**DESCRIPTION OF A STUDY COURSE – SYLLABUS**

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| **Title of a course** | **Physics for engineers** | | | | |
| **Study programme** | **Professional undergraduate study Occupational Safety** | | | | |
| **Status of a course** | Obligatory | | | | |
| **Year of study** | 1. | **Semester** | W | **ECTS credits** | 5 |
| **Teaching plan**  **(L + E + S+ Pr)** | 3+0+2+0 | | | | |
| **Goals of a course** | | | | | |
| Adopt content-based learning outcomes: Particle and body motion: Newton's laws. Work and energy. Gravity. Rigid body. Thermodynamics. Fluid mechanics. Harmonic vibration. Wave movements. Electromagnetic radiation. Speed ​​of light. The development of an atom model. Fundamentals of Quantum Physics. The atomic nucleus. Nuclear forces. Radioactivity. | | | | | |
| **Conditions for enrolling course** | | | | | |
| No conditions | | | | | |
| **Expected learning outcomes on a level of a course** | | | | | |
| 1. Razlikovati osnovne fizikalne veličine i pripadne mjerne jedinice (osnovne i izvedene, te vektorske i skalarne veličine) 2. Opisati osnovne pojave iz kinematike i dinamike 3. Razlikovati vrste titranja i vrste valova 4. Primijeniti osnovne pojmove mehanike fluida i znanosti o toplini na manje složenim primjerima 5. Ilustrirati i interpretirati modele atoma, atomske jezgre i zakon radioaktivnog raspada   1. Interpret and differentiate object movements.  2. Define basic physical terms in mechanics.  3. Interpret the concepts of gravity, weight, friction force and elastic force.  4. Interpret basic principles of fluid statics and dynamics.  5. Interpret changes in gas states.  6. Describe and interpret what oscillations are on the example of a mathematical pendulum and weights on a spring.  7. Distinguish types of waves.  8. Interpret and distinguish radioactive radiation. | | | | | |
| **Content of a course** | | | | | |
| Introduction: Physics - principles and importance. Motion of particles and bodies: path, speed and acceleration. Forces and laws of motion. Relative motion. Activity and energy. Gravitation. Mechanics of fluids: still fluids and fluids in motion. Forces in real liquids. Temperature and heat: Change of physical condition. Thermodynamics: first and second rule of thermodynamics. Heat engines. Motion of a solid body: Solid body. Kinetic energy. Quantity motion moment. Action of a force on solid bodies. Centre of gravity. Harmonic oscillation. Damped and forced oscillation. Speed, reflection. Electromagnetic radiation: Electromagnetic oscillation. Origin of electromagnetic waves. Speed of light. Atoms and quantum: Creation of an atom model. Classic and quantum physics. Atomic nucleus: Structure of an atomic nucleus. Nuclear forces. Radioactivity. | | | | | |
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