

SYLLABUS

Name: *Safety Engineering*

Name in Polish: Inżynieria bezpieczeństwa

Name in English: *Safety Engineering*

Information on course:

Course offered by department:	Faculty of Organisation and Management
Course for department:	Silesian University of Technology
Study level and form:	Bachelor's degree, Full-time
Term:	summer semester 2023/2024
Coordinator of course edition:	Tomasz Wałek, Ph.D., Eng.

Default type of course examination report:
PASS
Language:
English
Course homepage:
https://platforma.polsl.pl/roz/
ECTS
3
Short description:
The aim of this subject is to acquaint students with the role of risk assessment in safety management, thematic legal acts on occupational health and safety, the safety management system, economic aspects of occupational health and safety management, as well as aspects related to major hazard accidents and carriage of dangerous goods.
Description:
Lectures: 1. Introduction to the science of safety. 2. Safety management – law regulations. 3. Safety management in enterprises. 4. Role of risk in safety management. 5. Safety management systems. 6. Introduction to auditing of safety management systems. 7. Hazard monitoring systems. 8. Contemporary concepts of occupational health and safety management. 9. Economical aspects of occupational health and safety management. Laboratory 1. Methods of occupational risk assessment. 2. Identification of hazards. 3. Occupational risk evaluation. 4. Elements influencing acceptance of risk. 5. Major industrial accidents – classification of plants. 6. Carriage of dangerous goods – parameters of transportation. Seminar 1. Conducting an occupational risk assessment for a selected workplace. a) Characteristics of the workplace. b) Identification of hazards. c) Occupational risk assessment with the use of the acquainted methods. d) Risk reduction – implementation of improvements on the workplace. e) Another occupational risk assessment. The number of hours with the direct participation of academic teachers or other persons conducting classes and students Lecture: 15 Laboratory: 15 Seminar: 15 Student's own work: Preparation for the test: 15 Preparation for the laboratory: 10 Preparation of the presentation: 20 Total workload: 90

Bibliography:

1. Safety Management System, PN-N-18001,18002:2004.
2. Occupational health and safety management systems. Requirements with guidance for use, ISO 45001:2018.
3. Marcinkowski, J. S., Education in ergonomics and occupational safety: monograph, Publishing House of Poznan University of Technology, Poznan, 2009.
4. Marcinkowski, J. S., General problems of work safety : work safety management: monograph, Publishing House of Poznan University of Technology, Poznan, 2009.
5. Schneeweiss, W. G., The fault tree method: from the field of reliability and safety technology, Hagen: LiLoLe-Verlag, 1999.
6. ed: Stanik-Besler, A., Hachkevych, O., Wołczański, T., Manufacturing processes: actual problems – 2020. Vol. 3, Safety engineering in manufacturing processes, Oficyna Wydawnicza Politechniki Opolskiej, Opole, 2020.
7. Asfahl, C. R., Industrial safety and health management, Upper Saddle River, NJ: Prentice Hall, 2004.
8. ed.: Frączek, T., New trends in production engineering: monograph, selected aspects of production engineering in management and materials engineering, Sciendo, Warsaw, 2019.
9. Sanders, R. E., Chemical process safety: learning from case histories, Elsevier/Butterworth-Heinemann, 2005.

Learning outcomes:

Knowledge: (knows and understands)

K1A_W7 - Fundamental problems of contemporary civilization relevant to the safety engineering aspects of production engineering.

Skills: (is able to)

K1A_U4 - When identifying and formulating specifications for engineering tasks related to safety engineering and solving them:

- select and use analytical, simulation and experimental methods, including computer-aided methods,
- recognize their system and non-technical aspects, including ethical aspects
- make preliminary economic assessment of the proposed solutions and engineering actions taken,
- analyze technology transfer and innovation.

K1A_U7 - Work individually and in a team, assuming different roles in it, plan and organize this work, as well as interact with other people as part of teamwork (also of an interdisciplinary nature) using specialist terminology and modern information and communication technologies, and take part in the debate, as related to safety engineering.

Social competence: (is ready for)

K1A_K3 - Responsible performance of professional roles related to safety engineering, compliance with the rules of professional ethics and requiring it from others, care for the achievements and traditions of the profession; is aware of the importance and understands non-technical aspects and effects of engineering activities.

Assessment methods and assessment criteria:

A single-choice test that covers the materials presented on lectures.

Calculations performed during the laboratory classes.

Individually prepared presentations for the seminar.

Practical placement: