

86S1-GOCH

MANAGEMENT OF CHEMICAL REAGENTS

ECTS: 3.0

HOURS PER SEMESTER/WEEK: LECTURES: -/-; CLASSES: 45/3

FIELD OF THE STUDY: Chemistry

Level of study: First-cycle (Bachelor's degree) program

Course status: optional *

Year of the study: II

COURSE CONTENTS

LECTURES: -

CLASSES: European Union guidelines on the management of chemicals and hazardous waste - REACH program. Substances, preparations and chemical waste in the light of Polish law, standards and regulations. 2. Principles of transportation of chemical reagents. Material Safety Data Sheets. Chemical packaging management. Methods of segregation of chemical waste. 3. Work safety in chemical laboratories - analysis of hazards, procedures, good laboratory practice. 4. Household waste - segregation, recycling, disposal, management. 5. Treatment and use of water for municipal, consumption and industrial purposes. Technologies used in water treatment. 6. Soil pollution, artificial fertilizers. 7. Plant protection products - use, harmfulness, protection during use. 8. Washing and cleaning agents - use, environmental impact, waste disposal. 9. "Green chemistry" friendly to people and its rules. 10. Renewable sources of raw materials and energy - the way to a zero-emission economy.

EDUCATIONAL PURPOSE: Learning the basics of good laboratory practice related to safety in the laboratory. Management of chemical substances and elements of prevention of chemical hazards. Familiarization with legal regulations related to the production, trade and use of chemicals.

LEARNING OUTCOMES

Knowledge. The student knows the basic principles of safe handling of chemicals and waste handling, as well as the legal aspects related to it. He understands the need to apply these rules.

Skills. Based on the acquired knowledge, he/she is able to analyze and assess problems and threats related to chemical reagents and waste, and to act in this context in accordance with the principles of Good Laboratory Practice. Can work in a group and, on the basis of the results obtained in this way, prepare and present in an accessible way a presentation on the effects of using chemical reagents.

Social competences. The student is ready to correctly identify problems related to the management of chemical reagents. He understands the need to update his knowledge and learn throughout life.

TEACHING FORMS AND METHODS

Lectures. -

Classes. Students divided into groups will carry out research projects in the laboratory, including the preparation of a project for the management of selected chemical substances.

FORM AND CONDITIONS FOR VERIFICATION OF LEARNING OUTCOMES

Lectures. -

Classes. Presentation in the form of a multimedia presentation of the assumptions and results of the completed project.

BASIC LITERATURE

1) Prudent Practices in the Laboratory: Handling and Management of Chemical Hazards: Updated Version. National Academies Press (USA), Washington, 2011. (Available on-line: <https://www.ncbi.nlm.nih.gov/books/NBK55868/>)

ADDITIONAL LITERATURE

1) Siemieńska T., Szczeponek K., Turek A., Proniewicz L. 2009. Chemical Management in Scientific and Educational Institutions. Jagiellonian University Press

THE TEACHER/TEACHERS CONDUCTING THE CLASSES:

dr hab. Stanisława KORONKIEWICZ stankor@uwm.edu.pl
Department of Chemistry, Plac Łódzki 4, 10-721 Olsztyn, POLAND