Assessment and subject description

Óbuda University Kandó Kálmán Faculty of Electrical Engineering			Institute of Microelectronics and Technology		
Subject name and code**:** Physics II. KEXFI2ABNE, KVX6ABNE **Credits: 4** **Full-time, Spring Semester 2020-2021/II**					
Course: **Electrical engineering**					
Responsible:	**Dr. Katalin Gambár Ph.D** associate professor	Teaching staff:	**Dr. Katalin Gambár Ph.D**		
Prerequisites:	KMEFI11AND, KVX5ABNE				
Contact hours per week:	Lecture: 2	Class discussion: 1	Lab hours: 0	Tutorial: 0	
Assessment and evaluation:	**exam**				

Subject description

Aims: to give stabile foundation to the professional subjects and to help to understand the physical basis of the professional literature in the future works.

Topics to be covered: atomic physics; physics of condensed matter; nuclear physics

Topics	Week	Lessons
The theory of special relativity Kinematics	1.	2+1
The theory of special relativity Dynamics	2.	2+1
The boundary of the classical concepts: Black body radiation, photo effect	3.	2+1
The boundary of the classical concepts: Compton effect, wave-particle duality	4.	2+1
Classical models of atom (Rutherford's model, Bohr's model, quantum numbers, Pauli exclusion principle)	5.	2+1
Classical models of atom (Rutherford's model, Bohr's model, quantum numbers, Pauli exclusion principle)	6.	2+1
Quantum mechanics:Heisenberg's uncertainty relation, Schrödinger equation.	7.	2+1
Applications of Schrödinger equation.	8.	2+1
Condensed matter physics :metallic bond, conductivity	9.	2+1
Condensed matter physics :Hall effect Electronic band structure.	10.	2+1
Problems	11.	2+1
Condensed matter physics: Magnetic properties. Piezoelectricity. Liquid crystals.	12.	2+1
Condensed matter physics : Superconductivity, luminescence. Lasers	13.	2+1
Problems	14.	2+1

Assessment and evaluation

Requirements of the signature:
The absenteeism rate should not exceed 30% of the class hours.
Submission of homework issued during the semester by the designated dates.

Type of exam:
The test contains questions for the theories (50 points) and examples (50 points).
A list of theoretical knowledge and possible questions will be given to students before the examination period.
Evaluation:
Summary of points: maximum points can be obtained by summation: 50+50 = 100.
Evaluation:

Evaluation	**Points obtained**
1	0 – 49
2	50 – 61
3	62 –74
4	75– 87
5	88 – 100

Suggested material

Alvin Hudson, Rex Nelson: University Physics

Comment:
Minor shifts may occur, because lecturers take into account levels of understandings and ability of notes-taking of the students, and because lecturers show examples belong to the given chapters.