

Course sheet
Casting Technologies II.
for BSc students in Materials Science Engineering Faculty

Course Title: Casting Technologies II. (compulsory subject)	Credits: 3
Type and Number of Contact Hours per Week: 3 hours lectures	
Type of Assessment: exam mark During the semester the following tasks should be completed: <ul style="list-style-type: none"> • Signature for approval, participation at least on 60% of lessons. Grading Limit of the exam (oral or writing): > 90%: excellent, 80-89%: good, 70-79%: medium, 60-69%: satisfactory, < 59%: unsatisfactory Evaluation of students' performance: 100% end-term oral exam performance	
Position in Curriculum (which semester): sixth	
Pre-requisites (<i>if any</i>): -	
Course Description:	
Acquired store of learning: <u>Study goals:</u> Acquiring the knowledge of main topics of casting aluminium alloys, furthermore alloy preparation, light metal scrap recycling technologies, melt refining and impurity control, mechanism of grain refinement and modification, which are essential for the design of metallurgical engineering approach.	
<u>Course content:</u> Introduction to aluminium and aluminium alloys (industrial perspective, historical development). Liquid metal supply, alloy preparation (alloying elements and master alloys) and metal transport. The light metal scrap recycling technologies and machineries. Melt refining and impurity control: impurity sources, effects of impurities, impurity removal, measurement of impurities, thermal analysis. Mechanism and controlling of grain refinement in aluminium alloys. Mechanism and controlling of modification (by sodium, strontium and antimony) in aluminium alloys.	
<u>Education method:</u> Presentations using projector. Numeracy practices at blackboard (and chalk) using interactive method with the students.	
Competencies to evolve: <ul style="list-style-type: none"> • Expansion of engineering approach. • Creativity, systematism, learning skill. • Communication skills. • Demand for continual renewal of technical skills. 	

The 3-5 most important compulsory, or recommended **literature** (textbook, book) **resources**:

- John Campbell: Castings, Elsevier Science Ltd., Oxford, 2003.
<http://books.google.com/books?id=DhRrRzavMfwC&printsec=frontcover&dq=castings+campbell&hl=de&sig=ACfU3U2ry3mnWLzmLgl0MTCGizeU6HY-Og>
- L.F.Mondolfo, H.W.L.Philips, J.E. Hatch: Aluminium Alloys, 1996.
- J.G.Kaufman, E.L.Rooy: Aluminium alloy castings properties, processes and applications, ASM International, ISBN: 0-87170-803-5, 2005.

Responsible Instructor (*name, position, scientific degree*):

Monika Mende-Tokár, assistant lecturer

Other Faculty Member(s) Involved in Teaching, if any (*name, position, scientific degree*): -