

t.MSTFL - Mechanik Statik Festigkeitslehre

Person responsible for the course: Jürg Meier, mrjg
Credits: 4
Valid for: 2011/2012
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Learning objectives:

- Understanding the basic terms of statics and strength of materials.
 - Determine the effects of forces and moments on rigid bodies.
 - Deriving the conditions of equilibrium and bearing reactions in a centred and a general system of forces.
 - Knowing methods to determine the support and joint forces of simple multi-part, plain structures.
 - compute stress of simple structures (Tension and compression bars, bending beams, torsion) and determine deformations based on tabulated data.
 - know the most important equivalent stress criteria
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Course content:

- Basic term of statics (force, moment, ...).
- centered plain and spatial force systems (equilibrium, bearing reaction).
Determination of support and joint loads of simple, plain structures.
- Friction and adhesion
- Introduction to the determination of simple distributions of transversal force, axial force and moments.
- Basic terms of strength of materials (stress, strain, normal stress, shear stress).
- stress and strain in the case centered compression and tension.
- Determination of moments of inertia of first and second order for simple cross sections, based on tabulated data.
- Computation of the bending stress in the case of uni-axial bending of beams with symmetric cross sections, determination of the beam bending deformation based on tabulated data.
- Torsion: stress analysis of cylindrical cross section, other cross sections and deformation
- multi-axial stress states and failure criteria

Practicum:

No separate praktikum, exercises are integrated in the theory lessons.

Previous knowledge:

none (physics and mathematics on UAS entry level).

Teaching method:

Type of lesson:	Number of lessons per week:
Lecture	14x4L
Tutorial/Practicum	
Group teaching	
Block instruction	
Seminar	

Assessment:

According to the table or as specified in writing by the lecture at the beginning of the semester!

Number	Type	Weighting
1	End of term exam	2 lessons (60%)
2	Exam during the semester	20% each
	Further assessments	

Language of instruction:

german

Instruction material:

script of the lecturer

Comments:

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