

# Competence-based education

Focus on learning outcomes as a fundament for efficient teaching

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# An Introduction to Constructive Alignment

- How is knowledge gained by students?
  - [http://www.youtube.com/watch?v=SfloUd3eO\\_M](http://www.youtube.com/watch?v=SfloUd3eO_M) (until “3)

## Knowledge is constructed

- How can we make use of this?
  - <http://www.youtube.com/watch?v=w6rx-GBBwVg> (until “3:40)

## Purposeful design of exam guides student’s learning

*„What the student does is more important than what the teacher does.“  
...well...somehow*

# The teacher's role in student's learning

- The teacher **defines the goals** of the learning process
- The teacher **guides** the students learning activities and **controls** the learning process (i.e. the outcome)
- The teacher provides a learner-friendly **environment**
- The teacher continuously **reflects** the students progress and **adapts** the next courses

# How can we design and align a course?

1. Define learning objectives
2. Ensure testability of learning objectives
3. Design the exam
4. Design the course

# Measurability of Competences

- Research Project KOM-ING



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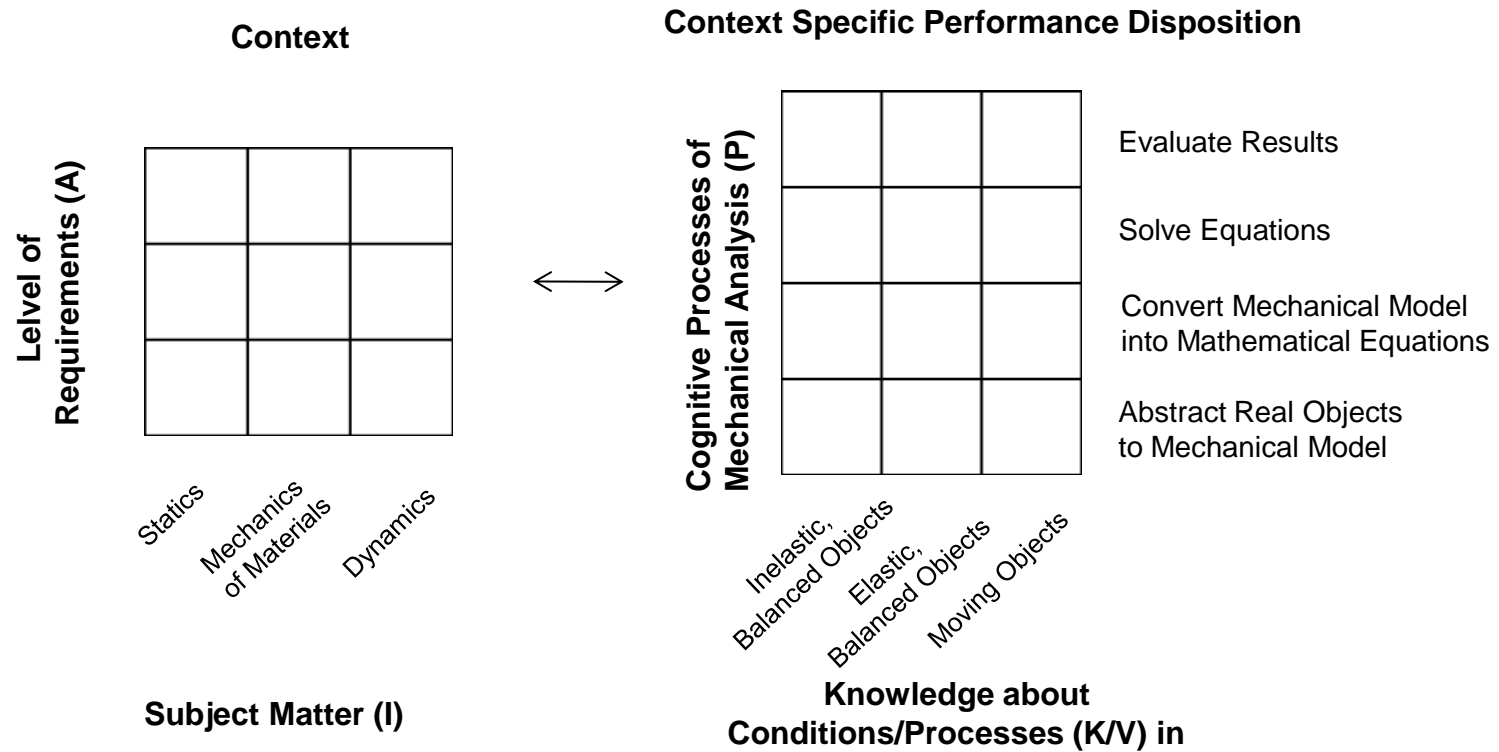
- Question 1

What are the **basic competences**, an engineer needs in order to be capable of solving problems in the domain of **mechanical engineering**?

- Question 2

How are these competences **structured**?

# The Competence Model



# Conclusion

- Efficient teaching has three basic requirements
  - Knowing and incorporating the exact Learning Objectives and their **observed outcome**
  - **Measuring** the current state of the students' **progress** according to observation guidelines (i.e. formative tests etc.)
  - **Integrating feedback** about progress in the course
- **Efficiency** in teaching means teaching, so that students become **capable of solving predefined problems**
- **Effectiveness** in teaching means aligning the Learning Objectives at **requirements of the later profession**