

COURSE DESCRIPTION

Discipline/Course: Chemistry 1.2.

Training programme for students studying on 15.03.04 bachelor's – Automation of technological processes and manufacturing (oil and gas industry) and 15.03.06 bachelor's – Mechatronics and Robotics.

Providing department General Chemistry and Chemical Department, High Technological Physics Institute

Lecturer: Valentina V. Smirnova

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Learning Outcomes:

Result No. 1. The student will demonstrate a knowledge and understanding of the fundamental laws of chemistry and chemical reactions, knowledge of the properties and methods for producing substances.

Result No. 2. The student will perform stoichiometric calculations; to determine the possibility of thermodynamic chemical processes; to record the reactions of chemical transformations of substances and their preparation; to draw analogies to change the properties of chemical compounds.

Result No. 3. The student will identify the relationship between the structure, properties and reactivity of chemical compounds.

Result No. 4. The student will apply this knowledge to determine, formulate and solve problems related to professional activities.

Result No. 5. The student will independently acquire knowledge and skills related to chemistry issues for professional development.

Course Outline:

Section 1. Basic laws and concepts of chemistry

Section 2. Structure of Matter

Section 3. Mechanism of chemical reactions

Section 4. Solutions

Section 5. Electrochemical processes

Course Delivery: one semester, 18 weeks

Prerequisites: School course of chemistry

Co-requisites: Mathematics 1.3, Ecology

Final Assessment: Certification Exam

Course Developer: Valentina V. Smirnova, PhD