SYLLABUS

Science of Materials II - Welding 6 credits B0005T

Materiallära II - svetsning

Course syllabus admitted: Autumn 2012 Sp 1 - Spring 2014 Sp 4

DECISION DATE
2012-04-03

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LULEÅ TEKNISKA UNIVERSITET

Science of Materials II - Welding 6 credits B0005T

Materiallära II - svetsning

First cycle, B0005T

Education level	Grade scale	Subject	Subject group (SCB)
First cycle	G U 3 4 5	Materialteknik	Materials Technology

Entry requirements

In order to meet the general entry requirements for first cycle studies you must have successfully completed upper secondary education and documented skills in English language

Selection

The selection is based on 1-165 credits.

Examiner

Lennart Wallström

Course Aim

The course is designed to create understanding of the structures and structure related behaviour that might be developed in metallic materials, which are exposed to plastic working, heat treatment and heat activated joining processes. The course shall also create knowledge on design and performance of heat activated joining methods. This course content is aimed to give the student a basis for an analytic work in the industrial field of heat treatment and heat activated processes.

After fulfilled course the student therefore should be able to describe, on a scientific basis, the interrelation between structural defects in metallic materials as formed by plastic deformation, diffusion and nucleation influencing factors and also reaction kinetics and why such an interrelation may cause and/or influence a variation in chemical composition. The student shall also have fundamental knowledge on welding and soldering. The goal also includes some practical experience as shown by produced specimens. After finished course the student is expected to be competent enough to take part in technical investigations and development work in the actual field of his/hers own understanding.

Contents

Metallic material types: Steel, cast iron, light- and heavy metals and powder metallic materials.

Heat treatment: Steels and non-transforming metals.

Joining technology: Welding, soldering, sintering and glueing. Welding metallurgy and welding defects.

Realization

Each course occasion´s language and form is stated and appear on the course page on Luleå University of Technology's website.

Lecture, Laboration Works and examination.

Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided.

The assessment is divided into one theoretical part and one applied part. The theoretical part written examination is assessed by a after the theory course.

The applied part is assessed on the basis of assignments/lab reports.

Remarks

The course corresponds to MP1008.

Literature. Valid from Autumn 2012 Sp 1

Arén, Björn. (2007) Svetsteknik. Kompendium, Bergsskolan i Filipstad. (60 s).

Ullman, Erik, Bengtson, Ulf. (2003) Materiallära, Karlebo-serien. 14 uppl. Stockholm : Liber. (530 s). ISBN 91-47-05178-7
Kompletterande litteratur/Additional literature: Särtryck/Off-prints

Course offered by

Department of Engineering Sciences and Mathematics

Items/credits

No items/credits available

Syllabus established

by Dept TVM Mats Näsström 2012-04-03