

Title of the course: Physics I.	NEPTUN-code: RKXF11ABNE	Weekly teaching hours: $l+cw+lb$ 1+1+0	Credit: 3 Exam type: tm
Course leader: Sándor Pekker, Dr.	Position: research professor	Required preliminary knowledge: There is no requirement	
Curriculum:			
Dividing of physics. Physical quantities. Optics (light reflection and refraction, optical devices). Mechanics of liquids and gases (hydrostatic pressure, Archimedes' principle, equation of continuity, Bernoulli's equation). Basics of acoustics (speed of sounds, sound intensity level, Doppler effect, Mach number). Basics of relativistic physics, Einstein's special theory of relativity (velocity transformation, increase of mass, mass-energy relationship). Thermodynamics. Thermal expansion of solids and liquids. State equation of ideal gases, special changes of state and their description. Heat. Laws of thermodynamics. Special processes. Thermal conduction. Heat engines.			
Professional competencies:			
<p>Knowledge of general and specific mathematical, natural and social scientific principles, rules, relations, and procedures as required to pursue activities in the special field of environment protection.</p> <p>Able to participate creatively in engineering work based on their multidisciplinary skills, as well as to adapt to continuously changing circumstances.</p> <p>Open to professional cooperation with specialists related to their profession but involved in other areas.</p> <p>Efforts to improve knowledge by on-going self-education and continuously update their knowledge of the world.</p>			
Literature:			
1. Serway Jewett: Physics for Scientist and Engineers			
2. Lóránt Szabó: Physics for Undergraduate Students			
3. www.physicsclassroom.com			
4. Bueche, F., Hecht, E.: Schaum's Outline of College Physics, 11th edition, McGraw-Hill Education, 2011.			
5. Feynman R., Leighton, R.B. and Sands M.: The Feynman Lectures on Physics. Volumes I, II. Revised and extended edition, Addison-Wesley, 2005.			
6. Fleisch, D., Kinnaman, L.: A Student's Guide to Waves, Cambridge University Press, 2015.			
7. Shankar, R.: Fundamentals of Physics: Mechanics, Relativity, and Thermodynamics. Yale University Press, 2014.			