

### DESCRIPTION OF A STUDY COURSE – SYLLABUS

<b>Title of a course</b>	<b>Mechanics and mechanical hazards</b>				
<b>Head of course</b>	<b>PhD Marko Kršulja, Lecturer</b>				
<b>Study programme</b>	<b>Professional undergraduate study Occupational Safety</b>				
<b>Status of a course</b>	Obligatory				
<b>Year of study</b>	2.	<b>Semester</b>	III	<b>ECTS credits</b>	7
<b>Teaching plan (L + E + S+ Pr)</b>	3+0+3+0				
<b>Goals of a course</b>					
Introduce students to the basic concepts of mechanical engineering and fluid mechanics. Distinguish the sources of mechanical hazards and the importance of safety devices when working with machines, and familiarize students with the safety measures when working with machines.					
<b>Conditions for enrolling course</b>					
No conditions					
<b>Learning outcomes on a level of a study programme which includes course</b>					
<p>Outcome 1: Explain the basic principles of mathematics, physics, chemistry, electrical engineering and mechanics required for work in the field of occupational safety and health.</p> <p>Outcome 7: Evaluate dangers, damage and effort.</p> <p>Outcome 8: Organize a system of prescribed procedures and documents in the field of occupational safety.</p> <p>Outcome 9: Conduct training of subjects in the field of occupational safety.</p> <p>Outcome 15: Identify the basic characteristics of production processes, machines and materials.</p>					
<b>Expected learning outcomes on a level of a course</b>					
<ol style="list-style-type: none"> <li>1. Describe the basic concepts from the field of technical mechanics (statics, kinematics, dynamics).</li> <li>2. Describe the basic concepts from the field of fluid mechanics.</li> <li>3. Distinguish sources of mechanical hazards.</li> <li>4. Determine the importance of protective devices when working with machines.</li> <li>5. Identify safety measures when working with machines.</li> </ol>					
<b>Content of a course</b>					
<p>Axioms of mechanics. Co-ordinate systems. Joining of forces on flat surface and in space. Definition of moment of a force and couple of forces. Harmony of forces on flat surface and in space. Friction. Fundamental concepts of supports and internal forces (bending moment, radial forces and axial forces). Defining speed and acceleration. Principles of movement of particles and solid bodies. Newton laws. Dynamics of movement. Moments of inertia. Mechanical work and power. Basic principles of fluid mechanics. Basic concepts of hydrostatics. Elements of hydrodynamics and outflow (equation of continuity, equation of Bernoulli). Flowing in pipes.</p> <p>Mechanical constructions as source of potential hazards. Safety constructions. Methods of assessing damage causes. Mechanical hazards. Safety at handling movable and handy mechanic tools. Principal groups of safety equipment. Fundamental principles of safety in constructing machines.</p>					
<b>Teaching modes</b>	<input checked="" type="checkbox"/> lectures <input type="checkbox"/> auditory exercises <input checked="" type="checkbox"/> seminars and workshops <input type="checkbox"/> distance learning <input type="checkbox"/> field classes		<input checked="" type="checkbox"/> individual assignments <input type="checkbox"/> multimedia and network <input type="checkbox"/> laboratory <input type="checkbox"/> supervisor's work <input type="checkbox"/> other _____		
<b>Comments</b>					
<b>Students' obligations</b>					

**Grading, evaluation and monitoring of students' work continuously during lectures and exams**

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:**

Outcomes	Pre-exam I	Pre-exam 2	Test	Threshold	Max
Outcome 1	35 %			17,5 %	35 %
Outcome 2			15 %	7,5 %	15 %
Outcome 3		20 %		10 %	20%
Outcome 4		15 %		7,5 %	15 %
Outcome 5		15 %		7,5 %	15 %
Percentage of ECTS	2,45 ECTS-a	3,5 ECTS-a	1,05 ECTS-a		
Total	35 %	50 %	15 %	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	35 %		35 %
Outcome 2	15 %		15 %
Outcome 3		20 %	20 %
Outcome 4		15 %	15 %
Outcome 5		15 %	15 %
Percentage of ECTS	3,5	3,5	7
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.: Strojarskipriričnik, Algoritam, Zagreb, 1997.
2. Novak, Z.: Tehničkamehanika, Zbirkarješnihzadataka, Veleučilište u Rijeci, Rijeka, 2008.
3. Škifić, N., Novak, Z., Bognolo, D.: Tehničkamehanika, Veleučilište u Rijeci, Rijeka, 2012.
4. Materials published on the course pages

**Additional literature**

1. Inženjerskipriričnik IP1, Školskknjiga, Zagreb, 1996.
2. Brnić, J.: Statika, Tehničkifakultet Rijeka, 2004.
3. Pečornik, M.: Zbirkazadatakaizmekhanikefluida, Rijeka, 1992.



