

## t.LT1 - Light-Weight Construction Technology 1

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

**Credits:** 4

**Valid for:** 2009/2010

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### Learning objectives:

- Systematic development of lightweight load bearing structures of mechanical products, especially in the automotive domain: vehicles for road, rail and flight, furthermore load bearing structures for apparatuses 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 center, sandwich beams;
- torsion of thinwalled 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 correspond to the lectures subjects

- self study - lecture,
  - repetition of the lectures subjects, connecting it with the corresponding subjects from mechanics, material sciences, and product development,
  - finalizing of the exercises started during the lessons.
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### Previous knowledge:

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### Teaching method:

Type of lesson:	Number of lessons per week:
Lecture	14*4
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!

<b>Number</b>	<b>Type</b>	<b>Weighting</b>
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

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**Comments:**

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