



Ferrous alloys heat treatment practice

Metallurgical engineering
(Full time training)

COURSE SHEET

**UNIVERSITY OF MISKOLC
FACULTY OF MATERIALS SCIENCE AND ENGINEERING
INSTITUTE OF PHYSICAL METALLURGY, METALFORMING AND
NANOTECHNOLOGY**

2017/18. 2nd semester, Miskolc

Course sheet
Ferrous alloys heat treatment practice
for MSc students

Course Title: Ferrous alloys heat treatment (optional course), MAKFKT008N	Credits: 2
Type and Number of Contact Hours per Week: 2 hours practice	
Type of Assessment: Practice reports, present of individual task, Evaluation of students' performance: Practice reports, class performance and individual task will be rated 1-5	
Position in Curriculum (which semester): -	
Pre-requisites (if any): Ferrous alloys heat treatment	
Course Description:	
Acquired store of learning: <u>Study goals:</u> The aim of the course is the known of the practical knowledge of the metallurgical physical basics of the heat treatment methods. The students will learn the plan the worldwide heat-treating technologies. They will learn the conventional and modern technology of the most important heat-treating technologies. <u>Course content:</u> Practical knowledge of the basics, methods and equipments of the heat treatments of the ferrous alloys. The course shows the numerical methods of the count whit the thermal properties of the ferrous alloys primarily the steels. <u>Education method:</u> keeping practices Thematic <ol style="list-style-type: none"> 1. Briefing, Introduction 2. Investigation of intensity of cooling 3. Scaling and decarburization 4. Investigation of carbon diffusion in steel 5. Transformation of austenite during continuous cooling 6. Annealing of steels 7. Investigation of hardenability of steels 8. Tempering 	

9. Induction hardening
10. Nitriding of steels
11. Individual tasks
12. Individual tasks
13. Individual tasks
14. Extra time for missed practices

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

1. Kurz W.: Fundamentals of Solidification
2. Stefanescu D.M. : Science and Engineering of Casting Solidification
3. Glicksman M. E. : Principles of Solidification
4. Fredriksson H., Akerlind U.: Materials Processing during Casting
5. Flemings M.C.: Solidification processing

Responsible Instructor (*name, position, scientific degree*): *Dr. Zsolt Veres PhD, Associate professor, Building B1 room 7, femvezso@uni-miskolc.hu*

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

Miskolc, 19/01/2018

Dr. Mertinger Valéria
Head of the Institute, professor

Dr. Zsolt Veres
Lecturer, associate professor