



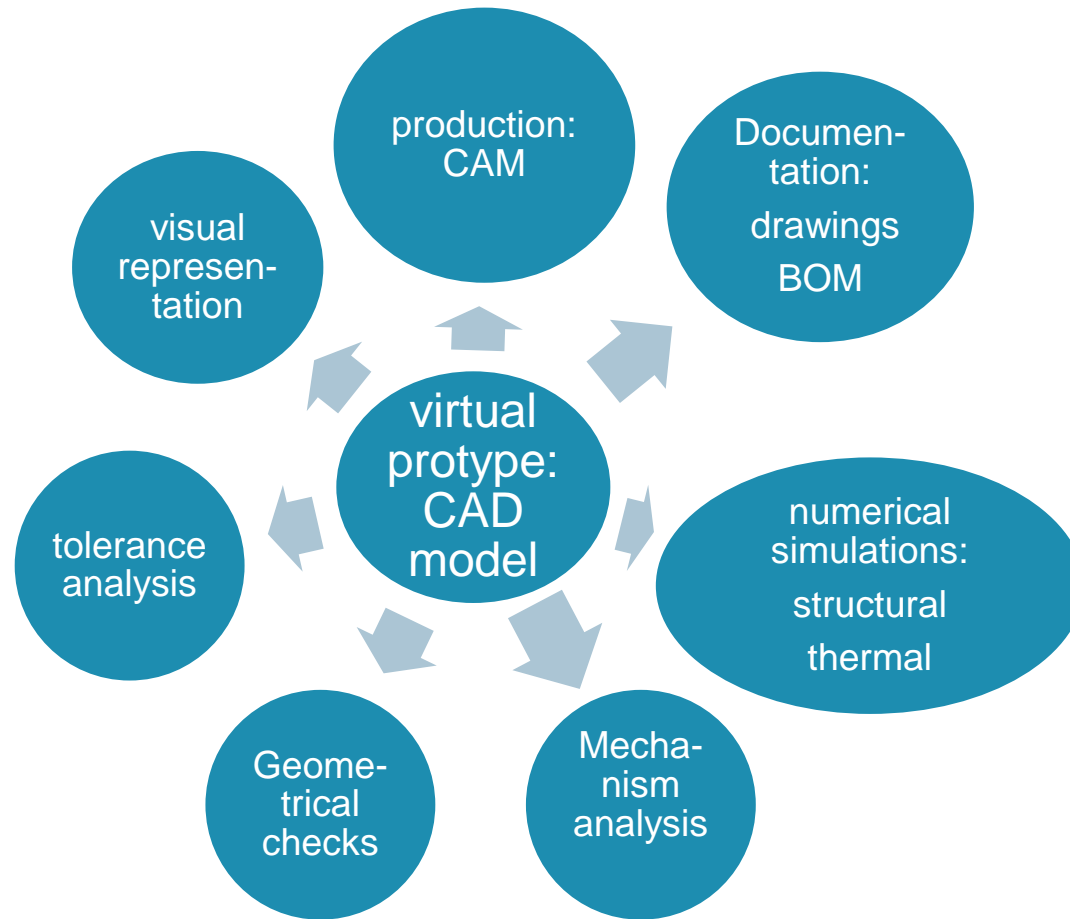
# CAD/CAE Siemens NX

Peter Arras

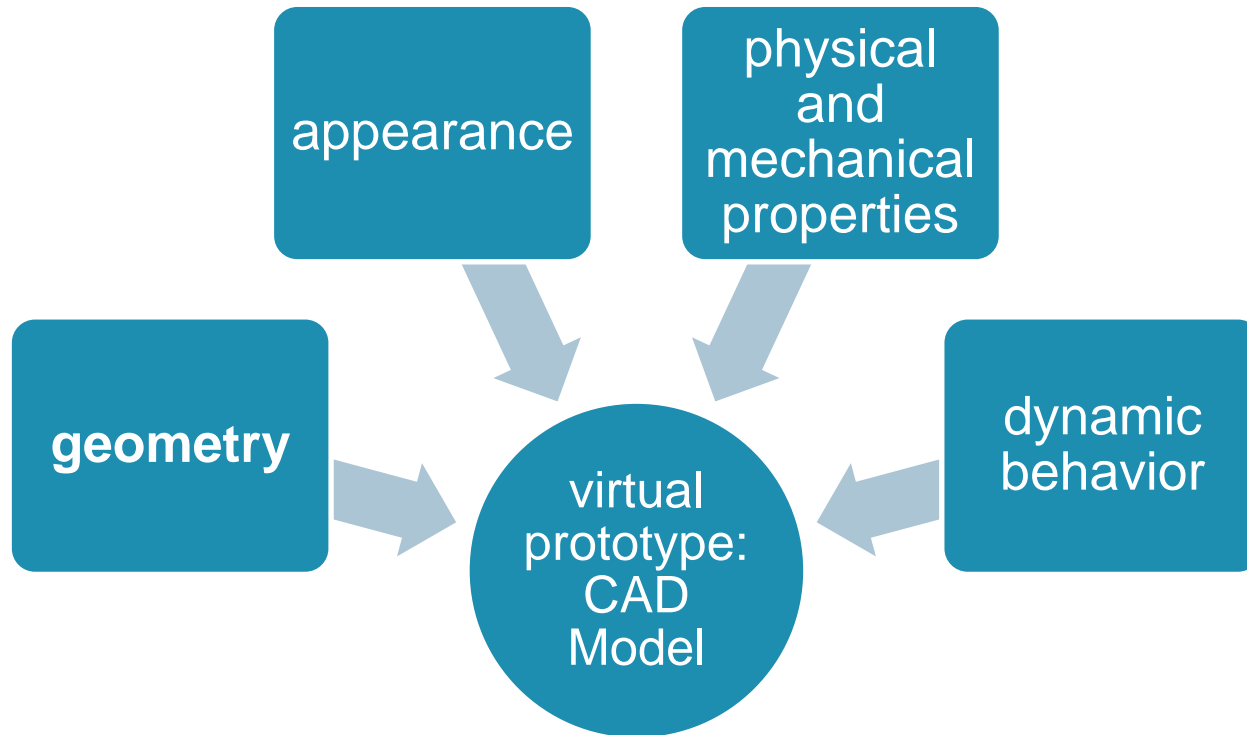
# CAD/CAE

- Bachelor/Master:  
56 contact h.; 45 h. student workload
- 4 ECTS
- Learning outcomes:
  - Using a 3D-feature parametric modeler to build virtual prototypes
  - Model oriented design
  - FEA analysis for structural calculations.

## Model oriented – virtual testing – virtual prototype:



# CAD-model = virtual prototype.

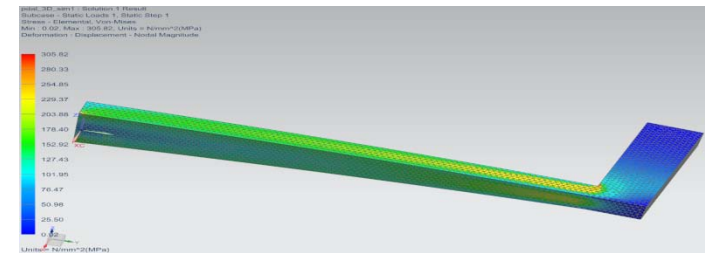
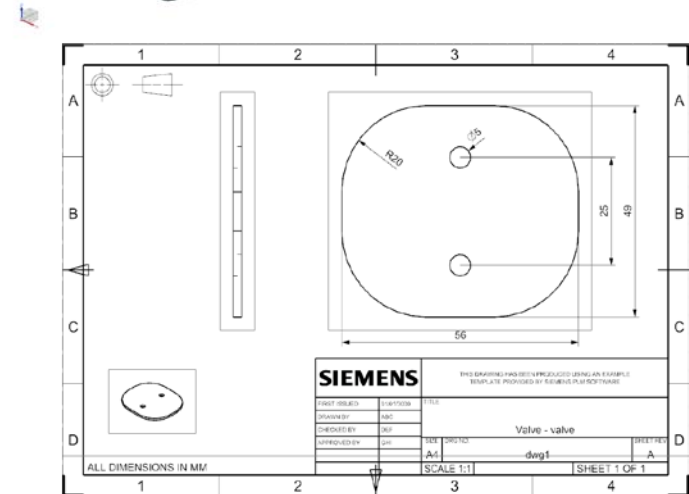
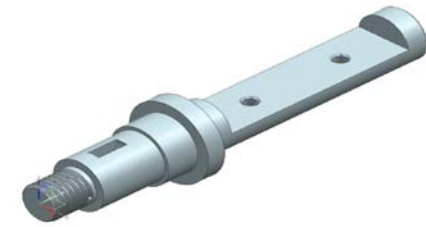


# Course structure

- Introduction to CAD/CAE systems (T 2h).
- MCAD structural design (by means of Siemens NX9)
  - T + Lab exercises 38h
- Finite element analysis (by means of Siemens Nastran)
  - T + Lab exercises 16h
- Student integrated project (45h)

# Course structure

- Introduction to CAD/CAE systems.
- MCAD structural design
  - Part modeling
  - Assemblies
  - Drawings
- Finite element analysis
  - Principles of FEA
  - Basics of FEA-elements
  - Structure of FEA-software
  - Case studies for structural strength calculations



# Integrated project:

- Goals:
  - The use of different CAD/CAE tools in a real case study, as a preparation on real engineering design.
  - Integration of knowledge of different courses:
    - Technical drawing
    - CAD
    - GPS (Geometric Product specification)
    - Measuring techniques.



# Project tasks:

- Study the mechanical and electrical behaviour of the compressor.
- Disassemble the compressor.
- Measure the mechanical elements and make (hand drawn) sketched of the components.
- Reassemble the compressor, and rerun the mechanical and electrical measurements.
- Design of the compressor in Siemens NX. (parts, assembly, drawings)
- Analyzing the compressor.



# Contacts.

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