

## t.MSL - Mechanik Schwingungslehre

**Person responsible for the course:** Jürg Meier, mrjg  
**Credits:** 3  
**Valid for:** 2011/2012  
**Last saved:** 07.09.2011 10:04

### Learning objectives:

Modelling of mathematical solvable vibration systems

- Deriving solutions for simple problems and solve them numerically
- Complex problems with multiple degrees of freedom: knowing common simulation tools, applying it for the analysis of these systems
- Knowing the experimental methods for determine the parameters of vibration systems
- Knowing the properties, advantages, and disadvantages of simulations

### Course content:

Lecture:

- Linear oscillators with one degree of freedom: solution of the differential equation, parameters, swing off process, impulse response
- Linear oscillators with two or more degrees of freedom: Eigenvalues and Eigenforms, impulse response, simulation - Continual systems

Practice:

- Experiments with oscillating systems with one or more degrees of freedom
- Modelling and simulation of structures by simulation tools (Matlab / Simulink and / or RecurDyn)

### Previous knowledge:

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### Teaching method:

Type of lesson:	Number of lessons per week:
Lecture	14x2L
Tutorial/Practicum	4x3.5L
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	60%
2	Exam during the semester	10 % each
2	reports of vibration laboratory excercises	10 % each

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**Language of instruction:**

Deutsch

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**Instruction material:**

Script of the lecturer

Further literature: Technische Mechanik 3 Gross, Dietmar; Hauger, Werner; Schröder, Jörg; Wall, Wolfgang  
Springer 9 2006

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**Comments:**

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