

MODULE DESCRIPTION

Module code	Z-ZIP-0110
Module name	Mechanika
Module name in English	Mechanics
Valid from academic year	2016/2017

A. MODULE PLACEMENT IN THE SYLLABUS

Field of study	Management and Production Engineering
Level of education	1st degree <i>(1st degree / 2nd degree)</i>
Studies profile	General <i>(general / practical)</i>
Form and method of conducting classes	Full-time <i>(full-time / part-time)</i>
Specialisation	All
Unit conducting the module	The Department of Production Engineering
Module co-ordinator	Wacław Gierulski, PhD hab., Eng., Professor of the University
Approved by:	

B. MODULE OVERVIEW

Type of subject/group of subjects	Major <i>(basic / major / specialist subject / conjoint / other HES)</i>
Module status	Compulsory <i>(compulsory / non-compulsory)</i>
Language of conducting classes	English
Module placement in the syllabus - semester	4th semester
Subject realisation in the academic year	Summer semester <i>(winter / summer)</i>
Initial requirements	No requirements <i>(module codes / module names)</i>
Examination	No <i>(yes / no)</i>
Number of ECTS credit points	2

Method of conducting classes	Lecture	Classes	Laboratory	Project	Other
Per semester	15	15			

C. TEACHING RESULTS AND THE METHODS OF ASSESSING TEACHING RESULTS

Module target	The aims of the module are as follows: gaining knowledge of as well as understanding the following rules: description of motion as regards the reasons and effects, the essence of mechanical energy and its connection with work applying mathematical methods from the field of higher mathematics, e.g. integral and differential equations.
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Effect symbol	Teaching results	Teaching methods (l/c/lab/p/other)	Reference to subject effects	Reference to effects of a field of study
W_01	A student has knowledge of describing the motion of a point and a body in terms of kinetics and dynamics by applying mathematical methods (differentiation of functions and differential equations).	l/c	K_W02	T1A_W01 T1A_W02 T1A_W07
W_02	A student has knowledge of energy principles in mechanics, i.e. the principle of conservation of energy, the principle of energy-work equivalence, and understands the meaning of their universality.	l/c	K_W02	T1A_W01 T1A_W02 T1A_W07
U_01	A student is capable of doing simple analyses as regards kinematics and dynamics of the motion of a point and a body.	c	K_U17	TA1_U09
U_02	A student can perform simple analyses basing on energy dependencies.	c	K_U17	TA1_U09
U_03	A student has the ability of assessing the usefulness of the methods as regards analysing motion and energy methods in solving simple engineering issues.	c	K_U19	TA1_U15
K_01	A student understands the need of constant improvement of his/her knowledge from the field of mechanics.	l/c	K_K01	TA1_K01

Teaching contents:

1. Teaching contents as regards lectures

Lecture number	Teaching contents	Reference to teaching results for a module
1	The motion of a point, the methods of describing the motion of a point.	W_01
2	Velocity and acceleration in the motion of a point.	W_01
3	The dynamics of a point, differentiation of the equations of a point.	W_01
4	The motion of a rigid body, classification. Translatory motion, rotational motion, angular velocity, and angular acceleration.	W_01
5	The velocity of points in a body in rotational motion, gears.	W_01
6	The dynamics of a rotational motion, inertial forces, dynamic reactions, and balancing.	W_01
7	The work by a force variable, power, kinetic energy of a point and a body, potential energy, and energy principles.	W_02
8	A final test.	K_01

2. Teaching contents as regards classes

Class number	Teaching contents	Reference to teaching results for a module
1	The motion of a point, the kinematics of a point.	U_01
2	The dynamics of a point, integrating the equations of motion.	U_01
3	Test 1	K_01

	Translatory motion of a body, kinematics, and dynamics.	U_01
4	Rotational motion of a body – gears.	U_01
5	Test 2 The dynamics of motion of a rigid body.	K_01 U_01
6	Work, power, and energy.	U_02 U_03
7	The principles of conservation of energy.	U_02 U_03
8	Test 3	K_01

3. Teaching contents as regards laboratory classes

Laboratory class number	Teaching contents	Reference to teaching results for a module

4. The characteristics of project assignments

The methods of assessing teaching results

Effect symbol	Methods of assessing teaching results <i>(assessment method, including skills – reference to a particular project, laboratory assignments, etc.)</i>
W_01	A test, a final test during the classes.
W_02	A test, a final test during the classes.
U_01	A final test and active participation in the classes.
U_02	A final test and active participation in the classes.
U_03	A final test and active participation in the classes.
K_01	Comments during the classes and a discussion during the classes.

D. STUDENT'S INPUT

ECTS credit points		
	Type of student's activity	Student's workload
1	Participation in lectures	15
2	Participation in classes	15
3	Participation in laboratories	
4	Participation in tutorials (2-3 times per semester)	5
5	Participation in project classes	
6	Project tutorials	
7	Participation in an examination	
8		
9	Number of hours requiring a lecturer's assistance	35 <i>(sum)</i>
10	Number of ECTS credit points which are allocated for assisted work <i>(1 ECTS point=25-30 hours)</i>	1.2
11	Unassisted study of lecture subjects	8
12	Unassisted preparation for classes	8
13	Unassisted preparation for tests	8
14	Unassisted preparation for laboratories	
15	Preparing reports	
15	Preparing for a final laboratory test	
17	Preparing a project or documentation	
18	Preparing for an examination	
19		
20	Number of hours of a student's unassisted work	24 <i>(sum)</i>
21	Number of ECTS credit points which a student receives for unassisted work <i>(1 ECTS point=25-30 hours)</i>	0.8
22	Total number of hours of a student's work	59
23	ECTS points per module <i>1 ECTS point=25-30 hours</i>	2
24	Work input connected with practical classes <i>Total number of hours connected with practical classes</i>	27
25	Number of ECTS credit points which a student receives for practical classes <i>(1 ECTS point=25-30 hours)</i>	1

E. LITERATURE

Literature list	<ol style="list-style-type: none"> Leyko J. <i>Mechanika ogólna T. I i II</i>, Warszawa, PWN 1996 (lub inne wydania). Misiak J., <i>Mechanika ogólna T. I i II</i>, Warszawa, WNT 1995 (lub inne wydania). Osiński Z., <i>Mechanika ogólna</i>, PWN, Warszawa 2000. Gierulski W., Miksa M., Radowicz A., <i>Mechanika techniczna</i>, Politechnika Świętokrzyska, Skrypt 291, Kielce 1996. Misiak J., <i>Zadania z mechaniki ogólnej Część I i II</i>, WNT, Warszawa 1992. Nizioł J., <i>Metodyka rozwiązywania zadań z mechaniki</i>, WNT, Warszawa 2002. Salata W., <i>Mechanika ogólna w zarysie</i>, Poznań,
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	http://neur.am.put.poznan.pl/salata/salata.htm
Module website	