



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Measurements of mechanical quantities

Course

Field of study

Year/Semester

Transport

2/3

Area of study (specialization)

Profile of study

general academic

Level of study

Course offered in

First-cycle studies

polish

Form of study

Requirements

full-time

compulsory

Number of hours

Lecture

Laboratory classes

Other (e.g. online)

0

15

Tutorials

Projects/seminars

0

0

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

Responsible for the course/lecturer:

dr inż. Tomasz Rochatka

Faculty of Civil and Transport Engineering

Prerequisites

Has basic knowledge of physics, mechanics and strength of materials

Course objective

Learning the methods of measuring mechanical quantities

Course-related learning outcomes

Knowledge

The student has extended and in-depth knowledge of physics useful for formulating and solving selected technical tasks, in particular for correct modeling of real problems

The student has an ordered, theoretically founded general knowledge of technology, transport systems and various means of transport

Skills

The student is able to properly plan and conduct perform experiments, including measurements and computer simulations, interpret the obtained results, and correctly draw conclusions



The student is able, when formulating and solving tasks in the field of transport, to apply appropriately selected methods, including analytical, simulation or experimental methods

Social competences

The student is aware of the importance of knowledge in solving engineering problems, knows examples and understands the causes of malfunctioning transport systems that have led to serious financial and social losses or to serious loss of health and even life

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Credit based on the test of knowledge of the lectures and the current control of preparation for laboratory exercises and assessment of their course and reports.

Programme content

Scientific knowledge. Methodology of empirical research. Tests of machines and devices at the stages of construction, manufacturing and operation. Metrological concepts: quantity, property, property, value. Measurement; definitions, systems of units. General principles of measurement methods for mechanical quantities. Measurement of stress, force, torque and rotational speed. Construction of a measuring system. Measurement system: sensor, transducer, meter, recorder. Computer software for carrying out: analysis, recording and archiving of measurements. Error analysis, preparation of results and formulation of conclusions from measurements

Teaching methods

1. Lecture with multimedia presentation
2. Laboratory with taking measurements

Bibliography

Basic

Hagel R., Zakrzewski J.: Miernictwo dynamiczne, WNT Warszawa 1984

Nawrocki W.: Komputerowe systemy pomiarowe, WKŁ Warszawa 2002

Piotrowski J.: Podstawy miernictwa, WNT Warszawa 2002

Additional



Breakdown of average student's workload

	Hours	ECTS
Total workload	40	2,0
Classes requiring direct contact with the teacher	15	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) ¹	25	1,0

¹ delete or add other activities as appropriate