

Specifics educational program on the specialty "Heating Energy" - 5B071700

1. Purposes and problems of an educational program

The educational program in the specialty 5B071700- Heating Energy was created on the basis of inquiry of employers, caused by needs of dynamically developing city of Astana, as largest metropolis in the region regarding consumption of power capacities, and also in connection with prompt exhaustion of stocks of raw materials of fossil fuel in general, on a global scale.

Main objective of the program is the following:

Formation of the main professional competences for

- performance of work in the field of professional activity on design, information service;
- use of information technologies when designing elements of the power and heat technical equipment;
- participation in development of technical specifications, and also descriptions of technological processes and regulations;

b) research activity:

- analysis of a condition of objects of activity;
- participation in development of techniques of carrying out tests of technological systems and equipment;
- use of computer technologies of processing of results;

c) organizational and administrative activity;

2. The general characteristic of an educational program The Educational program has been developed according to the National frame of qualification and professional standards, coordinated with the Dublin descriptors and the European frame of qualifications.

The real educational program consists of two basis cycles: 1) Basic disciplines - a BD;

2) Profile disciplines - PD. Each cycle of theoretical training consists of the obligatory component and elective.

3. Qualification characteristic:

Sphere of professional activity

The Power system is appropriated to graduates of a bachelor degree majoring in 5B071700 the academic degree "The bachelor of equipment and technology in "Heating Energy ".

- Area of professional activity is the power system as a component of equipment which includes set of means, ways and methods of human activity created for generation and use of warmth, management of its streams and transformation of different types of energy to heat.
- Objects of professional activity.

Objects of professional activity of the bachelor as a power system are:

- power systems and complexes;
- systems of power supply of objects of equipment and branches of economy;
- systems of power supply of the industrial enterprises;
- systems of power supply of autonomous objects;
- power installations;

Subject of professional activity

- Subjects of professional activity of bachelor's degree majoring in 5B071700 - Heating Energy are systems:
 - thermal power plants;
 - industrial and heating boiler rooms;
 - heat technologies;
 - the centralized and autonomous power supply of the industrial enterprises and organizations;
 - productions and distributions of energy carriers;
 - central heating and thermal networks;
 - preparation of water and fuel;
 - automated management of heat supply facilities and heat technology,

Types of professional activity

Graduates of a bachelor majoring degree in 5B071700 Heating Energy can carry out the following types of professional activity:

- design;
- production and technological process;
- research;
- operation;
- assembly and adjustment;

- Functions and standard problems of professional activity

Under the leadership of the leading (senior) engineer, the executive or the project head (task) carries out:

in design activity:

- the formulation is more whole than the draft (program) of the solution of objectives, criteria and indicators of achievement of the objectives, creation of structure of their interrelations, identification of priorities of the solution of tasks;
- development of options of a solution, the analysis of options, forecasting of consequences, search of compromise solutions in the conditions of a mnogokriterialnost, uncertainty, planning of implementation of the project of a product or technological process;
- use of information technologies at design of power and power technological systems, and also technological processes and technological operations;

participates:

- in design of industrial systems of power supply, electrotechnical and heatprocessing equipment;
- to develop of projects electro - and heat power installations of different function, water treatment installations and complexes; design of technological systems and the equipment of preparation of fuel, with use of systems of automation of design;
- in power and environmental assessment of projects;
- in release of design documentation on objects of design;

participates in production and technological activity:

- in the organization of effective use of energy resources in power complexes of the industrial enterprises and heat technology;
- in a choice from power supply of the enterprises, types of the capital and service equipment;
- in reconstruction of modernization and tests of heat processing equipment;
- in establishment of parameters of an optimum operating mode of the equipment; introduction of energy saving technologies, systems of use of secondary energy resources, nonconventional power sources and power technological combination;

Directions of professional activity

- Thermal power plants

Content of professional activity

The educational program "Thermal power plants" includes the different types of study defining the content of education, reflects their ratio, measurement and the account.

4. Prospects of employment of experts

The bachelor who is trained on an educational program "Thermal power plants" in the long term can work at objects of the enterprises such as:

- the thermal electric stations (TES), combined heat and power plants (combined heat and power plant), condensation power plants (CPP), the nuclear power plants (NPP);
- industrial and heating plants;
- productions and distributions of energy carriers, etc. (on an example: CHPP-1, CHPP-2, cities of Astana, JSC Astana teplotranzit, JSC Astanaenergiya, etc.).