Assessment and subject description

Óbuda University Kandó Kálmán Faculty of Electrical Engineering			Institute of Microelectronics and Technology	
Subject name and code**:** Physics I. KMEFI11AND, KMEFI11ANC **Credits: 4** **Full-time, Fall Semester**				
Course:				
Responsible:	Dr. Ervin Rácz, Ph.D	Teaching staff:	Dr. Dorottya Sebestyén	
Prerequisites:	KMEMA21AND			
Contact hours per week:	Lecture: 2	Class discussion: 1(D)	Lab hours:	Tutorial:
Assessment and evaluation:				

Subject description

Aims: to give the stable basement for the subjects which are concerning the profession.

Topics to be covered: Mechanics, Thermodynamics, Optics, Special relativity

Topics	Week	Lessons
Mechanics. Kinematics of particles.	**1**	**2**
Newton's laws. Momentum. Impulse-momentum theorem. Work and energy. Power.	**2**	**2**
Torque. Angular momentum. Angular momentum theorem.	**3**	**2**
Mechanics of particle systems.	**4**	**2**
Motion of the rigid body. Moment of inertia. Relative motions: inertial reference frames, motion in noninertial frames.	**5**	**2**
Test #1. Oscillations. Damped oscillations. Forced oscillations. Resonance.	**6**	**2**
Wave motion. Mechanics of fluids.	**7**	**2**
Elements of optics. Fermat's principle. Physical optics.	**8**	**2**
Thermodynamics. Temperature scales and thermometers. Equations of state. Heat, heat capacities. The first law of thermodynamics.	**9**	**2**
Thermal processes of ideal gas. Cyclic processes. The Carnot-cycle..	**10**	**2**
Entropy. The second law of thermodynamics.	**11**	**2**
Test #2. Basics of statistical thermodynamics or the kinetic theory of gases. Statistical interpretation of the second law of thermodynamics.	**12**	**2**
Theory of special relativity.	**13**	**2**
Motion of charged particles in electromagnetic field.	**14**	**2**

Assessment and evaluation

Requirements of the signature:
The absenteeism rate should not exceed 30% of the class hours and students must complete or write both of test #1 and test #2.

Type of exam: Written exam

Evaluation of the exam:
Evaluation of the exam will be established by summation of points can be obtained for two parts: points to test #1 and test #2 (maximum of 10+10 points), points to the written exam (maximum of 50 points)

Suggested material

- M. Mansfield, C. O`Sullivan: Understanding Physics (John Wiley & Sons, Praxis, 1998. or newer edition)
- H. Young, R. Freedman: Sear’s and Zemansky’s University Physics with Modern Physics (Pearson, 2008)

Comment: