

ME-231(b)

Structural mechanics for SV

Fantner Georg

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

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