



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Identification of hazards and occupational risk assessment

### Course

Field of study

Security engineering

Area of study (specialization)

Level of study

First-cycle studies

Form of study

part-time

Year/Semester

2/3

Profile of study

general academic

Course offered in

Polish

Requirements

compulsory

### Number of hours

Lecture

10

Tutorials

18

Laboratory classes

Projects/seminars

8

Other (e.g. online)

### Number of credit points

4

### Lecturers

Responsible for the course/lecturer:

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Responsible for the course/lecturer:

### Prerequisites

The student has the basic information about the hazards and nuisances occurring in the work environment and possibility of their perception.



### Course objective

Acquiring the ability to carry out risk assessment in the work environment and shaping of conditions for safe work performance. Acquiring the ability to conduct the risk analysis using qualitative methods (matrix, indicator and graphic methods). Increasing the awareness of the role and importance of occupational risk assessment related to work performed in ensure a safe working conditions.

### Course-related learning outcomes

#### Knowledge

- has completely knows in issues in the field of technical safety, safety systems, occupational health and safety as well as hazards and their effects [K1\_W02]
- has completely knows in the issues related to the identification of hazards, their effects being quantified and the risk assessment in the work environment (in particular the consequences of hazards and nuisance leading to accidents and occupational diseases) [K1\_W03]
- has expanded knowledge in the issues of ergonomics, human ecology and environmental protection [K1\_W05]
- has expanded knowledge in the issues related to the life cycle of devices, objects, systems and technical systems [K1\_W06]

#### Skills

- is able to properly select the sources and scope of information derived from them and carry out critical analysis and synthesis of the information obtained [K1\_U01]
- is able to perform a critical analysis of the technical solutions functioning (in particular machinery, equipment, objects, systems and processes) and assess them, taking into account their impact on the generation of hazards and nuisance [K1\_U06]
- is able to participate in the debate and present, using properly selected tools, a problem that falls within the framework of safety engineering [K1\_U09]
- is able to identify changes in requirements, standards, regulations and norms and their impact on technical progress and work environment, indicating the need to supplement knowledge on their basis [K1\_U12]

#### Social competences

- is aware and can see of the occurrence of cause-and-effect relationships that are important in achieving the adopted goals and ranking the importance of alternative solutions [K1\_K01]
- is aware of the importance of knowledge in solving problems in the field of safety engineering and the need for continuous improvement [K1\_K02]
- is aware of the responsibility for his own work and is ready to comply with the accepted principles of team work and to bear responsibility for jointly performed tasks [K1\_K07]



### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Formative assessment:

- in the scope of classes: on the basis of reports on independently performed tasks,
- in the scope of project classes: based on the progress of work on the project,
- in the scope of lectures classes: on the basis of partial tests covering the discussed issues.

Summative rating:

- in the scope of classes: average grade of partial grades for submitted reports, colloquium to check knowledge,
- in the scope of project classes: assessment of the completed project task,
- in the scope of lecture classes: partial tests during lectures and exam in the form of a test in which at least one answer is correct (the answer is scored as 0 or 1), or written answers to open questions (answers are scored on a scale of 0 to 3); student get a positive result of exam after obtaining at least 51% of the points available.

### Programme content

Lecture: The idea of risk, adverse events, initiating events, critical events. Division of hazards. Potential hazards. Failures as the causes of hazards. Accidents at the workplace as a consequence of hazards. Analysis of hazards and nuisances occurring in the workplace (in industry and services). Risk estimation. Risk determination using matrix, indicator and graphic methods. Determining risk acceptability based on probabilistic hazards methods. Planning in the vision of risk assessment. Legal requirements for risk assessment. Organization of occupational risk assessment in the enterprise. Risk in technical documents. Guidelines for informing employees about occupational risk.

Classes: practical implementation of the issues presented during the lecture with particular emphasis on methods of risk assessment.

Project classes: conducting an occupational risk assessment and developing risk documentation for a selected case (work station or scope of professional tasks).

### Teaching methods

Lecture classes are conducted in the form of an informational lecture supported by a multimedia presentation.

Classes are conducted using the case method, based on solving practical examples (tasks). During the exercises, a round table discussion takes place. Preparation for tutorials requires student's independent work, including work with a book.



Project classes are conducted on the basis of case studies with the use of scoring (graded) discussion; students work (carry out tasks) in predetermined groups. Project classes require independent (in consultation with the teacher) solution of a problem (risk assessment at a selected workplace).

## Bibliography

### Basic

1. Górny A., Ocena i zarządzanie ryzykiem zawodowym, Wydawnictwo Politechniki Poznańskiej, Poznań, 2021.
2. Horst W., Ryzyko zawodowe na stanowisku pracy. Część I: Ergonomiczne czynniki ryzyka, Wydawnictwo Politechniki Poznańskiej, Poznań, 2004.
3. Romanowska-Słomka I., Słomka A., Zarządzanie ryzykiem zawodowym, Wydawnictwo TARBONUS, Kraków - Tarnobrzeg, 2008.
4. Romanowska-Słomka I., Słomka A., Ocena ryzyka zawodowego, wyd. III, Wydawnictwo TARBONUS, Kraków, 2014.
5. Zawieska W.M. (red.), Ryzyko zawodowe. Metodyczne podstawy oceny, Centralny Instytut Ochrony Pracy, Warszawa, 2007.

### Additional

1. Dahlke G., Górny A., Horst W., Zarządzanie uciążliwością i bezpieczeństwem pracy, Wydawnictwo Politechniki Poznańskiej, Poznań, 2013.
2. PN-N-18002:2011, Systemy zarządzania bezpieczeństwem i higieną pracy. Ogólne wytyczne do oceny ryzyka zawodowego.
3. PN-ISO 31000:2018-08, Zarządzanie ryzykiem. Wytyczne.
4. PN-EN 31010:2010, Zarządzanie ryzykiem. Techniki oceny ryzyka.
5. PN-ISO 45001:2018-06/Ap1:2020-01, Systemy zarządzania bezpieczeństwem i higieną pracy. Wymagania i wytyczne stosowania.
6. PKN-ISO Guide 73:2012, Zarządzanie ryzykiem. Terminologia.



### Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,0
Classes requiring direct contact with the teacher	36	1,5
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) <sup>1</sup>	64	2,5

<sup>1</sup> delete or add other activities as appropriate