

Óbuda University Bánki Donát Faculty of Mechanical and Safety Engineering	<b>Institute of Materials Science and Manufacturing</b> <b>Department of Materials Technology</b>
<b>Lecture name and Neptun code:</b> Materials Technology BAXACE3BNE <b>Credits: 4</b>	
<b>Course type:</b> Full-time	
Bachelor course: <b>Mechatronic engineering</b>	
<b>Lecturer:</b>	Dr. Kovács Tünde associate professor
<b>Number of sessions/week/term:</b> weekly	Lecture: 3 Practise: 1
<b>Exam/ course assignment:</b> practice mark	<b>Language:</b> English
<b>Course objective</b>	
Overview of basic materials processing methods, like casting, rolling, forging, bulk and sheet metal forming, polymer processing, powder metallurgy, etc. Joining of metals, soldering, brazing, welding. Surface coating. Materials and forming technology. Engineering materials and forming processes. Functions, loads, materials and shapes of parts.	

Week	Semester program (Lecture and Practise)
1.	Introduction of materials technology
2.	Open die forging. Forging machines, Closed die forging.
3.	Sheet metal forming
4.	Blanking and piercing operations and dies
5.	Bending of sheets. Bending tools.
6.	<b>Test 1</b>
7.	Deep drawing operations. Deep drawing tools
8.	Special welding technologies, Brazing, soldering
9.	Adhesive bonding,
10.	Heat treating
11.	Surface technologies
12.	Synthesis
13.	<b>Test 2</b>
14.	Consultation

Semester week	Test
6.	First test
13.	Second test

**Course assessments:**

Week No. 7 and week No.13 tests in writing. You can go to take an exam if you can fulfil the requirements of the tests in writing in the 7<sup>th</sup> and 13<sup>th</sup> weeks (both tests needs to be minimum pass mark) and you participate in lecture and practice classes. The term is not successful the lack of above requirements. Evaluation happens by scoring. The tasks are theoretical and practical.

Intervals of the grade:

under 50%: 1 (unsatisfying, gig)

50-62,5 %: 2 (pass mark)

62,5-75 %: 3 (satisfactory mark)

75-87,5 % 4 (class)

87,5-100% 5 (excellence)

Semester result calculated from the average tests results.

**The method of the supplement:** You can take an improver exam only one time set out by tutor in the first 10 days of the exam period with the payment of examination fee. This is the writing exam with the whole curriculum. Examination method is writing.

<b>Compulsory literature</b>
<b>1) Askeland, D.R., Fulay, P. P., Wright, W. J.:The Science and Engineering of Materials, Stamford, 2011</b>
<b>2) Callister: Materials Science and Engineering, John Wiley &amp; Sons, New York, 2007.</b>
<b>3) Smallman, R. E., Ngan, A. H.W.: Physical Metallurgy and Advanced Materials, Elsevier, 2007</b>
<b>4) S. Kalpakjian: Manufacturing Processes for Engineering Materials, Addison-Wesley Publishing Company.</b>
<b>5) J. A. Schey: Introduction to Manufacturing Processes, McGraw-Hill Book Company</b>

Budapest, 2020.08.30.

**Dr Kovács Tünde**  
Lecture