

**SYLLABUS**

# **Metallic Materials, introduction course 7.5 credits T0001T**

**Metalliska material, grundkurs**

**Course syllabus admitted: Autumn 2013 Sp 1 - Autumn 2015 Sp 2**

**DECISION DATE  
2013-02-15**

# Metallic Materials, introduction course 7.5 credits T0001T

## Metalliska material, grundkurs

### First cycle, T0001T

Education level	Grade scale	Subject	Subject group (SCB)
First cycle	U G#	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 final school grades or Swedish Scholastic Aptitude Test.

## Examiner

Esa Vuorinen

## Course Aim

After completion of the course the student will be able:

- to describe the relation between structure and properties for metals and alloys;
- know, how different metals can be used for different purposes;
- to read and understand handbooks within materials science/metallurgy.

## Contents

Basic materials science; The periodical system; Metals, their structure and properties; The difference between precious metals and other metals. Crystallography. Simple dislocation theory. Mechanisms for deformation/work hardening. Mechanical properties, plastic deformation and fracture. Binary and ternary alloys; Phase diagrams and phase transformations. Basic idea of electrochemistry and electroplating. Corrosion.

## Realization

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

The education will be INTERNET-based lectures (distance education), laborations, case studies and practical exercises. Participation in the laboratory work and case studies is compulsory. The laboratory work will explain the relationship between structure and properties of precious metals as a function of the amount of alloying elements.

## 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. Several small, written examinations after every part. For "pass" the completion of laboratory work and case studies is required.

## Remarks

Those, who have not participated at the first two lectures, will loose their places.

## Overlap

The course T0001T is equal to MPB025

## Literature. Valid from Autumn 2007 Sp 1

Compendium: Metallic Materials; Ltu. Hand-out notes; Exercises; Glossary; Phase diagrams. Homework.

## Course offered by

Department of Engineering Sciences and Mathematics

## Items/credits

Number	Type	Credits	Grade
0001	Written test	3	U G#
0002	Assignment	4.5	U G#

## Last revised

by Mats Naesstroem 2013-02-15

## Syllabus established

The syllabus was established by the Department of Applied Physics and Mechanical Engineering 2007-02-28, and remains valid from autumn 2007.