The basic discipline “General Chemical Technology” is aimed at generalizing and consolidating the fundamental theoretical knowledge in the most important areas of chemistry, deepening this knowledge with examples of practical implementation in the form of existing and promising chemical technologies. This is intended to contribute to the completion of university training in the chosen direction of chemical education.

In accordance with the current main program of the specialty, the discipline includes the study of the theoretical foundations of chemical technology and their practical implementation by the example of learning the most important industrial technologies of inorganic production.

The training of specialists in the field of chemical technology of inorganic substances and materials has its own specifics. First, the problem of studying the theoretical foundations of chemical technology is solved: the physicochemical laws of chemical technological processes, the fundamentals of economics, the organization and planning of the chemical industry, etc. Secondly, an attempt is being made to integrate theoretical concepts of the natural science and fundamental chemical disciplines with the practical aspects of the implementation of modern industrial technologies of inorganic production based on the relevant requirements for raw materials, energy resources and the economy of processes.

The purpose of the course “General Chemical Technology” is to familiarize students of the specialty “5B072000 - Chemical Technology of Inorganic Substances” of chemical faculties of universities with general techniques of using the laws of chemical, physical and technological sciences to solve the final problems of technology applied to mass industrial production of inorganic substances and the organization of modern industrial production and its economy.

In this regard, the course of chemical technology of inorganic substances should:

- to give an idea of the current development trends and the relationship of chemical production processes, the integrated use of raw materials and energy, the creation of non-waste production and the use of the most important types of chemical products;
- give an idea of the main methods of transition from experimental study of the process to industrial production, methods of physical and mathematical modeling of chemical-technological processes, as well as their optimization;
- to familiarize with the main issues of labor protection and environmental protection from harmful wastes of chemical plants (when considering each specific technological process);
- to acquaint with the main technological problems of chemical and related industries, including the Republic of Kazakhstan in terms of future economic development.

The main task of the “Test tasks on chemical technology” is to form practical skills and competencies among students. Along with knowledge of the basics of the theory of chemical technological production, the principles of rational use of raw materials and fuel and energy resources, environmental protection, students should fully master the development and implementation of technological processes, design, construction and operation of chemical equipment and many other practical problems of chemical technology.

The following questions should be included in the mandatory minimum content of tests in the educational program of the university course “General Chemical Technology” for the specialty 5B072000 - Chemical Technology of Inorganic Substances:

- chemical production: hierarchical organization of processes in chemical production; criteria for evaluating production efficiency; general laws of chemical processes; industrial catalysis;
- chemical reactors: basic mathematical models of processes in chemical reactors; isothermal and non-isothermal processes in chemical reactors; industrial chemical reactors;
- chemical process systems (CPS): structure and description of CPS; CPS synthesis and analysis; raw materials and energy subsystems CPS;
- energy in chemical production: the most important industrial chemical production.

This manual contains test tasks according to the main sections of the course “General Chemical Technology” and is intended for the organization of independent work of students and its educational and methodical providing.