

## t.MNMT1 - Mathematik: Numerik für Maschinentechnik 1

**Person responsible for the course:** Nadin Stahn, stan

**Credits:** 3

**Valid for:** 2010/2011

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### Learning objectives:

This course

- provides the numerical armamentarium and the numerical skills needed for the engineering courses
- introduces to the way of thinking of discrete and numerical mathematics.

The students have

- an overview of the most important numerical methods and can
- categorise problems and choose an adequate numerical solving method
- analyse, apply and modulate software
- implement algorithms for selected problems.

### Course content:

Approximation

- Taylor's and Fourier's series
- Legendre's and Tschebyscheff's polynomials

Interpolation

- Lagrange's and Newton's interpolation
- splines

numerics of systems of linear equations

numerics of nonlinear equations

numerical differentiation

numerical integration

initial value problems of ordinary differential equations

### Previous knowledge:

MAE1 and MAE2

MLAE1 and MLAE2

### Teaching method:

Type of lesson:	Number of lessons per week:
Lecture	14x(2L+2L)
Tutorial/Practicum	
Group teaching	
Block instruction	
Seminar	

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**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	
	Exam during the semester	
	Further assessments	accordant written determination of the lecturer at the beginning of the semester

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**Language of instruction:**

Deutsch

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**Instruction material:**

Dozierendenabhängig

Knorrenschild: Numerische Mathematik. Hanser

Stiefel: Einführung in die numerische Mathematik. Teubner

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**Comments:**

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