

# Industrial Material Selection

Programme course

6 credits

Industriella materialval

TMKM14

Valid from: 2017 Spring semester

**Determined by**  
Board of Studies for Mechanical  
Engineering and Design

**Date determined**  
2017-01-25

## Main field of study

Mechanical Engineering

## Course level

First cycle

## Advancement level

G2X

## Course offered for

- Mechanical Engineering, M Sc in Engineering

## Entry requirements

Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

## Prerequisites

Engineering Materials, Solid Mechanics.

## Intended learning outcomes

After completion of the course the student will

- show understanding the interactions between design, processing and material.
- show understanding of a material selection based on the internal structure of the material.
- be able to do a systematic and sustainable materials selection based on the methods presented in the course.
- show awareness of the environmental impact of the materials selection throughout components life cycle.
- be able to use materials selection as a tool in the design process.

## Course content

Computer exercises in systematic and sustainable materials selection. Material properties. Material indices. Project work with case studies of materials selection.

## Teaching and working methods

The course contains lectures, tutorials and project work.

## Examination

PRA1	Project assignment	3 credits	U, 3, 4, 5
KTR1	Written test	2 credits	U, G
UPG2	Hand-in-assignment	1 credits	U, G

## Grades

Four-grade scale, LiU, U, 3, 4, 5

## Other information

Supplementary courses: Deformation and Fracture, New Materials, Polymers and Lightweight materials.

## Department

Institutionen för ekonomisk och industriell utveckling

## Examiner

Mattias Calmunge

## Course website and other links

## Education components

Preliminary scheduled hours: 48 h

Recommended self-study hours: 112 h

## Course literature

### Additional literature

#### Books

Michael F. Ashby., *Materials Selection in Mechanical Design*

## Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at [http://stydokument.liu.se/Regelsamling/Innehall/Utbildning\\_pa\\_grund-\\_och\\_avancerad\\_niva](http://stydokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva).