COURSE DESCRIPTION CARD - SYLLABUS

Course name
Techniques of vehicles diagnosis

Course

Field of study
Construction and Exploitation of Means of Transport

Year/Semester
3/6

Area of study (specialization)
Mass transport vehicles

Profile of study
general academic

Level of study
First-cycle studies

Course offered in

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture	Laboratory classes	Other (e.g. online)
30	15	
Tutorials	Projects/seminars	

Number of credit points

2

Lecturers

Responsible for the course/lecturer:
dr hab inż. Grzegorz Szymański

email: grzegorz.m.szymanski@put.poznan.pl

tel. 61 665 20 23

ul. Piotrowo 3, 60-965 Poznań

Responsible for the course/lecturer:

Prerequisites

Basic knowledge of mechanics, metrology, strength of materials and machine construction. Can use the scientific method in problem solving, experimentation and inference. He knows the limitations of his own knowledge and skills; is able to precisely formulate questions, understands the need for further education

Course objective

Learning methods and acquiring practical skills in solving tasks in the field of vehicle diagnostics.

Course-related learning outcomes

Knowledge

has elementary knowledge of technical diagnostics. Has basic knowledge of techniques for diagnosing vehicle components and assemblies

Skills

can obtain information from literature, the Internet, databases and other sources, in Polish and foreign languages,

is able to communicate using various techniques in the professional environment and other environments using the formal recording of transport system models, concepts and definitions

Social competences

understands the need and knows the possibilities of continuous training, knows the need to acquire new knowledge for professional development

can think and act in an entrepreneurial manner, make decisions, act for the development of the employer and society

is aware of transferring the acquired knowledge to the public, makes efforts to make the information understandable

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The knowledge acquired during the lecture is verified by a 45-minute test carried out during the 15th lecture. Kolokwim consists of questions (test and open), with different scores. Passing threshold: 50% of points.

Programme content

Introduction to technical diagnostics. Functional and technical diagnostics. Physico-chemical processes as a carrier of information about the condition of vehicles. Vehicle condition assessment, assessment criteria. Research and measurement techniques used in vehicle diagnostics. Modeling in diagnostic tests. Diagnostics of basic machine elements (shafts, bearings), gear transmissions, rotating machines, piston machines.

Teaching methods

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

2. Laboratory exercises: a multimedia presentation, a presentation illustrated with examples given on the blackboard and the implementation of tasks given by the teacher - practical exercises.

Bibliography

Basic

1. R.B. Randall: Vibration based condition monitoring, Wiley, 2011.

2. Niziński S. Michalski R.: Diagnostyka obiektów technicznych. Monograficzna seria wydawnicza Biblioteka Problemów Eksploatacji, Warszawa - Sulejówek - Olsztyn - Radom, 2002.

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

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

5. C. Cempel, F. Tomaszewski: Diagnostyka Maszyn. Zasady ogólne, przykłady zastosowań. M.C.N.E.M.T, Radom 1992.

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

7. R. A. Collacot: Mechanical Fault Diagnosis and Condition Monitoring. Chapman and Hall, London 1977.

Additional

1. W Tłaczała: Środowisko LabVIEWTM w eksperymencie wspomaganym komputerowo, WNT 2002

2. www.ni.com

3. www.wobit.com.pl

4. www.kistler.com

5. www.bksv.com

6. www.endevco.com

7. www.skf.com

Breakdown of average student's workload

	Hours	ECTS
Total workload	57	2,3
Classes requiring direct contact with the teacher	49	2,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1]	8	0,3

[1] delete or add other activities as appropriate