

## t.LT2 - Leichtbautechnik 2

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**Person responsible for the course:** Hanfried Hesselbarth, hsbh

**Credits:** 4

**Valid for:** 2011/2012

**Last saved:** 06.09.2011 17:05

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### Learning objectives:

Systematic development of lightweight load-bearing structures of mechanical products, especially in the automotive domain: vehicles for road, for rail and for flight, furthermore load bearing structures for apparatus and vessels.

Understanding of lightweight elements and modes of construction as well as the corresponding background of statics, materials, production and economy.

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### Course content:

Lecture:

- Design of stiffened panels.
- Analysis of statically indeterminate structures.
- Optimal design.
- Materials and lightweight design parameters.
- Plastic bending.
- Fatigue of materials and structural parts.

Exercises and practice

The exercises are corresponding to the lecture's subjects

Lab work

In the laboratory the load bearing behaviour until collapse of an interesting structural part will be tested. The preparation includes theoretical analysis and a test proposal. Interpretation of the results is an important part of the test report.

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### Previous knowledge:

Mechanics static LT 1

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### Teaching method:

Type of lesson:	Number of lessons per week:
Lecture	14*4
Tutorial/Practicum	included
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	50%
1	Exam during the semester	40%
1	Further assessments	10%

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**Language of instruction:**

German

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**Instruction material:**

- Handouts, Exercises,

Leichtbau - Konstruktion, Klein, Bernd, Vieweg 8., überarb. u. erw. Aufl. 2009, ISBN: 978-3-8348-0701-4

Formulas for Stress and Strain. Roark, Raymond J. McGraw-Hill 7 2001

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**Comments:**

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