

Óbudai University Bánki Donát Faculty of Mechanical and Safety Engineering		Institute of Materials Science and Manufacturing Engineering Institute Group of Materials and Forming Technology		
Name and code of subject: Manufacturing Engineering I.		BAGGT12NEC		
Credit points: 3 <i>Full-time course</i>				
Szakok, melyeken a tárgyat oktatják: Gépészmérnöki szak				
Subject leader:	Dr. Viktor Gonda		Instructors:	
Prerequisite	-			
Classes per week:	Lecture: 1	Seminar: 0	Laboratory: 1	Consultancy: upon request
Evaluation (s,v,f): f	continuous			
Course description				
Introduction to electronic technologies. Manufacturing of materials for mechatronic applications. Electronic materials, conductors, metals, inorganic non-metallic materials, manufacturing of semiconductors, material technologies. Material impairment and protection (fracture, ageing, corrosion, biological impairment, tribology). Surface treatment methods and their technologies. Joining technologies (mechanical, chemical, electrical). Printed circuit board technologies and mounting.				

1. Schedule	
Week	Topic
1.	Introduction for electronic materials and technology. Classification of technologies. Chemical etching.
3.	Electrochemical technologies.
5.	Fabrication of printed circuit boards.
7.	Bonding for electronics: soldering, wired components for through hole technology, surface mount technology, materials and technologies for lead-free soldering
9.	Bonding in precision engineering technologies.
11.	Metal forming technologies, fabrication of precision springs.
13.	Glass technologies, vacuum depositions.
A félévközi gyakorlatok beosztása és tematikája mellékelve.	

2. References
Electronic materials in Moodle.

3. Requirements	
a) Presence: Compulsory	
b) Tests:	
Week	
6.	Test 1.
12.	Test 2.

continuous	Lab reports
<p>c) Terms of signature and practice mark Signature and mark is given upon accomplishment of requirements.</p>	
<p>d) Determination of final mark Final mark is the average of two tests results (or repeater tests) if reaches 2. If mark of any of them after repeater tests is 1 then the practice mark is 1 as well.</p>	
<p>e) Repeater tests Failed tests can be rewritten on last week of the lesson period of the semester.</p>	
<p>f) Repeater test in examination period of the semester Failed final mark can be improved in first week of the examination period. The date of it is given by the reader before the end of the lesson period.</p>	

Budapest, 2018. 01. 08.

Dr. Viktor Gonda, associate professor