

# Mechanics - Dynamics

Programme course

6 credits

Mekanik - dynamik

TMME13

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

- Design and Product Development, 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 linear algebra and calculus.

## Intended learning outcomes

To give the student familiarity with the fundamental laws of classical mechanics and the skill to independently apply these laws to engineering problems. After the course, the student should be able to:

- explain the properties of a force.
- define basic concepts of mechanics such as equilibrium, velocity, acceleration, angular velocity, angular acceleration, momentum, angular momentum, moment of inertia, work, energy.
- write down expressions for and compute the above quantities for engineering problems.
- draw free body diagrams, formulate kinematical relations, apply Euler's laws and thereby find the ordinary differential equations governing the motion of a body.



## Education components

Preliminary scheduled hours: 54 h

Recommended self-study hours: 106 h

## Course literature

### **Additional literature**

#### **Books**

Meriam, J.L., Kraige, L.G, *Engineering Mechanics* Vol 1 & 2

## 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).