

Subject: Physics Semester 1 – 60 hours

Preconditions	Elementary mathematical skills, basic of algebra and trigonometry
The aim of the course and acquired skills	After completing the course, a student understands physical laws and is able to solve physical problems concerning classical mechanics.
Content of the course	<ol style="list-style-type: none"> 1. Introduction and mathematical concepts (Lessons 1-2) 2. Kinematics in one dimension (including equation of motion) (Lessons 3-4) 3. Kinematics in two dimensions (Lesson 5) 4. Forces and Newton's laws of motion (6-8) 5. Uniform circular motion, centripetal acceleration and force; satellites in circular orbits (9) 6. Work and energy (11-13) 7. Impulse and momentum (14) 8. Rotational kinematics and dynamics (15-18) 9. Harmonic motion (20-22) 10. Elastic deformation, stress, strain, Hooke's law (23) 11. Fluids (24-26)
Literature	Physics (chapt. 1-11), John D. Cutnell & Kenneth W. Johnson – 8th ed. ISBN 978-0-470-22355-0
Students input	Class activity – students solve problems on a board and take notes during lessons; home activity – students prepare themselves for the next lesson by reading the textbook or watching the video on an online learning platform; students do homework in the form of problems to solve as a revision and preparation for a test.
Assessment criteria	<p>Punctuation:</p> <ul style="list-style-type: none"> • 0-30 points – final exam • 0-30 points – 3 tests during the semester (Lessons 10, 19, 27) • 0-20 points – students' activity before the lessons (online quiz) • 0-20 points – student's activity after the lessons (homework) <p>Grades:</p> <ul style="list-style-type: none"> • [0, 59] – 2.0 • [60, 68] – 3.0 • [69, 74] – 3.5 • [75, 81] – 4.0 • [82, 90] – 4.5 • [91, 100] – 5.0

Subject: Physics Semester 2 – 60 hours

Preconditions	Elementary mathematical skills, basic of algebra and trigonometry
The aim of the course and acquired skills	After completing the course, a student understands physical laws and is able to solve physical problems concerning thermodynamics, electrostatics, magnetism, optics, theory of relativity and nuclear physics.
Content of the course	<ol style="list-style-type: none"> 1. Temperature and heat, the ideal gas (Lessons 1-2) 2. Thermodynamics (Lessons 3-5) 3. Waves and sound (6-7) 4. Interference, diffraction (8-9) 5. Electrostatic (11-12) 6. Electric circuits (13-15) 7. Magnetic forces and magnetic fields (16-17) 8. Electromagnetic induction (19-20) 9. Alternating current circuits (21) 10. Optics (including basics of electromagnetic waves) (22-24) 11. Theory of relativity (25) 12. Nuclear physics (26)
Literature	Physics (chapt. 12-28, 31), John D. Cutnell & Kenneth W. Johnson – 8th ed. ISBN 978-0-470-22355-0
Students input	Class activity – students solve problems on a board and take notes during lessons; home activity – students prepare themselves for the next lesson by reading the textbook or watching the video on an online learning platform; students do homework in the form of problems to solve as a revision and preparation for a test.
Assessment criteria	<p>Punctuation:</p> <ul style="list-style-type: none"> • 0-30 points – final exam • 0-30 points – 3 tests during the semester (Lessons 10, 18, 27) • 0-20 points – students’ activity before the lessons (online quiz) • 0-20 points – student’s activity after the lessons (homework) <p>Grades:</p> <ul style="list-style-type: none"> • [0, 59] – 2.0 • [60, 68] – 3.0 • [69, 74] – 3.5 • [75, 81] – 4.0 • [82, 90] – 4.5 • [91, 100] – 5.0