COURSE DESCRIPTION CARD - SYLLABUS

Course name
Risk Analysis [S1DSwB1>AR]

Course

Field of study
Data Science in Business

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
full-time

Requirements
compulsory

Number of hours

Lecture
15

Laboratory classes
0

Other
0

Tutorials
30

Projects/seminars
0

Number of credit points

3,00

Coordinators

dr hab. inż. Małgorzata Jasiulewicz-Kaczmarek
prof. PP
malgorzata.jasiulewicz-kaczmarek@put.poznan.pl

dr inż. Roma Marczewska-Kuźma
roma.marczewska-kuzma@put.poznan.pl

Lecturers

Prerequisites

A student starting this subject should have basic knowledge of probability theory and basic techniques. He should also be able to obtain information from sources indicated by the teacher

Course objective

Acquiring by the student the knowledge (systematics and methodology) needed to identify threats and analyze the risks associated with them using quantitative and qualitative methods

Course-related learning outcomes

Knowledge:
Explains fundamental concepts related to risk and classifies threats occurring within the product life cycle [DSB1_W01]
Describes probabilistic methods used for determining the level and acceptability of risk [DSB1_W02]

Characterizes approaches for estimating safety losses and assessing the consequences of emergency events [DSB1_W01]
Identifies ethical, social, and systemic contexts related to risk management in business activities [DSB1_W06]

Skills:
Identifies hazards and emergency scenarios based on the analysis of product realization processes [DSB1_U02]
Estimates risk levels using available data and selected quantitative and qualitative methods [DSB1_U02]
Analyzes and interprets multidimensional risk data using analytical tools [DSB1_U04]
Allocates hazards to appropriate phases of the product life cycle and proposes risk mitigation measures [DSB1_U06]

Social competences:
Demonstrates readiness to systematically expand knowledge in the field of risk analysis and management [DSB1_K01]
Assumes responsibility for the reliability of risk analyses and their impact on process and organizational safety [DSB1_K05]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Formative assessment: a) training classes: assessment of current progress of task implementation b) lectures: answers to questions about the content of previous lectures,
Summative rating: a) training classes: presentation of reports on exercises performed (arithmetic average of partial grades); b) lectures: Tests consist of 20-30 questions (test), scored on a two-point scale of 0, 1. Passing threshold: 50% of points.

Programme content

The program covers the basics of risk analysis in selected aspects: risk-related concepts, estimation methods, and determining the risk level.

Course topics

The lecture program covers the following topics: Risk concepts. Division of threats. Risk estimation. Determining safety losses. Multidimensional risk analysis. Determining risk acceptability based on probabilistic methods
Training classes: Risk in the product life cycle - allocation of risks to individual phases of the cycle. Product implementation processes - identification of threats, emergency events, emergency scenario, risk estimation.

Teaching methods

1. Lecture: multimedia presentation, illustrated with examples on the board.
2. Training classes: multimedia presentation illustrated with examples given on a blackboard and performance of tasks given by the teacher - practical exercises.

Bibliography

Basic:
Thlon M., Charakterystyka i klasyfikacja ryzyka w działalności gospodarczej. Zesz. Nauk. UEK, 2013; 902: 17-36 Matuszek J, Brylska-Bienias K., Ocena i redukcja ryzyka technicznego maszyn, 2016, http://www.ptzp.org.pl/files/konferencje/kzz/artyk_pdf_2016/T2/t2_0423.pdf Biedugnis S., Smolarkiewicz M., Podwójci P., Czapczuk A., Mapy ryzyka funkcjonowania rozległych systemów technicznych, 2007, https://ros.edu.pl/images/roczniki/archive/pp_2007_022.pdf Jasiulewicz-Kaczmarek M., 2015, Practical aspects of the application of RCM to select optimal maintenance policy of the production line, In: Nowakowski, T; Mlynczak, M; Jodejko-Pietruczuk, A; et al. Safety and Reliability: Methodology and Applications - Proceedings of the European Safety and Reliability Conference, ESREL 2014 Location: Wroclaw, POLAND Date: SEP 14-18, 2014 Taylor & Francis Group, London, 2015, pp. 1187-1195, ISBN 978-1-138-02681-0 Pamuła W., Niezawodność i bezpieczeństwo. Wybór zagadnień, Wydawnictwo

Pol.Śl. Gliwice, 2011

Additional:
Pietrzak L., Modelowanie wypadków przy pracy. Bezpieczeństwo pracy, 4/2002 PN-EN 61882 HAZOP, Badania zagrożeń i zdolności do działania

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