness of advanced biotechnology, to implement the most effective biotechnological methods and techniques in practical production activities;
- be able to carry out technical and economic forecasting and optimization of scientific and technical works. Identify the trends of scientific and technical development of society and the biotechnology industry;
- be able to select and substantiate raw materials, materials and intermediates according to the conditions of biotechnological production taking into account technological and other uncertainties;
- be able to compile technological and analytical documentation for biotechnological products of different purposes;
- be able to execute fragments of a marketing program and strategy, assess ways to promote biotech products to the consumer, methods for setting prices for it;
- be able to analyze the content of the foreign trade contract, assess its advantages and risks from the position of the particular enterprise and determine the appropriate measures for its implementation;
- be able to manage complex biotechnological processes.