

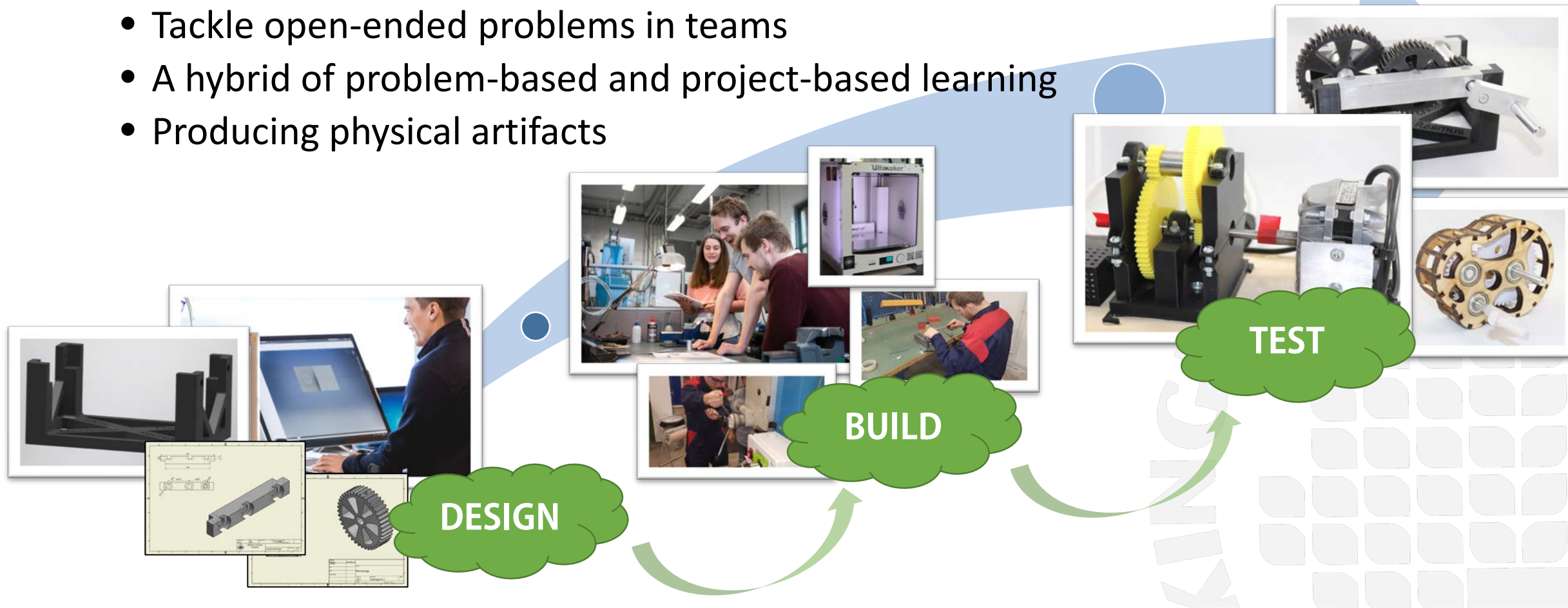
# “Thinking by doing”

Making as a vital part of  
engineering education

Dr Johan Wall, Dept. of Mechanical Engineering

# Design-Build-Test projects

- Design and prototyping an integral part of our engineering education.
  - Tackle open-ended problems in teams
  - A hybrid of problem-based and project-based learning
  - Producing physical artifacts



# Motivation

- A curricula in transformation
  - Traditional technical knowledge and engineering skills
  - Interpersonal skills, critical thinking, creativity and design
- Educating the engineering student of today for the reality of tomorrow
  - Life-long learning, self-directed learning
- Adopting to prior knowledge and experience of our students

# Benefits

- Creative confidence
- Self-directed learners
- Understanding the role of an engineer
- Experiencing the iterative nature of design
- Putting previously acquired knowledge to use
- ...

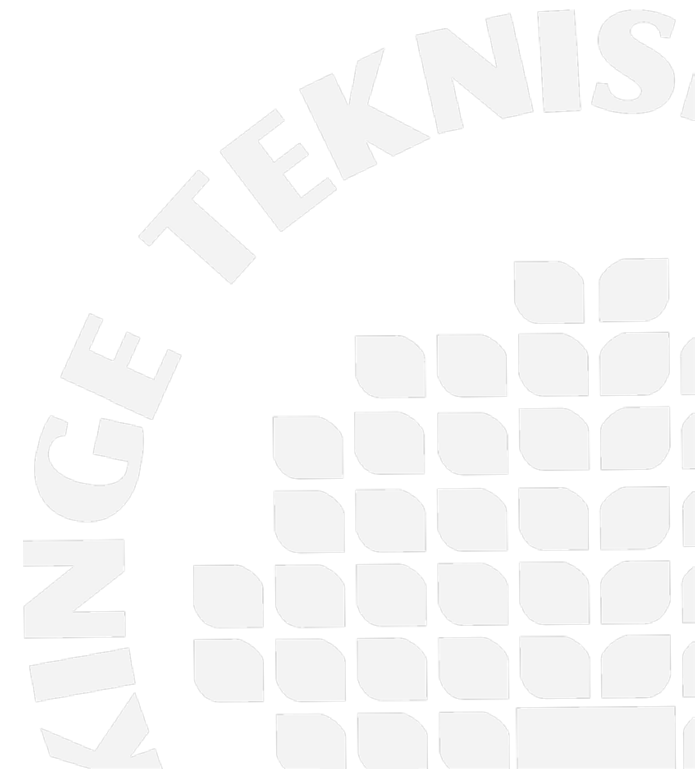


## Enablers



# Challenges

- Assessing process versus delivered solution
- Assessing individuals compared to assessing the team
- Some student groups struggle
- Laboratory access (resource problem)
- Fear of the unknown
- ...



# Recommendations

- Request detailed project plan => Follow up on it
- Milestones/stage-gates (including presenting prototypes in several generations)
- Reoccurring “Design meetings”
- Faculty as guides and moderators
- Enable experience sharing and learning between teams
- Test and follow up on testing prototypes regarding set requirements