

SYLLABUS

Mechanical components - introduction and analysis 7.5 credits M0030T

Maskinkomponenter - introduktion och analys

Course syllabus admitted: Autumn 2023 Sp 1 - Present

**DECISION DATE
2022-06-17**

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Maskinkomponenter - introduktion och analys

First cycle, M0030T

Education level	Grade scale	Subject	Subject group (SCB)
First cycle	G U 3 4 5	Maskinelement	Mechanical Engineering

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 Foundation level courses in Mathematics and Physics

Selection

The selection is based on 1-165 credits.

Course Aim

Divided into 3 categories below, you as a student should after completing the course:

1. Knowledge and Understanding

- Know the function of the commonly used mechanical components covered by this course
- Know about common design criteria, the limitations of commonly used methods for the selection and dimensioning of mechanical components
- Understand how different components affects each other when they are combined in a system

2. Skills and Abilities

- Be able to apply dimensioning methods used in practice for commonly used mechanical components
- Be able to select the appropriate components for common applications
- Have the ability to determine loads, and relevant geometries, and apply them as design criteria for machine elements
- Have developed your interpersonal skills and your ability to work in teams

3. Judgement and Assessment Ability

- Be able to assess the relevance of the results obtained when applying common dimensioning methods
- Be able to judge the dimensioning of commonly used mechanical components

Contents

The course then addresses how commonly used mechanical components are used in larger systems and what functions they play in these systems. Some examples of components that are covered are brakes, clutches, gears, bolts, springs etc. The course covers the analysis of machine elements with the help of various dimensioning methods. Knowledge from mechanics, physics and mathematics is an invaluable aid for the analyses.

Realization

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

You take part in lectures where important aspects of the course content are presented and explained. Other classes, in the form of tutorials and practical problem solving are also part of the course. These provide the opportunity for you and your fellow students to solve problems and to seek assistance from the teacher. Laboratory work provides a chance to experience what components look like in real life as well as how they function. The assignments are comprehensive and cover most of the topics of this course. The laboratory work and homework are group work and are examined in various forms that are intended to train report writing, as well as utilising commonly used software for basic numerical analysis.

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 assignments and the laboratory work are compulsory, and these are reviewed and assessed during the course. To obtain a final grade in the course, you must pass the assignments and get approval of your laboratory reports - including peer-review of other groups' efforts, and passing the written exam. Participation in laboratory work and at the course introduction during the first lecture is mandatory.

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 M0030T is equal to M0012T

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	3.5	Mandatory	S12	
0002	Laboratory work	U G#	2	Mandatory	S12	
0003	Assignment report	U G#	2	Mandatory	S12	

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 Niklas Lehto, huvudansvarig utbildningsledare 2022-06-17

Syllabus established

by Department of Engineering Sciences and Mathematics 2011-12-15