

# ZF – Principles of Physics

## Annotation

This course is designed to help the first-year students improve their understanding of fundamental principles of physics. After the introduction of the scientific approach to understanding nature, the role of measurement and basic units, it is mainly focused on the topics of mechanics of particle-like bodies. The significance of conservation laws in physics is pointed out.

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## Schedule

1. tutorial: Introductory tutorial will be devoted to study organization, subject content, and how to work with study materials. Students will hear short lecture about Measurements, Quantities and Units.
2. tutorial: It is devoted to chapter Vectors and Some of Their Applications in Physics and Motion and the Mathematics of Diminutive Changes. Tutorial will be focused on applications of differential and integral calculus in kinematics and on solution of problems.
3. tutorial: It is devoted to the chapter Planar Motion, especially to projectile and circular motion, gravitational field.
4. tutorial: It is focused on solution of problems from chapter Conservation Laws in Mechanics.
5. tutorial: This tutorial will serve for passing on-line tests in regular time and to their eventual corrections. It will take place in PC classrooms.

Conditions for passing the classified credit Credit will be given based on passing an on-line test - student must receive at least 51 points from 100

## Study support

Lecture notes:

Trojková, J.: Preliminary Course in Physics, VŠB-Technical University of Ostrava, 2007. All other study materials (lectures, etc.) are available in system Moodle (<http://lms.vsb.cz>). Access to this course will be given to students during the first tutorial.

Mandatory literature

Halliday D., Resnick R., Walker J.: Fundamentals of Physics, John Wiley and Sons, Inc. 1997, 978-04-705-4795-3

Recommended literature

Feynman R.P., Leighton R.B., Sands M.: The Feynman lectures on physics, Vol. 1. The New Millennium Edition: Mainly Mechanics, Radiation, and Heat, 2011;  
Giancoli, D. C., Physics: Principles with Applications, Global Edition, 2015

Guide of the subject Principles of Physics was prepared by Ing. Marek Nikodým, Ph.D.