

Discipline Description

Discipline:

Professional training in English (Fundamentals of technologies of inorganic substances)

The Basic Educational Program specialty: Chemical Engineering

The department of general chemistry and chemical engineering

Instructor: Natalya V. Usoltseva

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Learning Outcomes:

The study of professional course "Fundamentals of technologies of inorganic substances" in the English language allows students not only to get professional knowledge, skills and abilities, but also to show them on the language of education. For this, in the learning process, students find, extract from a variety of sources, analyze, interpret professionally-relevant information in English. The results of the study are represented orally or in writing using the English language. In addition, to improve the efficiency of the training process such types of educational tasks as business games, creative activities, discussion, video and audio materials, and the case study are widely used.

Theoretical skills:

1. know the main development directions of chemical technology of inorganic substances; basics of designing and plant equipment;
2. know the main development directions of chemical technology of mineral fertilizers, salts, alkalis;
3. know regularities, mechanisms and theories of catalytic action; role of catalysts in modern technology of inorganic substances;
4. know features of professional texts as well a scientific and technical texts, paperwork, communicative behavior in international professional communication.

Practical skills:

1. carry out the technical and economic comparison of various technological schemes and equipment design of inorganic synthesis;
2. choose the catalyst production technology and equipment design of catalytic productions;
3. understand oral language within the professional field; prepare and make oral messages, translate information, write messages, articles and abstracts concerning chemical technology of inorganic substances;

Skills:

1. calculation methods of material and heat balances of the production of various products of basic inorganic synthesis;
2. calculation methods of material and heat balances of the production of mineral fertilizers, salts, alkalis;
3. foreign language for professional communication.

Section 1. Classification of the main inorganic substances and materials.

Section 2. Catalysts in inorganic materials technology.

Section 3. Industrial gas technology.

Section 4. Ammonia technology.

Section 5. Inorganic acid technology (nitric, sulfuric, phosphoric acids).

Section 6. Types of mineral fertilizers, their role in the plant life.

Section 7. The global market for mineral fertilizers.

Section 8. The main processes and devices in fertilizer technology.

Section 9. One-component fertilizers.

Section 10. Multi-component fertilizers.

Section 11. Impact the fertilizer on the environment.

Course Delivery: two semester, 36 weeks

Prerequisites:

Foreign Language (English)

Processes and devices of chemical technology

The main directions of the chemical technology of inorganic substances

Co-requisites:

Chemical technology of inorganic substances

Theoretical foundations of technology of inorganic substances

Final Assessment: pass/fail exam

Course Developer: Natalya V. Usoltseva