

Engineering Mechanics - Statics

Programme course

6 credits

Mekanik - statik

TMME63

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

G1X

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

Basic courses in calculus and algebra

Intended learning outcomes

The purpose of the course is to give the students an understanding knowledge of the basic laws of classical mechanics, and to give them the ability to independently apply these laws on concrete mechanical problems. After the course the student should be able to:

- define the fundamental concepts used in mechanics as presented in the course, such as force, moment, static equilibrium and center of mass and center of gravity.
- perform free-body diagrams of bodies
- calculate forces and do equilibrium analysis for a mechanical system in static rest.
- analyse mechanical system with friction.
- derive some of the relations which are included in the course.
- interpret and solve practical engineering problems.
- identify obviously unreasonable results

Course content

Statics and vectors: Introduction. Review of elementary vectors. Reduction of force system. Equilibrium of rigid bodies. Distributed forces. Trusses. Friction. Centroids. Moments of inertia of areas.
Shear-force and bending-moment diagrams for statically determinate beams.

Teaching and working methods

The lectures cover important sections and can include not only theory but also illustrative experiments. Problem solving is assigned in connection with lectures.

Examination

TEN1	Written examination	6 credits	U, 3, 4, 5
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Grades

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

Other information

Supplementary courses: Courses in Engineering Mechanics-dynamics, Solid Mechanics and Applied Mechanics

Department

Institutionen för ekonomisk och industriell utveckling

Director of Studies or equivalent

Peter Schmidt

Examiner

Peter Schmidt

Course website and other links

http://www.mechanics.iei.liu.se/edu_ug/

Education components

Preliminary scheduled hours: 48 h
Recommended self-study hours: 112 h

Course literature

J.L. Meriam and L.G. Kraige: Engineering Mechanics Statics and Dynamics, SI version, John Wiley & Sons, Inc.

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.