“Thinking by doing”

Making as a vital part of engineering education

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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
- ...

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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