COURSE DESCRIPTION CARD - SYLLABUS

Course name
Identification of hazards and occupational risk assessment [S1IBiJ1>IZiORZ]

Course

Field of study
Safety and Quality Engineering

Year/Semester
2/3

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
0

Tutorials
30

Projects/seminars
15

Number of credit points

4,00

Coordinators

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Lecturers

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:
1. The student knows at an advanced level the issues of identifying threats to quality and technical safety systems, including occupational health and safety rules, 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 quality and safety in the work environment [K1_W03].

3. The student knows issues related to the life cycle of devices, objects, systems and technical systems [K1_W06].

Skills:
1. The student is able to properly select sources and information derived from them, evaluate, critically analyze and synthesize the information obtained, formulate conclusions on this basis and fully justify the adopted opinions [K1_U01].
2. The student is able to use various hazard identification techniques in order to communicate in a professional environment and in other environments [K1_U02].
3. The student is able to critically analyze the functioning of technical solutions (in particular machines, devices, objects, systems and processes) and evaluate them, taking into account their impact on generating threats and nuisances [K1_U06]
4. The student is able to identify changes in requirements, standards, regulations and norms and their impact on technical progress and the working environment, indicating the need to supplement knowledge [K1_U12].

Social competences:
1. The student is aware of the existence and can notice cause-and-effect relationships, important when identifying threats and ranking the importance of 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 the need for continuous improvement [K1_K02].
3. The student is aware of responsibility for his or her own work and is willing to comply with the accepted principles of teamwork and be responsible 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

Issues related to the goals and principles of conducting occupational risk assessment. Occupational risk assessment methodology. Effects of conducting occupational risk assessment.

Course topics

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	4,00
Classes requiring direct contact with the teacher	63	2,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	37	1,50