E-learning excellence - supporting courses and projects

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Conference KTH Scholarship of Teaching and Learning 2015
KTHB March 12, 2015
Why do we educate engineers?

To meet societal challenges over a 40-year horizon.

Societal challenges 2055 ??

1. Increasing complexity…

2. Need for system solutions…

…on a limited and overcrowded planet (feedback loops, dynamics, uncertainty, system hierarchies and interactions)
Challenge 1. Increasing complexity…

Axiom: Theoretical knowledge and understanding are increasingly important for future engineers…to be able to create and use new (innovative) tools.
Education is not what you have learnt: rather it is what remains, once you have forgotten all what you have learnt.

Ellen Key
Challenge 2. Need for system solutions…

*Axiom*: **Collaboration** and **collaborative learning** are critical for developing system solutions to societal problems.
How does one learn theory?

Experiment/“play around”

quantify

“labba”
Learn complexity!
(networks, dynamics, uncertainty, …)

Experiment/explore!

Collaborate!

e-learning excellence
Learn complexity

Experiment
Programme

Audio-Video
Preparations - test

Readings

Projects - assignments

Cloud

Communicate
collaborate
Environmental Dynamics: An introduction to modeling anthropogenic impact on natural systems

Virtual Experiments
ABE e-learning initiative 2014-2015...

...to develop-adjust-implement open source modules-plugins that can be used as part of KTH Social

Collaboration between:

> KTH/ABE

> Dept of Computer and Systems Science (DSV), SU

> Teknocord AB