



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Transport safety of hazardous materials

### Course

Field of study

Safety Engineering

Area of study (specialization)

Safety and crisis management

Level of study

Second-cycle studies

Form of study

full-time

Year/Semester

2/3

Profile of study

general academic

Course offered in

Polish

Requirements

elective

### Number of hours

Lecture

15

Laboratory classes

Other (e.g. online)

Tutorials

15

Projects/seminars

15

### Number of credit points

3

### Lecturers

Responsible for the course/lecturer:

Ph.D., Eng. Tomasz Ewertowski,

Responsible for the course/lecturer:

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### Prerequisites

The student has a basic knowledge of issues related to the transport and safety in transport, including the transport of hazardous materials. The student has the ability to acquire information from specified



sources and is ready to actively search, systematize and present knowledge in the field of transport safety of hazardous materials.

### Course objective

Systematising basic knowledge related to safety issues in transport. Showing the specifics of safety in transport with particular emphasis on the transport of hazardous materials. Showing the specifics of the transport of hazardous materials, its condition, legal norms, activities of services and institutions responsible for safety in this area, as well as the procedures and actions taken to improve safety in the transport of hazardous materials. Developing skills to solve problems occurring during the preparation and implementation of tasks related to the safety of the transport of dangerous goods.

### Course-related learning outcomes

#### Knowledge

1. A student knows the issues of risk analysis, hazards and their effects related to the functioning of the transport of hazardous materials in different modes of transport [P7S\_WG\_05].
2. A student knows contemporary development trends and best practices in the field of transport safety systems, including transport of hazardous materials [P7S\_WK\_02],

#### Skills

1. A student knows how to correctly select sources and information derived from them, making the assessment, critical analysis and synthesize of this information, formulate conclusions and comprehensively justify the opinion [P7S\_UW\_01],
2. A student is able to use research, analytical, simulation and experimental methods to formulate and solve engineering tasks, also using information and communication methods and tools [P7S\_UW\_04],
3. A student is able to make a critical analysis and assess - in conjunction with safety engineering, existing technical solutions, in particular machines, devices, objects, systems, processes and services [P7S\_UW\_06],

#### Social competences

1. A student is aware of the recognition of cause-and-effect relationships in achieving the set goals and ranking the significance of alternative or competitive tasks [P7S\_KK\_01],
2. A student is aware of the recognition of the importance of knowledge in solving problems in the field of safety engineering and continuous improvement [P7S\_KK\_02],



3. A student is aware of the understanding of non-technical aspects and effects of engineering activities, including its impact on the environment and the associated responsibility for the decisions [P7S\_KK\_03].

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Formative assessment:

- a) tutorials: current assessment (on a scale of 2 to 5) of the tasks assigned,
- b) projects: ongoing assessment of the progress of work on the selected project,
- c) lectures: presence and activity on lectures (partial points).

Summative rating:

- a) tutorials: average of partial tasks; credit after passing at least 3.0,
- b) projects: average of partial tasks and assessment of the submitted project; credit after passing at least 3.0,
- c) lectures: test carried out during the last lectures. The test consists of 15 to 20 questions (test and / or open), variously scored. Passing threshold: 55% of points; partial points may increase the final grade.

### Programme content

Lecture:

General characteristics of transport and its types. Presentation of the organization and functioning of entities responsible for safety in different types of transport. Classification of hazardous materials and selected problems of their transport. Technical and legal aspects of the transport of hazardous materials. Dangerous goods transport by road. Transport of dangerous goods by rail. Transport of dangerous goods by sea. Dangerous goods transport by air. Risk of hazardous material transport. Aspects of transport safety in national safety systems.

Tutorial:

Analysis of legal regulations and scopes of competence related to the transport of hazardous materials. Preparation of the process of transporting hazardous materials. Requirements for the storage of hazardous materials. Supervising the transport of dangerous goods. Estimation of the risk of the occurrence of a dangerous good transport. Safety management systems in different types of transport. Rules of conduct in the event of adverse events related to the transport of hazardous materials in specific types of transport, and the tasks of entities.

Project classes:

Analysis of a selected contemporary accident associated with the transport of hazardous materials, consisting of the preparation of factual data, conducting an analysis using, among others taxonomy of the causes of adverse events in a given mode of transport and presentation of the implementation of



post-event safety recommendations and assessment of their effectiveness together with own suggestions for recommendations. .

### Teaching methods

Lecture: multimedia presentation, illustrated with examples on the board.

Tutorial: multimedia presentation, illustrated with examples given on a board, which are the basis for performing the tasks given by the lecturer. During classes, the classical problem method, case method and practice method are used.

Project classes: multimedia presentation, illustrated with examples given on a board, which are the basis for performing the tasks given by the lecturer. During classes, a practical method is used.

### Bibliography

#### Basic

1. (collective work edited by R. Krystek) (2009), Integrated transport safety system, collective work, vol. I, WKŁ, Gdańsk University of Technology.
2. (collective work edited by R. Krystek) (2009), Integrated transport safety system, collective work, vol. II, WKŁ, Gdańsk University of Technology,
3. Gałusza M., Wojciechowska-Piskorska H., Uzarczyk A., (2011), OHS in transport - a guidebook, Publisher TARBONUS Sp. z o. o., Kraków-Tarnobrzeg.
4. Legal regulations regarding the issues discussed.

#### Additional

1. Klich E. (2010), Flight safety in air transport, Institute of Sustainable Technologies, Radom.
2. Grzegorzczak K., Buchar R. : Dangerous goods. Transport in practice. ADR 2011-2013 ed. Net Poland. Warsaw 2011.
3. Ewertowski T., Bienias M., Czerniak K., (2019), Preparation of an enterprise for emergency situations and their better communication, Informatyka Ekonomiczna - 2019, nr 3(53), s. 9-22
4. Ewertowski T., Błaszak D., (2018), Analiza procesów transportu wewnętrznego i magazynowania w aspekcie bezpieczeństwa w wybranym przedsiębiorstwie produkcyjnym, Systemy Logistyczne Wojsk - 2018, nr 49, s. 83-100



### Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,0
Classes requiring direct contact with the teacher	45	2,0
Student's own work (literature studies, preparation for tutorials, preparation for tests, project preparation) <sup>1</sup>	30	1,0

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