# Information sheet for the course
# Physics I

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| **University:** *Alexander Dubček University of Trenčín* | |
| **Faculty:** *Faculty of Industrial Technologies in Púchov* | |
| **Course unit code:** *MT-P-9* | **Course unit title:** *Physics I* |
| **Type of course unit:** *compulsory* | |
| **Planned types, learning activities and teaching methods:**<br>*Lecture: 2 hours weekly/26 hours per semester of study; face to face*<br>*Seminar: 1 hour weekly/13 hours per semester of study; face to face*<br>*Laboratory tutorial: 2 hours weekly/26 hours per semester of study; face to face* | |
| **Number of credits:** *5* | |
| **Recommended semester:** *2nd semester in the 1st year full-time*<br>*2nd semester in the 1st year part-time* | |
| **Degree of study:** *the 1st degree of study (Bachelor's degree)* | |
| **Course prerequisites:** *PP-P-1 Mathematics I* | |
| **Assessment methods:**<br>*Current control on each lecture – at least three positive knowledge rating. The writing final exam: A – 75 points, B – 70 points, C – 65 points, D – 60 points, E – 55 points at least.* | |
| **Learning outcomes of the course unit:**<br>*Students have deeper knowledge of classical and modern physics, laboratory skils, ability to use mathematics to solve physics problems, critical thinking skills, effective written and oral communications skills.* | |
| **Course contents:**<br>*Introduction to study of physics, paradigms of current physics, the relation of physics to other sciences and its status in modern society, Physics Nobel Price in actual year, international achievements of Slovak physics, meaning of physics learning for materials sciences.*<br>*Matter, dark matter, substances, fields, space, time, space-time, incident.*<br>*Introduction to vector analysis, differential and integral calculus.*<br>*Paradigm of Newtons physics and special relativity theory.*<br>*Location, motion, its description and forms, atomic theory of matters.*<br>*Newton´s laws of motion, special theory of relativity and its practical consequences.*<br>*Energy, dark energy, gravity, introduction to general theory of relativity and its practical consequences, Higgs boson.*<br>*Introduction to physical filds, introduction to electromagnetism, comparisons of gravitational and electrostatic field.*<br>*Mechanics of mass point.*<br>*Mechanics of mass-points system.*<br>*Mechanics of continuum, conservation laws.*<br>*Quantum physics paradigm, Copenhagen interpretation of quantum physics, parallel universes hypotesis, standard model of elementary praticles and forces, M-theory and superstring model, actual cosmological theories of universe.*<br>*Introduction to thermodynamcs, heat transfer and non-equilibrium thermodynamic systems* | |
| **Recommended of required reading:**<br>*Feynman, R.: The Feynman Lecturers on Physics I-III, California Institute of Technology-Addison Wesley Longman, 1970, ISBN-10: 0201021153.*<br>*Young, H. D., Freedman, R. A.: University Physics, Addison-Wesley, New York, 1996.*<br>*Kittel Ch.: Thermal Physics, Acad. Press, NewYork-London, 1997.*<br>*Hawking, S.: Ilustrovaná stručná história času, Slovart, Bratislava, 2004, ISBN: 978-80-8085-920-6.* | |

*Veis, Š.: Všeobecná fyzika I, Alfa, Bratislava-Praha, 1986.*
*Krempaský, J.: Fyzika, Alfa, Bratislava, 1982.*

**Language:** *Slovak*

**Remarks:**

**Evaluation history:**

| A | B | C | D | E | FX |
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**Lecturers:** *doc. Mgr. Ivan Kopal, Ph.D.*

**Last modification:** *31.03.2014*

**Supervisor:** *doc. Ing. Marta Kianicová, PhD.*