



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Consequences of hazards in production systems [S1IBez2>SZwSP]

### Course

Field of study

Safety Engineering

Year/Semester

3/5

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

polish

Form of study

full-time

Requirements

compulsory

### Number of hours

Lecture

15

Laboratory classes

0

Other (e.g. online)

0

Tutorials

15

Projects/seminars

15

### Number of credit points

3,00

### Coordinators

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### Lecturers

### Prerequisites

The student has a basic knowledge of safety. He knows selected safety systems. He understands system dependencies in organizations.

### Course objective

Consolidating knowledge and acquiring skills in the field of identifying threats and their effects in the area of operation of the organization's production systems. Acquisition of competences necessary to support proactive assurance of the safety of production systems and support in organizing the operation of these systems.

### Course-related learning outcomes

Knowledge:

1. The student knows at an advanced level engineering issues (physics, chemistry, materials science, manufacturing technologies, strength of materials, mechanics). [K1\_W01]
2. The student has advanced knowledge of the risks and their effects, risk assessment in the work environment as well as occupational accidents and diseases. [K1\_W03]

#### Skills:

1. The student is able to properly select the sources and information derived from them, making the assessment, critical analysis and synthesis of this information [K1\_U01 ]
2. The student is able to see system and non-technical aspects, as well as socio-technical, organizational and economic aspects in engineering tasks [K1\_U03 ]
3. The student is able to use analytical, simulation and experimental methods to formulate and solve engineering tasks, also with the use of information and communication methods and tools. [K1\_U04]
4. The student is able to take part in the debate, to present the problem within the framework of safety engineering using properly selected means [K1\_U09]
5. The student is able to identify changes in the requirements, standards, regulations and technical progress and the reality of the labor market, and on their basis determine the need to supplement knowledge [K1\_U12]

#### Social competences:

1. The student is aware of the understanding of non-technical aspects and effects of engineering activities, including its impact on the environment and the related responsibility for decisions [K1\_K03]

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

#### Formative assessment:

- lecture: short written form carried out during the lecture 7-8. The course ends with a written test covering the knowledge of the issues presented in the lecture,
- classes: evaluation of the exercises and tasks to be performed independently (60% of the final mark), evaluation of the written test (40% of the final mark);
- project: preparation of a project on a given topic (evaluation for each stage) and its presentation. Passing on the first and second attempt min. 50% of all points.

### Programme content

Lecture: The activity of the production system. Management, its functions and levels. Cause-effect relationships between working conditions and work safety. Risks in the operation of production systems (technical, organizational, social, etc.) and their effects. Risks related to the work environment and their effects. Corrective and corrective actions.

Tutorials: Functioning of selected production systems - case study (analysis of threats and their effects). Analysis of threats at production positions and their effects. Planning of improvement activities.

Projects: analysis of the boundary of the selected production system, threats and their effects on its functioning. Possibilities of preventing and / or eliminating negative consequences.

### Teaching methods

Lecture: informative and conversational lecture based on a multimedia presentation.

Classes: simulation method in connection with case study analysis.

Project: design exercises in conjunction with the case study.

### Bibliography

#### Basic:

1. Stabryła A. (red.), Metodologia projektowania systemów organizacyjnych przedsiębiorstwa, Wydawnictwo CH Beck, Warszawa 2015.
2. Monkiewicz J., Gąsiorkiewicz L. (red.), Zarządzanie ryzykiem działalności organizacji, Wydawnictwo C.H. Beck, Warszawa 2010.
3. Szymonik A., Bielecki M., Bezpieczeństwo systemu logistycznego w nowoczesnym zarządzaniu, Wyd. Difin, Warszawa 2015.
4. Pająk E., Zarządzanie produkcją. Produkt, technologia, organizacja, Wyd. Naukowe PWN, Warszawa 2006.

#### Additional:

1. Zawila-Niedźwiecki J., Ryzyko i bezpieczeństwo operacyjne [w:] Monkiewicz J., Gąsiorkiewicz L. [red.], Zarządzanie ryzykiem działalności organizacji, Wyd. C.H. Beck, Warszawa 2010, s. 153-168.
2. Stasiuk-Piekarska A.K., Wyrwicka M.K., Hadaś Ł., Kastomizacja jako czynnik ryzyka organizacyjnego,

- Zeszyty Naukowe Politechniki Poznańskiej, seria: Organizacja i Zarządzanie, nr 78, r. 2018, s. 187-200.
3. Stasiuk-Piekarska A.K., Hadaś Ł., Wyrwicka M.K., Piekarski J., Use of network thinking methodology for analyzing factors affecting organizational risk management in customized manufacturing systems, 24th International Conference on Production Research (ICPR 2017) ISBN: 978-1-60595-507-0, DOI:10.12783/dtetr/icpr2017/17617.
4. Stasiuk-Piekarska A. K., Zarządzanie ryzykiem w kontekście nauk o organizowaniu [w:] Mempel-Śnieżyk A., Duskocz J., Kardasz P. [red.], Innowacje w polskiej nauce w obszarze nauk ekonomicznych. Przegląd aktualnej tematyki badawczej, wyd. Nauka i Biznes, Wrocław 2016, s. 13-22.
5. Stasiuk A.K., Werner- Lewandowska K., Rola ryzyka w zarządzaniu produkcją [w:] Innowacje w zarządzaniu i inżynierii produkcji, Knosala R. [red.], Oficyna Wydawnicza Towarzystwa Zarządzania Produkcją, Opole 2013, s.515-523.

### Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,00
Classes requiring direct contact with the teacher	45	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	30	1,00