

## **04.03.01 Chemistry**

### **Analytical Chemistry**

#### **Program description and objectives**

Analytical chemistry studies the development of theoretical basis of analysis of substances chemical composition, investigates the methods of identification and detection, determination and separation of chemical elements and its compounds, as well as the methods of defining of chemical structure of substances.

The subject of analytical chemistry is design of analytical methods and practical analysis of various material objects (gaseous and liquid media, solid organic and inorganic substances) utilizing advanced instruments and techniques (spectral, chromatographic, electrochemical, etc.).

The program is dedicated to the development of students' ability to research and apply knowledge and equipment to resolve practical and theoretical issues and tasks of modern analytical chemistry.

#### **Research and professional activities**

- Synthesis of solid inorganic highly porous sorbents for purification of various media from heavy metals and radionuclides
- Study of natural dyes structure and properties, applicable in the pharmaceutical industry
- Hydrogen safety, hydrogen energy and radiation safety of nuclear power plants
- Research and development of nanostructured polymer membranes for ultrafiltration
- Development of chemical analysis of pharmaceutical production methods
- structural nanomaterials production and processing

#### **Practical training and future employment opportunities**

- Research institutes of Obninsk city
- Research and production companies (“Express Eco”, “Bion”, “Medbiopharm”, “Hemofarm”)
- Residents of chemical and pharmaceutical clusters in Kaluga and Moscow region
- State Atomic Energy Corporation ROSATOM companies
- Chemical-analytical laboratories of the Ministry of Health of the Russian Federation
- Nature protection and food production companies
- Companies of oil, gas, coal, diamond mining and processing industries