



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Aviation risk management

### Course

Field of study

Aviation

Area of study (specialization)

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

2/3

Profile of study

general academic

Course offered in

Polish

Requirements

compulsory

### Number of hours

Lecture

15

Laboratory classes

0

Other (e.g. online)

0

Tutorials

30

Projects/seminars

15

### Number of credit points

5

### Lecturers

Responsible for the course/lecturer:

dr inż. Anna Kobaszyńska-Twardowska

anna.kobaszynska-twardowska@put.poznan.pl

Wydział Inżynierii Lądowej i Transportu

ul. Piotrowo 3, 60-965 Poznań

Responsible for the course/lecturer:

dr inż. Piotr Smoczyński

piotr.smoczynski@put.poznan.pl

Wydział Inżynierii Lądowej i Transportu

ul. Piotrowo 3, 60-965 Poznań

### Prerequisites

Knowledge: The student understands the concept of a system and is able to define social systems, systems in transport. The student has basic knowledge of historians, has knowledge of the reliability of technical tools. The student is able to calculate entries to the path of elementary and preliminary steps. The student is fluent in a suite of computer office programs. The student understands the requirements for system testing. The student placed the competences at the disposal of the tasks indicated for implementation.



## Course objective

Getting to know the methods and acquiring practical skills in the field of risk management of threats identified in selected areas of analysis related to transport, in particular in aviation.

## Course-related learning outcomes

### Knowledge

1. the student has knowledge of aviation safety and management. The student knows the concept of the human factor and methods of assessing human reliability, has detailed knowledge related to selected issues in the field of human capabilities and limitations during aircraft operation in flight, its impact on health and the ability to perform air operations, as well as the possibility of improving physical condition

### Skills

1. when formulating and solving tasks related to civil aviation, is able to apply appropriately selected methods, including analytical, simulation or experimental methods
2. is able to assess - at least in a basic scope - various aspects of the risk associated with a logistics undertaking in air transport

### Social competences

1. can think and act in an entrepreneurial way, incl. finding commercial applications for the created system, bearing in mind not only the business benefits, but also the social benefits of the conducted activity

## Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: on the basis of a written test.

Classes: based on the evaluation of the developed exercise reports.

## Programme content

Demand for security analysis. The concept of a safety management system (SMS). Risk management as an element of SMS in aviation. Aviation risk management levels and types of risk. Sources of threats, threats, undesirable events, risk of threats, identification of sources of threats and threats, characteristics of threats, activation of threats, levels of opportunities and levels of effects of activation of threats. Risk models, generalized risk model, risk models in known risk assessment methods, risk estimation. Valuation / valuation of risk risks - risk categories. Risk management - generally about models of security systems. Risk monitoring and risk communication. Exercises in applying risk management methods procedures in the areas of analysis related to transport, in particular in aviation.

## Teaching methods



Informative (conventional) lecture (providing information in a structured way) - may be of a course (introductory) or monographic (specialist) character

The exercise and projekt method (subject exercises, practice exercises) - in the form of auditorium exercises

(application of acquired knowledge in practice - may take various forms: solving cognitive tasks or training psychomotor skills; transforming a conscious activity into a habit through repetition

### Bibliography

#### Basic

1. Chruzik K., Inżynieria bezpieczeństwa w transporcie. Wyd. Politechniki Śląskiej, Gliwice, 2016.
2. Gill A., Warstwowe modele systemów bezpieczeństwa do zastosowań w transporcie kolejowym. Wydawnictwo Politechniki Poznańskiej, Poznań, 2018.
3. Klich E., Bezpieczeństwo lotów. Wyd. Naukowe Instytutu Technologii Eksploatacji - PIB, Radom, 2011.
4. Konieczny J., Zarządzanie w sytuacjach kryzysowych, wypadkach i katastrofach. Oficyna Wyd. GARMOND, Poznań - Warszawa, 2001.
5. Szymanek A., Bezpieczeństwo i ryzyko w technice. Wyd. Politechniki Radomskiej, Radom, 2006.
6. Szymanek A., Teoria i metodologia zarządzania ryzykiem w ruchu drogowym. Wyd. Politechniki Radomskiej, Radom, 2012.
7. Zarządzanie ryzykiem korporacyjnym - zintegrowana struktura ramowa. Tom I. COSO II - The Committee of Sponsoring Organizations of the Treadway Commission. Wyd. polskie Polski Instytut Kontroli Wewnętrznej, Warszawa, 2004.
8. Zintegrowany System Bezpieczeństwa Transportu. Tom 2. Uwarunkowania rozwoju integracji systemów bezpieczeństwa transportu. Redaktor pracy zbiorowej Krystek R., Politechnika Gdańska, Gdańsk 2009, WKŁ, Warszawa, 2009.

#### Additional

1. Chruzik K., Zarządzanie bezpieczeństwem w transporcie kolejowym. Wyd. Instytutu Technologii i Eksploatacji PIB w Radomiu, Radom, 2014.



2. Gucma L., Wytyczne do zarządzania ryzykiem morskim. Wyd. Naukowe Akademii Morskiej, Szczecin, 2009.
3. Jamroz K., Metoda zarządzania ryzykiem w inżynierii drogowej. Wyd. Politechniki Gdańskiej, Gdańsk, 2011.
4. Kadziński A., Studium wybranych aspektów niezawodności systemów oraz obiektów pojazdów szynowych. Wyd. Politechniki Poznańskiej, Poznań, 2013.
5. Krasodomska J., Zarządzanie ryzykiem operacyjnym w bankach. Polskie Wyd. Ekonomiczne, Warszawa, 2008.
6. Markowski A.S. (red.), Zapobieganie stratom w przemyśle. Część III. Zarządzanie bezpieczeństwem procesowym. Wyd. Politechniki Łódzkiej, Łódź, 2000.
7. Radkowski S., Podstawy bezpiecznej techniki. Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, 2003.
8. Rak J.R., Tchórzewska-Cieślak B., Metody analizy i oceny ryzyka w systemie zaopatrzenia w wodę. Oficyna Wyd. Politechniki Rzeszowskiej, Rzeszów, 2005

#### Breakdown of average student's workload

	Hours	ECTS
Total workload	125	5,0
Classes requiring direct contact with the teacher	80	3,5
Student's own work (literature studies, preparation for classes, preparation for tests,) <sup>1</sup>	45	1,5

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