



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Technical mechanics [S1Lot1-SLiPL>MT]

Course

Field of study

Aviation

Year/Semester

2/3

Area of study (specialization)

Aircraft Engines and Airframes

Profile of study

general academic

Level of study

first-cycle

Course offered in

Polish

Form of study

full-time

Requirements

compulsory

Number of hours

Lecture

10

Laboratory classes

0

Other (e.g. online)

0

Tutorials

0

Projects/seminars

0

Number of credit points

1,00

Coordinators

dr hab. inż. Roman Starosta

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Lecturers

Prerequisites

A student starting this subject should have basic knowledge of physics and mathematics, including the basics of classical mechanics and the basics of differential and integral calculus. He should also have the ability to think logically, obtain information from indicated sources and be ready to cooperate within a team.

Course objective

Providing students with basic knowledge of mechanics, in the field of statics, kinematics and dynamics, which will enable them to study further subjects, including: in the field of strength of materials, basics of machine construction, vibrations, theory of machines and mechanisms, etc.

Course-related learning outcomes

none

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Final exam including a theoretical part and accounting tasks. The issues on the basis of which the

questions are developed will be sent to students by e-mail using the university e-mail system.

Programme content

Kinematics of complex motion,
General motion of a rigid body
Dynamics of a material point and a system of material points
Vibrations of a system with one degree of freedom
Mass geometry
Solid dynamics

Course topics

Kinematics of spherical and general motion of a rigid body
Kinematics of complex movement, Coriolis effect, zygomat mechanisms
Selected issues of the dynamics of a material point, including: principles of dynamics (momentum, rotation, work and energy), dynamic equations of motion of a material point in a stationary system and in a natural system, work, power, energy, force field.
Vibrations of a system with one degree of freedom, free, forced and damped vibrations,
Dynamics of the arrangement of material points, theorem on the motion of the center of mass,
Geometry of masses; centers of gravity, moments of inertia, deviation moments, Steiner's theorem,
Dynamics of a rigid body, dynamic reactions

Teaching methods

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

Bibliography

Basic

1. J.Leyko, Mechanika ogólna, tom I i II, PWN, Warszawa, 2008
2. J.Misiak, Mechanika techniczna, tom I i II, WNT, Warszawa, 1996
3. M.Łunc, A.Szaniawski, Zarys mechaniki ogólnej, PWN, Warszawa, 1959
4. J.Misiak, Zadania z mechaniki ogólnej, Część I, II i III, Warszawa, WNT 2009
5. J.Nizioł, Metodyka rozwiązywania zadań z mechaniki, Warszawa, WNT 2007

Complementary

1. A.Bedford, W.Fowler, Engineering mechanics, Prentice Hall, New Jersey, 2002
2. D.J.McGill, Engineering Mechanics, PWS Publishers, Boston, 1985
3. J.Awrejcewicz, Mechanika techniczna, Warszawa WNT 2009
4. M.T.Niezgodziński, Zbiór zadań z mechaniki ogólnej, Wydawnictwo Naukowe PWN, Warszawa, 2009

Breakdown of average student's workload

	Hours	ECTS
Total workload	0	0,00
Classes requiring direct contact with the teacher	0	0,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	0	0,00