POZNAN UNIVERSITY OF TECHNOLOGY

COURSE DESCRIPTION CARD - SYLLABUS

Course name

The Transportation Systems Diagnostic

Course

Field of study	Year/Semester
Transport	1/1
Area of study (specialization)	Profile of study
Rail Transport	general academic
Level of study	Course offered in
Second-cycle studies	Polish
Form of study	Requirements
part-time	elective

Number of hours

Lecture	Laboratory classes	Other (e.g. online)
9	0	0
Tutorials	Projects/seminars	
9	0	

Number of credit points

2

Lecturers

Responsible for the course/lecturer:	Responsible for the course/lecturer:
prof. dr hab. inż. Franciszek Tomaszewski	

Prerequisites

KNOWLEDGE: Basic knowledge of the construction of transport systems and systems, the principles of their operation and the physics of phenomena occurring in mechanical objects.

SKILLS: The student is able to solve specific problems appearing in technical systems.

SOCIAL COMPETENCES: The student is able to work in a group and identify priorities important in solving the tasks set before him.

Course objective

Understanding the theoretical and practical problems related to the diagnostics of transport systems and systems, solving the problems of assessing their technical condition, classifying the state of objects based on the limit values of symptoms and the principles of using diagnostics in maintenance systems.

Course-related learning outcomes

Knowledge

The student knows advanced methods, techniques and tools used in solving complex engineering tasks and conducting research in a selected area of transport.

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Skills

The student is able to use analytical, simulation and experimental methods to formulate and solve engineering tasks and simple research problems.

Social competences

The student is able to use analytical, simulation and experimental methods to formulate and solve engineering tasks and simple research problems

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Written exam, final test

Programme content

Introduction to the issues of diagnostics of organization and management systems. A diagnostic and prognostic method of improving the organization and management systems. Transport systems control techniques: strategic control, controlling

Introduction to technical diagnostics: tasks of diagnostics in transport systems and systems, diagnostic processes and signals as a source of information on the technical condition of systems. Classification of technical conditions of objects and systems, symptom limit values. The space of states of objects and signals. Diagnostics of systems: running vehicle, internal combustion engine, electrical machines and auxiliary devices. Diagnostics of systems and systems for the protection and control of rail transport. Methods of servicing transport systems and systems with the use of technical diagnostics.

Teaching methods

Lecture with multimedia presentation.

Bibliography

Basic

1. Cempel C., Tomaszewski F., Diagnostyka Maszyn. Zasady ogólne, przykłady zastosowań. Instytut Technologii Eksploatacji, Radom 1992.

2. Marciniak J., Diagnostyka techniczna kolejowych pojazdów szynowych. WKiŁ, Warszawa 1982.

3. M. Hebda, S. Niziński, H. Pelc: Podstawy diagnostyki pojazdów mechanicznych. WKiŁ, Warszawa 1980.

Additional

1. B. Żółtowski: Podstawy diagnostyki maszyn. Wydawnictwo Uczelniane Akademii Techniczno-Rolniczej, Bydgoszcz 1996.

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Breakdown of average student's workload

	Hours	ECTS
Total workload	43	2,0
Classes requiring direct contact with the teacher	18	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1]	25	1,0

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[1] delete or add other activities as appropriate