COURSE DESCRIPTION CARD - SYLLABUS

Course name
Applied mechanics [N2Trans1>MS]

Course

Field of study
Transport

Year/Semester
1/1

Area of study (specialization)
Low-emission Transport

Profile of study
general academic

Level of study
second-cycle

Course offered in
Polish

Form of study
part-time

Requirements
compulsory

Number of hours

Lecture
9

Laboratory classes
0

Other
0

Tutorials
9

Projects/seminars
0

Number of credit points

2,00

Coordinators

dr inż. Maciej Berdychowski
maciej.berdychowski@put.poznan.pl

Lecturers

mgr inż. Mateusz Maniak
mateusz.maniak@put.poznan.pl

dr inż. Iwona Wstawska
iwona.wstawska@put.poznan.pl

Prerequisites

Basic knowledge of higher mathematics, physics, mechanics, strength of materials, basics of machine construction The ability to solve problems, associate and use knowledge in practical engineering applications

Course objective

1. Providing students with knowledge of applied mechanics, within the scope defined by the curriculum content appropriate for the field of study. 2. Developing students" skills: - analytical thinking, association and conscious use of computational methods, - modeling of physical phenomena with application in technology, - independent drawing of conclusions and evaluation of the analyzed issue.

Course-related learning outcomes

Knowledge:
1. has advanced and in-depth knowledge of transport engineering, theoretical foundations, tools and

means used to solve simple engineering problems
2. has ordered and theoretically founded general knowledge related to key issues in the field of transport engineering

Skills:
1. can use analytical, simulation and experimental methods to formulate and solve engineering tasks and simple research problems
2. can - using, among others conceptually new methods - solve complex tasks in the field of transport engineering, including atypical tasks and tasks with a research component

Social competences:
1. understands the importance of using the latest knowledge in the field of transport engineering in solving research and practical problems

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:
-Written exam of the lecture,
-Credit from exercises

Programme content

Fundamentals of applied mechanics.
Statics - moments of inertia of figures and solids, theorem. Steiner, deviant moments.
Kinematics - complex motion, Coriolis acceleration
Dynamics - ditch. Lagrange type II, vibrations of mechanical systems

Course topics

Fundamentals of applied mechanics.
Statics - moments of inertia of figures and solids, theorem. Steiner, deviant moments.
Kinematics - complex motion, Coriolis acceleration
Dynamics - ditch. Lagrange type II, vibrations of mechanical systems

Teaching methods

1. Lecture: multimedia presentation, supplemented with examples given on the blackboard
2. Exercises: multimedia presentations, supplemented with examples on the blackboard; solving the tasks given by the lecturer

Bibliography

Basic
1. . W. Derski; Mechanika techniczna cz. I, Wydawnictwo PP, Poznań 1972
2. J. Leyko; Mechanika ogólna, PWN, Warszawa 1997
3. J. Misiak; Mechanika techniczna, WNT, Warszawa 1998
4. Z. Osiński; Mechanika ogólna, PWN, Warszawa 1997
Additional
1. R. Scanlan, R. Rosenbaum; Drgania i flatter samolotów, PWN, Warszawa 1964
2. 2. M. Sperski; Mechanika, Wydawnictwo PG, Gdańsk 2002

Breakdown of average student's workload

	Hours	ECTS
Total workload	48	2,00
Classes requiring direct contact with the teacher	18	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	30	1,00