

## Assessment and subject description

<b>Óbuda University</b> Kandó Kálmán Faculty of Electrical Engineering		Institute of Microelectronics and Technology		
Subject name and code: Physics II. KEXFI2ABNE				<b>Credits: 4</b>
<b>Full-time, Spring Semester 2019-2020/II</b>				
Course: <b>Electrical engineering</b>				
Responsible:	<b>Dr. Katalin Gambár</b> <b>Ph.D</b> associate professor	Teaching staff:	<b>Dr. Katalin Gambár Ph.D</b>	
Prerequisites:	KMEFI11AND			
Contact hours per week:	Lecture: 2	Class discussion: 1	Lab hours: 0	Tutorial: 0
Assessment and evaluation:	<b>Midterm mark</b>			
<b>Subject description</b>				
<i>Aims:</i> to give stable foundation to the professional subjects and to help to understand the physical basis of the professional literature in the future works.				
<i>Topics to be covered:</i> atomic physics; physics of condensed matter; nuclear physics				
<b>Topics</b>			<b>Week</b>	<b>Lessons</b>
<b>The theory of special relativity</b>			1.	2+1
<b>Kinematics</b>				
<b>The theory of special relativity</b>			2.	2+1
<b>Dynamics</b>				
<b>The boundary of the classical concepts: Black body radiation, photo effect</b>			3.	2+1
<b>The boundary of the classical concepts: Compton effect, wave-particle duality</b>			4.	2+1
<b>Classical models of atom (Rutherford's model, Bohr's model, quantum numbers, Pauli exclusion principle)</b>			5.	2+1
<b>Classical models of atom (Rutherford's model, Bohr's model, quantum numbers, Pauli exclusion principle)</b>			6.	2+1
<b>Quantum mechanics: Heisenberg's uncertainty relation, Schrödinger equation.</b>			7.	2+1
<b>Applications of Schrödinger equation.</b>			8.	2+1
<b>Condensed matter physics :metallic bond, conductivity</b>			9.	2+1
<b>Condensed matter physics :Hall effect Electronic band structure.</b>			10.	2+1
<b>mid-year test</b>			11.	2+1
<b>Condensed matter physics: Magnetic properties. Piezoelectricity. Liquid crystals.</b>			12.	2+1
<b>Condensed matter physics : Superconductivity, luminescence. Lasers</b>			13.	2+1
<b>Final mid-year test</b>			14.	2+1

### **Assessment and evaluation**

Requirements of the signature:

The absenteeism rate should not exceed 30% of the class hours

Type of final test:

The test contains questions for the theories (50 points) and examples. (50 points) List of theories and possible questions will be issued to the students before the exam period.

Evaluation:

Summary of points: maximum points can be obtained by summation:  $50+50 = 100$ .

Evaluation:

<b>Evaluation</b>	<b>Points obtained</b>
1	0 – 49
2	50 – 61
3	62 – 74
4	75 – 74
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.