



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Safety measures and protection equipment [N1IBiJ1>SBiO]

### Course

Field of study

Safety and Quality Engineering

Year/Semester

3/6

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

Polish

Form of study

part-time

Requirements

compulsory

### Number of hours

Lecture

9

Laboratory classes

0

Other

0

Tutorials

9

Projects/seminars

0

### Number of credit points

2,00

### Coordinators

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### Lecturers

### Prerequisites

The student has a basic knowledge of ergonomics and work safety. The student is able to identify hazards in the work environment.

### Course objective

To familiarize students with the classification, purpose, requirements and possibilities of using means of protective (individual and collective) against dangerous and arduous factors occurring in the work environment. Understanding the criteria for the selection and use of protective measures (personal protective equipment vs. collective protective equipment). Indication of the possibility of conducting assessment of reasonable protective equipment.

### Course-related learning outcomes

Knowledge:

1. The student has advanced knowledge of technical safety systems, including occupational health and safety rules and protective measures, and understands how these systems prevent threats and minimize their effects. [K1\_W02],
2. The student knows at an advanced level issues related to the identification, analysis and assessment

of risk in the context of safety in the work environment and ensuring appropriate protective measures [K1\_W03].

#### Skills:

1. The student is able to properly select sources and the scope of information derived from them and conduct a critical analysis and synthesis of the obtained information [K1\_U01].
2. The student is able to prepare the necessary protective measures necessary to ensure the possibility of working in an industrial environment [K1\_U05].
3. The student is able to take part in a debate and present, using appropriately selected tools, a problem within the scope of safety engineering, in particular related to the selection and application of safety and security measures [K1\_U09].
4. The student is able to identify ongoing changes in requirements, standards, regulations and norms aimed at adapting them to technical progress and the reality of the labor market and, on their basis, indicate the need to supplement knowledge and skills [K1\_U12].

#### Social competences:

1. The student is able to notice cause-and-effect relationships that are important in achieving the adopted goals and ranking the importance of possible alternative solutions [K1\_K01].
2. The student is aware of the importance of knowledge in solving problems in the field of safety and quality engineering and continuous improvement [K1\_K02].

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

#### Formative assessment:

- in the scope of tutorials: on the basis of reports on independently performed tasks,
- in the scope of lectures: on the basis of partial tests covering the discussed issues.

#### Summative rating:

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

### Programme content

Characteristics of protective measures. Guidelines for the selection of protective equipment. Obligations of employers and employees in relation to the use of protective measures.

### Course topics

Lecture: Requirements for safety and protective equipment (individual and collective protection). Conditions for admission of protective equipment and measures to trade on the European market. Division and classification of safety and protective equipment as a function of risk factors and protection of individual body parts. Requirements and characteristics of safety measures protecting against heat flux, flame, chemicals (in liquid and gaseous state), aerosols, impacts, electromagnetic radiation, mechanical factors, electrostatic field, falling from height, atmospheric factors, biological factors. Protections against mechanical, electrical and chemical hazards. Technical protective equipment and machine control systems related to ensuring safety. Practical guidelines for selecting personal protective equipment. Assessment and selection of collective protective equipment. Application of safety construction.

Tutorials: practical implementation of the issues presented during the lecture.

### Teaching methods

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

Tutorials 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.

### Bibliography

Basic:

1. Nowacka W.Ł., Metody i środki ochrony człowieka w środowisku pracy, Politechnika Warszawska, Warszawa, 2010.
2. Bartkowiak G., Jędrzejewska M., Liwkowicz J., Majchrzycka K., Owczarek G., Robakowski K., Zrobek Z., Środki ochrony indywidualnej. seria: Bezpieczeństwo i Ochrona Człowieka w Środowisku Pracy, t. 16, Centralny Instytut Ochrony Pracy, Warszawa, 2001.
3. Górny A., Zastosowanie środków technicznych i działań organizacyjnych w poprawie warunków pracy, Studia Ekonomiczne Regionu Łódzkiego, 2017, nr 24, ss. 205-216.
4. Majchrzycka K., Pościk A. (red.), Dobór środków ochrony indywidualnej, Centralny Instytut Ochrony Pracy - PIB, Warszawa, 2007.

Additional:

1. Bryła R., Bezpieczeństwo i higiena pracy, Wydawnictwo Elamed, Katowice 2011.
2. Górny A., Ocena zgodności środków ochrony indywidualnej, Zeszyty Naukowe Politechniki Poznańskiej, Seria: Organizacja i Zarządzanie, 2004, nr 38, ss. 19-36.
3. Górny A., Lis J., Zastosowanie środków ochrony indywidualnej w celu minimalizacji skutków zagrożeń na stanowisku spawacza, Zeszyty Naukowe Politechniki Poznańskiej, Seria: Organizacja i Zarządzanie, 2012, nr 57, s. 54-74.
4. Horst W., Dahlke G., Górny A., Horst N., Horst W. F, Ergonomia z elementami bezpieczeństwa i ochrony zdrowia w pracy. Zasady i wymagania związane z materialnym środowiskiem pracy, Wydawnictwo Politechniki Poznańskiej, Poznań, 2011.
5. Koradecka D. (red.), Bezpieczeństwo pracy i ergonomia, Centralny Instytut Ochrony Pracy, Warszawa, 1997.
6. Legal regulations specifying the requirements for the application of safety measures and protection equipment.

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	18	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	32	1,50