COURSE DESCRIPTION CARD - SYLLABUS

Course name
Working safety [S2TCh2E-KiN>BHP]

Course

Field of study
Chemical Technology

Year/Semester
1/1

Area of study (specialization)
Composites and Nanomaterials

Profile of study
general academic

Level of study
second-cycle

Course offered in
English

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
4

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

0,00

Coordinators

dr hab. inż. Joanna Zembrzuska prof. PP
joanna.zembrzuska@put.poznan.pl

Lecturers

Prerequisites

Student has the knowledge gained during first-cycle studies of the basic hazards to human health and life. Understands the need to apply the acquired knowledge throughout the study process and is able to take responsible action in an emergency. Understands the need to study.

Course objective

To familiarize students with the safety work and fire protection regulations, being in operation at the Poznań University of Technology. In particular, to familiarize students with the basic principles of safety work in a chemical laboratory, the emergency situations that may occur in chemical laboratories and the risks associated with exposure to chemical substances.

Course-related learning outcomes

Knowledge:
1. Knows the basic principles of occupational health and safety in the education of a chemist, in particular the principles of safe work in a chemical laboratory and work with chemical substances. [K_W03]
2. Has knowledge of the risks associated with the implementation of basic chemical processes. He

knows the principles of risk assessment, knows Polish, international and EU directives on occupational safety in the laboratory. [K_W18]
3. He knows the basic principles of action in case of fire and first aid. [K_W18]

Skills:
1. Has the ability to assess and prevent hazards in the laboratory. He knows the rules of occupational health and safety [K_U10].
2. Has the ability to act and behave appropriately in the event of an emergency and in hazardous situations related to the performed work [K_U28].
3. Applies basic regulations and adheres to health and safety rules related to the work performed, and implements appropriate waste management [K_U28, K_U29].
4. Has the ability to use safety data sheets for chemical substances and correctly recognizes pictograms, which he can assign appropriate meaning [K_U28].

Social competences:
1. Is aware of the importance and understands the social aspects of practical application of the acquired knowledge and the related responsibility [K_K02].
2. Understands the need for training [K_K01].
3. Is aware of the impact of following the safe work rules on the safety of himself and others [K_K05].

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Passing the course based on the results of the final test.Passing threshold: 55% of points.

Programme content

Issues concerning basic principles of work in a chemical laboratory, practical ability of conducting an experiment in a safe way and working in a lab and basis of substance management and prevention of chemical risks.

Course topics

The work safety course includes presentation and discussion of:
(1) BASIC PRINCIPLES: The four principles of safety; Basic safety rules; Issues related to green chemistry; Laws and regulations pertaining to safety.
(2) EMERGENCY RESPONSES: Fire emergencies; Chemical spills; Lab-related emergencies; First aid in chemistry laboratories.
(3) UNDERSTANDING LABORATORY HAZARDS: Routes of exposures to hazards; The language of safety
(signs, symbols, and labels); Finding hazard information: safety data sheets (SDS); The globally harmonized system of classification and labelling of chemicals (GHS).
(4) INTRODUCTION TO THE LABORATORY: Laboratory attire; Personal habits; Personal protective equipment (PPE); Common laboratory operations; Chemical management: storage and waste; Covid-19 related regulations; Basic guidelines for safety work.

Teaching methods

Lecture: multimedia presentation, discussion.

Bibliography

Basic:
1. R. H. Hill, Jr. and D C. Finster, Laboratory Safety for Chemistry Students, John Wiley & Sons, Inc., 2010.
2. Safety in Academic Chemistry Laboratories, Vol. 1: Accident Prevention for College and University Students, 7th Ed., The ACS Joint Based Board-Council Committee on Chemical Safety, Washington, 2003.
3. Laboratory Safety Guidance, Occupational Safety and Health Administration, U.S. Department of Labor, OSHA, Washington, 2011.
4. Current legal acts covering issues related to OSH.

Additional:

1. Safety in Academic Chemistry Laboratories, 8th Ed., Best practices for first- and second-year university students, A publication of the American Chemical Society Joint Board-Council Committee on Chemical Safety, 2017.

Breakdown of average student's workload

	Hours	ECTS
Total workload	4	0,00
Classes requiring direct contact with the teacher	4	0,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	0	0,00