

SYLLABUS

Material and manufacturing 7.5 credits T0021T

Material och tillverkningsmetoder

Course syllabus admitted: Autumn 2023 Sp 1 - Present

**DECISION DATE
2021-02-17**

Material and manufacturing 7.5 credits T0021T

Material och tillverkningsmetoder

First cycle, T0021T

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 and Basic mathematics and physics. Good knowledge in English, equivalent to English 6.

Selection

The selection is based on 1-165 credits.

Course Aim

After completing the course, the student should be able to: Implement a justified selection of material by using systematic material selection methodology to identify the suitable material for different applications with regard to function and properties, and determine the relevant manufacturing method. Determine material properties from diagrams and further relate these to the microstructure and behavior of the material. Be familiar with different test methods and be able to predict the information provided from the various methods. Describe the impact of manufacturing methods on structure and properties. Identify common polymeric materials. Explain basic corrosion theory regarding metallic materials, and reason about how functional errors related to corrosion, creep, or defects can be minimized. Reflect on and evaluate one's own and others' efforts in material selection work. Present and discuss results from laboratory work and material selection in and before the group.

Contents

Material selection methodology, basic knowledge about different materials structure and properties related to manufacturing, performance and sustainability. Materials covered in this course are; metallic, polymeric and ceramic materials, as well as different types of composite materials.

Realization

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

The teaching consists of lectures, lessons, and laboratory work, as well as an assignment and seminar in material selection. Assignment, seminar and laboratory work are mandatory. The material selection task is presented orally at the seminar and in the form of a written report. The lessons deal with the application of the theory in connection with problem solving.

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. Written examination and compulsory laboratory work, seminar and written report.

Unauthorized aids during exams and assessments

If a student, by using unauthorized aids, tries to mislead during an exam or when a study performance is to be assessed, disciplinary measures may be taken. The term “unauthorized aids” refers to aids that the teacher has not previously specified as permissible aids and that may assist in solving the examination task. This means that all aids not specified as permissible are prohibited. The Swedish version has interpretative precedence in the event of a conflict.

Remarks

The course cannot be included in an exam together with T0004T. Single lectures and laborative tutorials in English can occur.

Overlap

The course T0021T is equal to T0004T

Course offered by

Department of Engineering Sciences and Mathematics

Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0001	Written exam	G U 3 4 5	4.5	Mandatory	A15	
0002	Laboratory work	U G#	1.5	Mandatory	A15	
0003	Materials selection task	U G#	1.5	Mandatory	A15	

Study guidance

Study guidance for the course is to be found in our learning platform Canvas before the course starts. Students applying for single subject courses get more information in the Welcome letter. You will find the learning platform via My LTU.

Last revised

by Head Faculty Programme Director Niklas Lehto 2021-02-17

Syllabus established

by Mats Näsström 2015-02-12