# Biomechanics

Programme course

6 credits

Biomekanik

TMMS07

Valid from: 2017 Spring semester

**Determined by**
Board of Studies for Mechanical Engineering and Design

**Date determined**
2017-01-25

**Offered for the last time**
Autumn semester 2019

**Replaced by**
TMMS31

## Main field of study
Mechanical Engineering

## Course level
Second cycle

## Advancement level
A1X

## Course offered for
- Design and Product Development
- Energy-Environment-Management
- Chemical Biology, M Sc in Engineering
- Biomedical Engineering, M Sc in Engineering
- Mechanical Engineering, M Sc in Engineering
- Engineering Biology, M Sc in Engineering
- Applied Physics and Electrical Engineering - International, M Sc in Engineering
- Applied Physics and Electrical Engineering, M Sc in Engineering
- Biomedical Engineering, Master's programme
- Mechanical Engineering, Master's programme

## 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
Calculus, Linear Algebra and Mechanics

## Intended learning outcomes

The course aims to bring understanding to the fundamental principles of biomechanics by applying the concepts and methods of the physical sciences and mathematics in an engineering approach to problems in living structures and organisms. After completing the course, the student should be able to:

- understand the model concept,
- simplify and model a biological system by applying fundamental concepts in applied mechanics,
- analyse and interpret the result from these models, and estimate the effect of the simplifications,
- develop relevant computational tools to analyse the models, and
- convey the results.

## Course content

Biomechanics, modeling and simulation of biological systems, and biomaterials.

## Teaching and working methods

Lectures and written assignments.

## Examination

| | | | |
|---|---|---|---|
| UPG2 | Hand-in Exercises | 6 credits | U, 3, 4, 5 |

## Grades

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

## Other information

Supplementary courses: Models of Mechanics, Computational Fluid Mechanics

## Department

Institutionen för ekonomisk och industriell utveckling

## Director of Studies or equivalent

Peter Schmidt

## Examiner

Jonas Stålhand

## Course website and other links

# Education components

Preliminary scheduled hours: 40 h
Recommended self-study hours: 120 h

# Course literature

## Additional literature

### Books

J.D. Humphrey and S.L. Delange, *An introduction to biomechanics*
Springer, (2004) *Solids and fluids, analysis and design*

# 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://styrdokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva.