DESCRIPTION OF A STUDY COURSE – SYLLABUS

<table>
<tr><td>Title of a course</td><td colspan="5">Engineering Mechanics</td></tr>
<tr><td>Head of course</td><td colspan="5">PhD Marko Kršulja, Lecturer</td></tr>
<tr><td>Study programme</td><td colspan="5">Professional undergraduate study Transport</td></tr>
<tr><td>Status of a course</td><td colspan="5">Obligatory</td></tr>
<tr><td>Year of study</td><td>2.</td><td>Semester</td><td>III</td><td>ECTS credits</td><td>6</td></tr>
<tr><td>Teaching plan
(L + E + S+ Pr)</td><td colspan="5">3+2+0+0</td></tr>
<tr><td colspan="6">Goals of a course</td></tr>
<tr><td colspan="6">Introduce students to the effects of gravitational forces on the body, tensile and compressive forces, friction and touch forces. Also with the movement of material points of the body and determining the displacement of the body. Students will also gain an understanding of the relationship between body motion and the forces acting on it during movement.</td></tr>
<tr><td colspan="6">Conditions for enrolling course</td></tr>
<tr><td colspan="6">No conditions</td></tr>
<tr><td colspan="6">Learning outcomes on a level of a study programme which includes course</td></tr>
<tr><td colspan="6">Outcome 1: Use mathematical and statistical methods in traffic engineering and traffic research.
Outcome 9: Link engineering principles and technical principles in transport systems.</td></tr>
<tr><td colspan="6">Expected learning outcomes on a level of a course</td></tr>
<tr><td colspan="6">1. Identify the basic theorems of rigid bodies statics, know how to link forces and torque.
2. Calculate equilibrium conditions for bodies under load.
3. Apply graphical and graph-analytical methods to solve plane systems.
4. Use equations to determine the position, velocity and acceleration of a particle in straight and curved motion.
5. Construct kinematic diagrams</td></tr>
<tr><td colspan="6">Content of a course</td></tr>
<tr><td colspan="6">Introduction. Statics axioms. Force systems. Moment of a force. Momentum of a couple of forces. Resultant determining. Equilibrium conditions. Center of gravity. Papus-Guldin theorems. Friction. Supports. Introduction to kinematics. Basic ISO units of measure. Co-ordinate systems. Rectilinear motion (velocity, acceleration). Uniform motion. Uniform variable motion. Harmonic motion. Circular motion. Relative motion. Kinematics of a rigid body. Translation motion. Rotary motion. Dynamics of a material particle. Newton's laws. Inertial forces. D'Alamber's principle. Amount of motion. Mechanical operating. Kinetic momentum. Potential energy. Kinetic energy. Power. Machine power. Degree of a machine efficiency. Dynamics of a rigid body. Translation motion. Rotary motion. System center motion. Collision.</td></tr>
<tr><td>Teaching modes</td><td colspan="2">☒ lectures
☐ auditory exercises
☒ seminars and workshops
☐ distance learning
☐ field classes</td><td colspan="3">☒ individual assignments
☐ multimedia and network
☐ laboratory
☐ supervisor's work
☐ other _____</td></tr>
<tr><td>Comments</td><td colspan="5"></td></tr>
<tr><td colspan="6">Students' obligations</td></tr>
<tr><td colspan="6">Fulfil obligations in accordance with the Rules of Study and Rules on the assessment of students.</td></tr>
<tr><td colspan="6">Grading, evaluation and monitoring of students' work continuously during lectures and exams</td></tr>
<tr><td colspan="6">Grading is based upon evaluation of course's learning outcomes' adoption. Grading is performed continuously during lectures and/or during exam, in compliance with the provisions of Regulation on the assessment of students.
Continuous check-up:</td></tr>
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Outcomes	Pre-exam I	Pre-exam 2	Test	Home assignment	Threshold	Max
Outcome 1	5%		10%		7,50%	15%
Outcome 2	10%		5%		7,50%	15%
Outcome 3	10%		5%	10%	12,50%	25%
Outcome 4		15%		10%	12,50%	25%
Outcome 5		10%		10%	10,00%	20%
Percentage of ECTS	1,5	1,5	1,2	1,8	3	6
Total	25%	25%	20%	30%	50%	100%

A student has passed the exam if he has acquired a percentage of credits for each learning outcome higher or equal to defined threshold.

Exam term:

Outcomes	Written exam	Oral exam	Max
Outcome 1	10%	10%	20%
Outcome 2	10%	10%	20%
Outcome 3	10%	10%	20%
Outcome 4	10%	10%	20%
Outcome 5	10%	10%	20%
Percentage of ECTS	3	3	6
Total	50%	50%	100%

A student has passed the exam if he has acquired a percentage of credits for each learning outcome higher or equal to defined threshold.

Grading:

A student has passed the exam if he has acquired at least 50% of anticipated credits of a specific learning outcome. If a student has passed learning outcomes of all courses, the accomplished credits (percentages) of all passed learning outcomes are being added, while the final grade is defined upon following table:

Range of credits (percentages)	Numerical grade	ECTS grade
90,00 – 100,00	Excellent (5)	A
75,00 – 89,99	Very good (4)	B
60,00 – 74,99	Good (3)	C
50,00 – 59,99	Sufficient (2)	D
0,00 – 49,99	Insufficient (1)	F

Obligatory literature

1. Kraut, B.: Strojarski priručnik, Algoritam, Zagreb, 1997.
2. Novak, Z.: Tehnička mehanika, Zbirka rješenih zadataka, Veleučilište u Rijeci, Rijeka, 2008.
3. Škifić, N., Novak, Z., Bognolo, D.: Tehnička mehanika, Veleučilište u Rijeci, Rijeka, 2012.
4. Materials published on the course pages

Additional literature

1. Inženjerski priručnik IP1, Školska knjiga, Zagreb, 1996.
2. Brnić, J: Statika, Tehnički fakultet Rijeka, 2004.
3. Pečornik,M.: Zbirka zadataka iz mehanike fluida, Rijeka, 1992.