**Course: Physics Semester 1 – 60 hours**

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|---|---|
| Prerequisites | Elementary mathematical skills, basics of algebra and trigonometry |
| Course aim and skills acquired | After completing the course, a student understands physical laws and is able to solve physical problems concerning classical mechanics. |
| Course contents | 1. Introduction and mathematical concepts<br>2. Kinematics in one dimension (including equation of motion)<br>3. Kinematics in two dimensions<br>4. Forces and Newton's laws of motion<br>5. Circular motion<br>6. Work and energy<br>7. Impulse and momentum<br>8. Gravity<br>9. Harmonic motion<br>10. Fluids |
| Literature | Physics (chapt. 1-7, 10-11), John D. Cutnell & Kenneth W. Johnson – 8th ed. ISBN 978-0-470-22355-0 |
| Students input | Class activity – students solve problems on the board during lessons; home activity – students revise the material from the textbook and solve problems as preparation for the next lesson or a test. |
| Assessment criteria | Allocation of points:<br>• 0-50 points – final exam<br>• 0-30 points – 10 tests during the semester (0-3 points each one)<br>• 0-10 points – students' activity during the lessons<br>• 0-10 points – a score for the project (optional)<br>Grades:<br>• **A requirement to pass - minimum 41 points from tests and exam**<br>• $[51, 60]$ – **3.0**<br>• $[61, 70]$ – **3.5**<br>• $[71, 80]$ – **4.0**<br>• $[81, 90]$ – **4.5**<br>• $[91, 100]$ – **5.0** |

## Course: Physics Semester 2 – 60 hours

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|---|---|
| Prerequisites | Elementary mathematical skills, basics of algebra and trigonometry |
| Course aim and skills acquired | 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. |
| Course contents | 1. Temperature and heat<br>2. Ideal gas<br>3. Thermodynamics<br>4. Waves and sound<br>5. Interference, diffraction<br>6. Electrostatic<br>7. Electric circuits<br>8. Magnetism<br>9. Optics (including basics of electromagnetic waves)<br>10. Theory of relativity<br>11. Nuclear physics |
| 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 the board during lessons; home activity – students revise the material from the textbook and solve problems as preparation for the next lesson or a test. |
| Assessment criteria | Allocation of points:<br>• 0-50 points – final exam<br>• 0-30 points – 10 tests during the semester (0-3 points each one)<br>• 0-10 points – students' activity during the lessons<br>• 0-10 points – a score for the project (optional)<br>Grades:<br>• **Requirement to pass - minimum 41 points from tests and exam**<br>• [51, 60] – **3.0**<br>• [61, 70] – **3.5**<br>• [71, 80] – **4.0**<br>• [81, 90] – **4.5**<br>• [91, 100] – **5.0** |