



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Mobile transport systems

### Course

Field of study

Engineering Management - Full-time studies - First-cycle studies

Area of study (specialization)

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

3/6

Profile of study

general academic

Course offered in

Polish

Requirements

elective

### Number of hours

Lecture

15

Laboratory classes

15

Other (e.g. online)

Tutorials

Projects/seminars

### Number of credit points

2

### Lecturers

Responsible for the course/lecturer:

dr inż. Mirosław Kruszyński

email: miroslaw.kruszynski@put.poznan.pl

tel. 61 665 33 85

Faculty of Engineering Management

ul. Jacka Rychlewskiego 2, 60-965 Poznan

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### Prerequisites

The Student she/he starting this subject should / should have basic knowledge in the field of transport and the functioning and management of the economy, as well as the essence of systems. The student she/he should also be able to obtain information from the sources indicated and be willing to cooperate as part of a team. The student she/he demonstrates awareness and understands the importance / role of non-technical aspects and effects of engineering activities, including its impact on the environment, and the associated responsibility for the decisions taken. The Student she/he is able to interact and work in a group, assuming different roles in it. He / she can think and act in an entrepreneurial manner.

### Course objective

Providing students with knowledge about the functioning of mobile transport systems. Students acquire



knowledge about the development of these systems and their principles functioning and use in practice. In addition, they learn about traffic control systems, both at the national and local level.

### Course-related learning outcomes

#### Knowledge

1. knows the basic methods, techniques and tools used to solve simple engineering tasks in the field of construction and operation (management) of mobile transport systems (P6S\_WG\_16)
2. knows the typical transport technologies and knows in depth the technologies of construction and operation (management) of mobile transport systems (P6S\_WG\_17)

#### Skills

1. is able to make a critical analysis of transport processes and organization (construction and development) of mobile transport systems (P6S\_UW\_13)
2. is able to identify design tasks and solve simple design tasks in the field of construction and operation of stable transport systems (P6S\_UW\_14)
3. is able to apply typical methods of solving simple problems in the construction and operation of mobile transport systems (P6S\_UW\_15)

#### Social competences

1. is aware that creating products that meet the needs of users requires a systematic approach taking into account technical, economic, marketing, legal, organizational and financial issues (P6S\_KO\_02)
2. is aware of the importance and understands the non-technical aspects and effects of engineering activities, including its impact on the environment, and the associated responsibility for the decisions taken (P6S\_KR\_01)

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

- Formative:

In the scope of the laboratory: based on the assessment of the current progress of tasks (independent and group work, expressing own views and opinions)

In terms of lectures: based on answers to questions about the material discussed in the lectures

- Summary of:

In the scope of the laboratory: assessment of the ability to conduct the assessment of mobile transport systems, assessment of the report

In terms of lectures: credit based on the test - answers to closed questions (multiple and single choice); credit is possible after obtaining a minimum of 60% of the test points

### Programme content



1. Introduction to the issues of transport systems - entities and objects of the transport system (external and internal transport); 2. Basic definitions regarding transport and the market of transport services; 3. Demand and supply on the transport services market; 4. Transport functions in the state's economic system; 5. Transport as an object and factor of integration; 7. Transport process and transport process; 8. Selection of transport means for transport tasks; 9. Use of Intelligent Transport Systems; 10. Development prospects and methods of financing the linear infrastructure of the Polish transport system; 11. Introduction to the analysis of transport systems; 12. Coordination of transport with the work of loading points; 13. Transport system and its elements; 14. Measures of production of transport services; 15. Transport needs and sources of their formation; 16. Elements and course of transport process; 17. Assessment and analysis of transport systems

### Teaching methods

In terms of lectures: multimedia presentation illustrated with examples

In the field of independent work: work with a book

In the scope of the laboratory:

1. a multimedia presentation illustrated with examples
2. solving optimization tasks on the board and computer
3. assessment of mobile transport systems (variants of changes carried out in the mobile transport system) - practical exercises

### Bibliography

Basic

1. Rydzkowski W. (2010): Transport, PWN Publishing House, Warsaw.
2. Liberacki B., Mindur L. (2007): Determinants of the Polish transport system, Ed. ITE, Radom.
3. Jacyna M. (2009): Modeling and assessment of transport systems, Warsaw University of Technology Publishing House, Warsaw.

Additional

1. Rudnicki A. (ed.) (2010): Innovations for sustainable urban transport, ed. PIT Krakow, Krakow.
2. Siemieńczyk M. (ed.) (2013): Intelligent transport systems and traffic control in transport. Publishing House of the Warsaw University of Technology, Warsaw.
3. Żak J. (2005): Multi-criteria decision support in road transport, Poznan University of Technology, Poznan.



### Breakdown of average student's workload

	Hours	ECTS
Total workload	60	2,0
Classes requiring direct contact with the teacher	30	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) <sup>1</sup>	30	1,0

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