

Óbuda University Bánki Donát Faculty of Mechanical and Safety Engineering	Department of Materials Technology	
Lecture name and Neptun code: Materials BAXAI1ABNE Credits: 4		
Course type: Full-time		
Bachelor course: Technical Management		
Lecturer:	Dr. Kovács Tünde associate professor	
Number of sessions/week/term: weekly	Lecture: 1	Practise: 2
Exam/ course assignment: Exam	Language: English	
Course objective		
General overview and classification of engineering materials. Mechanical properties of metals, polymers, ceramics and composites. Mechanical materials testing. Tensile test, hardness test, impact test. Creep and fatigue of metals. Non-destructive testing. Investigation methods for determining the chemical composition and submicroscopic structure of materials. Structure of materials.		

Week	Semester program (Lecture and Practise)
1.	Introduction, Structure of the materials.
2.	Material testing. Destructive and nondestructive testing.
3.	Metals and alloys. Properties and applications of the metals and alloys.
4.	Metal manufacturing processes.
5.	Polimers and polimer technologies, application of the polimers.
6.	Ceramics and composites
7.	1. ZH
8.	Bio and biocompatible materials.
9.	Damage of the materials
10.	Aspects of the material selections
11.	Administration of the quality of the materials.
12.	Summing the semester program.
13.	2. ZH
14.	Consultation

Semester week	Test
7.	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 th and 13 th 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)	
The exam will be in the exam period in writing. Instead of the writing exam, the results of the average tests is acceptable over 75%.	
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.	

Compulsory literature

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| 1) Askeland, D.R., Fulay, P. P., Wright, W. J.:The Science and Engineering of Materials, Stamford, 2011 |
| 2) Ashby, Jones: Engineering Materials 1, Butterworth-Heinemann, Oxford, 2012. |
| 3) Ashby, Jones: Engineering Materials 2, Butterworth-Heinemann, Oxford, 2012. |
| 4) Callister: Materials Science and Engineering, John Wiley & Sons, New York, 2007. |
| 5) Smallman, R. E., Ngan, A. H.W.: Physical Metallurgy and Advanced Materials, Elsevier, 2007 |
| 6) Verebély-Dévényi, J., Rácz, P.: Engineering materials, Óbuda University, 2012. |

Budapest, 2020.08.30.

Dr Kovács Tünde
Lecture