

## t.LT1 - Leichtbautechnik 1

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**Person responsible for the course:** Hanfried Hesselbarth, hsbh  
**Responsible OU:** IMES  
**ECTS:** 4  
**Valid for:** 2012/2013  
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### Expertise:

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### Methodological skills:

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### Social skills:

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### Personal skills:

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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:

- External loads, derivation of design loads, load factors, safety.
- Bending, deflections of structures.
- Shear stresses and shearing deformation.
- Shear panels, skin-stringer panels, shear centre, sandwich beams.
- Torsion of thin walled bars with closed and with open sections.
- Composite materials and structures.
- Columns under combined compression and bending.
- Buckling of curved and of flat plates under compression, shear and bending.

Exercises:

The exercises are corresponding to the lecture's subjects

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### Previous knowledge:

basics in statics and strength of materials

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**Teaching method:**

Type of lesson:	Number of lessons per week:
Lecture	14*4
Tutorial/Practicum	
Block instruction	

**Assessment:**

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

description	type	form	scope	assessment	weighting
Performance records during school hours					
Semester end exam					

**Language of instruction:**

German

**Instruction material:**

Handouts, Exercises,

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

**Additional literature:**

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**Comments:**

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