

**Information sheet for the course
Physics I.**

University: <i>Alexander Dubček University of Trenčín</i>					
Faculty: <i>Faculty of special technology</i>					
Course unit code: <i>SaOA/B/4-07/d</i>			Course unit title: <i>Physics I.</i>		
Type of course unit: <i>compulsory</i>					
Planned types, learning activities and teaching methods: <i>2 lecture hours, 1 practice hour and one lab hour per week, attendance teaching method.</i>					
Number of credits: 5					
Recommended semester: <i>1st semester in the 1st year (full-time)</i> <i>1st semester in the 1st year (part-time)</i>					
Degree of study: <i>I. (bachelor)</i>					
Course prerequisites: <i>SaOA/B/4-01/d Mathematics I.</i>					
Assessment methods: <i>Written test and interview. Conditions: Successful completion of laboratory practice, preparation and submission of protocols in the requested format and quality. Participation in computing workshops and meet minimum on written tests. At least 60% attendance at lectures. Point-rating: max. 70 points from the written work, max. 20 points for the laboratory exercises and protocols, maximum 10 points from the calculation seminars. A > 90 B > 80 C > 70 D > 60 E > 50 points.</i>					
Learning outcomes of the course unit: <i>The student can analyze factual knowledge, principles and processes, general concepts in a broad context of fundamental physical laws in the field of mechanical phenomena and their application in the technical sphere.</i>					
Course contents: <i>Coordinate systems. The basic concepts of algebra vectors. Kinematics. The path, speed and acceleration of the linear and rotary movement. Compound movements. Newton's laws. Force, momentum and impulse. Angular momentum. Impact laws. Energy, work, power and efficiency. Kinetic and potential mechanical energy. Conservation laws. Newton's law of gravity. Intensity and potential of the gravitational field. Rigid body mechanics, angular momentum of solid body. The energy of rotational motion of rigid bodies. The center of gravity. The stability conditions of a solid body. Oscillations. The energy of the mechanical oscillator. Damped and forced harmonic motion. Waves. The wavelength, frequency, wave function. Reflection and refraction of waves. Interference of waves. Standing waves. Doppler effect. Mechanics of gases and liquids. The Ideal Gas state equation. Pascal's Law. Archimedes' principle. Bernoulli equation. Heat. Temperature. Heat capacity.</i>					
Recommended of required reading: <i>ŠTUBŇA, I., KOŠINA, S., VALKO, L., HÚŠŤAVA, Š., PERICHTA, P.: Zbierka príkladov z fyziky k prijímacím pohovorom. TnU, Trenčín 1999.</i> <i>KREMPASKÝ, J.: Fyzika. SNTL, Bratislava, 1982.</i> <i>ILKOVIČ, D.: Fyzika. SNTL 1960.</i> <i>KREMPASKÝ, J.: Fyzika. SNTL, Bratislava, 1982.</i> <i>ŠTUBŇA, I., KOŠINA S., VALKO, L., HÚŠŤAVA, Š., PERICHTA, P.: Fyzika. Návody na laboratórne cvičenie z Fyziky. TnUAD, 2000.</i> <i>FEYNMAN, LEIGHTON, SANDS: Prednášky z fyziky. ALFA 1983-1985.</i> <i>ÁČ, V.: Physics I., lectures in electronic form TnUAD 2014.</i>					
Language: <i>Slovak</i>					
Remarks: <i>The subject is provided in the winter semester of the first year of full-time study. Compulsory subject.</i>					
Evaluation history: <i>Total number of students being evaluated: 476</i>					
A	B	C	D	E	FX
2.48	6.46	11.30	31.66	42.27	5.83

Lecturers: *Assoc.prof. Ing. Vladimír Ač, CSc. – lecturer*
PaedDr. Erika Hujová, PhD. - assistant instructor

Last modification: *15.4.2014*

Supervisor: *prof. Ing. Alexej Chovanec, CSc., guarantee of the study program “Vehicles Maintenance and Repair”.*