**DESCRIPTION OF A STUDY COURSE – SYLLABUS**

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| **Title of a course** | **Mechanics and mechanical hazards** | | | | |
| **Study programme** | **Professional undergraduate study Occupational Safety** | | | | |
| **Status of a course** | Obligatory | | | | |
| **Year of study** | 2. | **Semester** | W | **ECTS credits** | 7 |
| **Teaching plan**  **(L + E + S+ Pr)** | 3+0+3+0 | | | | |
| **Goals of a course** | | | | | |
| 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. | | | | | |
| **Conditions for enrolling course** | | | | | |
| No conditions | | | | | |
| **Expected learning outcomes on a level of a course** | | | | | |
| 1. Razlikovati temeljne pojmove iz tehničke mehanike (statika, kinematika, dinamika). 2. Razlikovati temeljne pojmove iz mehanike fluida. 3. Utvrditi izvore mehaničkih opasnosti. 4. Valorizirati značaj zaštitnih naprava pri radu sa strojevima. 5. Argumentirati odabir mjera zaštite pri radu sa strojevima. 6. Describe the basic concepts from the field of technical mechanics (statics, kinematics, dynamics). 7. Describe the basic concepts from the field of fluid mechanics. 8. Distinguish sources of mechanical hazards. 9. Determine the importance of protective devices when working with machines.   Identify safety measures when working with machines. | | | | | |
| **Content of a course** | | | | | |
| 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.  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. | | | | | |
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