**Graduate model for the educational program "Biotechnology"**

The employment of university graduates in the last few years has become a key indicator of the work of universities from the point of view of evaluating the effectiveness of their functioning. At the same time, the state of the graduate employment process accumulates a whole range of issues that need to be addressed, including the demand for graduates in the labor market, the correspondence of the level of training of specialists in higher education to the needs of the labor market, the definition of directions for the development of higher education and the formation of more effective mechanisms for its partnership with employers in order to improve the quality of training specialists.

The solution of these issues is directly related to improving the efficiency of university graduates' employment, ensuring their adaptation to the labor market, which should be based on the interaction of the higher education system and employers in the framework of further development and improvement of the labor market infrastructure, which should be aimed at comprehensive support for graduates in matters of employment promotion and professional navigation.

In this regard, the urgency of improving the efficiency of employment of graduates of Kaznmu increases in order to ensure the level of compliance of their training with the requirements of the agricultural sector of the economy.

One of the important factors influencing the professional training of personnel is the rapidly changing professional competencies under the influence of digitalization, which are being introduced into educational standards and professional training programs with some delay.

As a result, there is a gap in the level of competence of graduates and the requirements of employers, which characterizes the main problem of the system of training specialists with higher education: its low correlation with the requests and needs of employers.

In recent years, the percentage of employment in the OP "Biotechnology" has been:

Table **№**1 Employment of graduates of the OP "Biotechnology" in 2024.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| The cipher and the names of educational programs | Release | By spec | Not on spec | He continues his studies in the master's degree program | Child care | % Of Total labor | % by spec | % not by spec |
| 6B05102-"Biotechnology"  | 41 | 9 | 3 | 5 | 4/1 | 54% | 46% | 8% |
| 7М05102-"Biotechnology"  | 7 | 3 | 1 | 1 | - | 71% | 57% | 14% |

The formation of the graduate model begins to take shape during the training of students, taking into account the following factors: the effectiveness of the selection of applicants; the potential of KazNAIU; the content and organization of the educational process; the degree of use of advanced learning technologies; the professionally significant environment of the university, etc. The graduate model of the university embodies the idea of a student who has completed the education process and represents a formed personality with not only certain competencies, but also necessary professionally and socially significant personal qualities.

One of the fundamental approaches to creating a graduate model is the competence approach, in which competence/competence becomes the main element of the graduate's personality model. personal qualities.

The graduate model should serve as a basis for the organization of professional training of students at the university on an equal basis, taking into account the requirements of state standards, the possibilities and limitations of the education system, as well as the "entrance characteristics" of applicants. Such a model should be dynamic with a constant possibility of adjustment in accordance with changes in economic sectors.

To ensure the relevance of the model, the update rate of the model should not be less than the rate of change of the factors determining it.

The graduate model of a university is a rather capacious and diverse concept.

It can be defined in different ways – as:

1) a set of defining knowledge and skills acquired in the learning process; 2) an information array, the active assimilation of which is necessary for effective work in production; 3) a training system that allows a graduate to successfully implement all types of business (production) contacts with the environment (information, technological, personnel, etc.); 4) a detailed description of all professional and socio-psychological qualities of a university graduate; 5) a formalized list of all job functions and responsibilities;

6) a system of skills that allow you to solve standard and non-standard situations that arise during production activities; 7) description of the personality traits of a successful professional; his age, gender, education, work experience in the specialty, knowledge of modern information technologies, knowledge of foreign languages, etc.; 8) displaying the process of interaction of certain types of trainees with a professionally significant environment. The learning process should be structured in such a way that, given the existing characteristics of applicants, the characteristics of a university graduate are as appropriate as possible to the professional model reflecting the current requirements for specialist training

GRADUATE MODEL

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| --- | --- | --- |
|  | 6В05102-"Biotechnology" | 7М05102-"Biotechnology" |
| be able to: | - memorize the structural organization and functions of cells of living organisms: microorgasma (bacteria, viruses, yeast, etc.), plants, animals (domestic and wild) and humans. - to compare the main types of biotechnological products and the principles of their production, methods of developing measures to improve the economic and production indicators of the biotechnological process, ways to ensure the economic efficiency of production and obtain a product of the desired quality; - to solve theoretical and practical modules of molecular biology, microbiology, biochemistry, genetics, and virology, the student must evaluate the regularity and correctly apply in yeast production, the composition of microflora and the features of the production of biotechnological processes; | - to collect information from various agricultural facilities, process the received primary information by implementing analytical and communication skills; - design and develop various components of information systems; - design and administration of databases of information systems; - to support information, software, technical, organizational and legal support of information systems and their elements; - to develop requirements and specifications of individual components of professional activities based on the analysis of user requests, domain models and capabilities of technical means; - have the ability to search, critically analyze, generalize and systematize scientific information, to set research goals and choose the best ways and methods to achieve them. |
| To know and understand: | - - methods of isolation and study of production-valuable microorganisms used in biotechnological production; - to assess the level of digital technology in various industries and in the agro-industrial complex as a whole; - to evaluate material and human resources, as well as reasonable forecasting of the development of digital technology in the agro-industrial complex using best practices; - objectively assess the situation of food production in the agro-industrial complex and identify relevant areas of development; - skills in using modern computer control systems for technological process in food production; - skills in the management of food production technology, as well as the operation of equipment based on information technology; - to analyze technical and economic indicators and marketing activities. | - objectively assess the level of digital technology in various industries and in the agro-industrial complex as a whole; - to evaluate material and personnel support, as well as reasonable forecasting of the development of digital technology in the agro-industrial complex using best practices; - objectively assess the situation of food production in the agro-industrial complex and identify relevant areas of development; -analyze and evaluate promising areas of digital technology development for agricultural enterprises; - skills in using modern computer process control systems in food production; - skills in managing food production technology, as well as equipment operation, based on information technology; - to analyze technical and economic indicators and marketing activities; - skills in working with ISO documents, HACCP. |
| Be competent in matters of: | be able to form general cultural, general professional and professional competencies; - be competent in all matters related to modern biotechnological processes: production of biotechnological products, selection of microorganisms, plants and animals to solve various production and technological tasks | -in matters of labor legislation, norms and rules of labor protection and environmental safety, industrial sanitation and fire protection, the use of legislative and regulatory acts of the Republic of Kazakhstan in force in the food industry; to know the normative documents regulating the safety of food products; - apply specialized research methods in the professional field and present them to the scientific community for consideration and further discussion at conferences. |