ME-231(b)

# Structural mechanics for SV

Fantner Georg

| Cursus | Sem. | Type |
|---|---|---|
| Life Sciences Engineering | BA5, MA1, MA3 | Opt. |

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|---|---|
| Language of teaching | English |
| Credits | 4 |
| Session | Winter |
| Semester | Fall |
| Exam | Written |
| Workload | 120h |
| Weeks | 14 |
| **Hours** | **4 weekly** |
| Courses | 3 weekly |
| Exercises | 1 weekly |
| **Number of positions** | |


## Summary

This course aims to provide a concise understanding of how materials and structures react to loads. It covers the basics of stress and strain in multi dimensions, deformation and failure criteria. The course is tailored to problems students from life science might encounter.


## Content

- review of equilibrium ridged body mechanics
- strain & stress in one dimension
- strain & stress in higher dimensions
- stress concentrations
- torsion
- transformation of stress and strain
- stress and strain in beams (shear and bending moments)
- beam bending
- buckling

## Learning Prerequisites

### Important concepts to start the course

- Introduction to physics: mechanics (statics)
- vector and tensor math

## Assessment methods

written exam

## Resources

### Moodle Link

- https://go.epfl.ch/ME-231_b