SYLLABUS

Material Selection & Eco Design 7.5 credits T0007T

Materialval och Ekodesign

Course syllabus admitted: Autumn 2023 Sp 1 - Present

DECISION DATE
2023-01-16

Luleå University of Technology 971 87 Luleå, Sweden
Phone: +46 (0)920 49 10 00 • Corporate Identity: 202100-2841

LULEÅ TEKNISKA UNIVERSITET

Material Selection & Eco Design 7.5 credits T0007T

Materialval och Ekodesign

First cycle, T0007T

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 and Basic knowledge about metals and polymers corresponding to the coursesT0004T or equivalent. Good knowledge in English, equivalent to English 6.

Selection

The selection is based on 1-165 credits.

Course Aim

The aim for this course is to provide the student with - basic knowledge about different methods for materials selection - experience from case-studies with the methodology for systematic selection of materials, design and manufacturing methods for components or products - basic knowledge about the connections between environment, energy and materials selection with regard to their manufacturing methods and for different products during their life-cycle. - knowledge about methods for design of processes and products with regard to sustainable development - ability to make environmentally sound selections of materials with regard to manufacturing methods and life-cycle aspects.

Contents

The course is divided into a theoretical part (50%) and a project part (50%). In the theoretical part the methodology for materials selection, and the influence of product-design and manufacturing methods on the meterials selection are enlightened. The possibilities and limitations with material databases are shown.
Environmental aspects on manufacturing methods. Recycling and life-cycle analyses are exemplified. Methods for design of processes and products with regard to reuse and recycling are exemplified. Methods for recovery of materials and environmental aspects on use and production of energy are treated. The project part of the course will train the student in the materials selection methodology. In some but not all of the projects, environmental considerations have to be regarded in the selection of materials.

Realization

Each course occasion´s language and form is stated and appear on the course page on Luleå University of Technology's website.
Lectures and exercises, study visit(s) to relevant goals. Every student takes part in one or two case-projects.

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 report(s) of the case-studie(s) as well as written tests of the different parts of the course have to be approved.

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.

Overlap

The course T0007T is equal to MPM040

Course offered by

Department of Engineering Sciences and Mathematics

Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0001	Project	U G#	4.5	Mandatory	A07	
0002	Test	U G#	3	Mandatory	A07	

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 Mats Näsström, Head of Undergraduate Educatio 2023-01-16

Syllabus established

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