

Applied Compositional Thinking for Engineers (ACT4E)



Session 1a

Questions & Answers

Q: Which background should one have to follow the course ?

GZ: From the course catalogue:

Voraussetzungen / Besonderes Algebra: at the level of a bachelor's degree in engineering.

Analysis: ODEs, dynamical systems.

Familiarity with basic physics, electrical engineering, mechanical engineering, mechatronics concepts (at the level of bachelor's degree in engineering).

Basics of Python programming.

A bachelor degree in engineering will do

Q: Can you please give some sensible examples of formal and informal knowledge (e.g. from simple engineering problems)?

A:

- Tuning of parameters of a controller vs. theory behind the controller
- Gut-feelings in engineering

Q: In electrical engineering we are just coupling electrical components together and it doesn't matter how long the cables are. But in mechanical engineering it matters how good mechanical connection we have (e.g. rigidity). Comments?

AC: Assumption is not true - any cable has some resistance/impedance. That's why we transport electricity in AC and transform it to DC to use it in our devices, rather than just transmitting using DC - which actually was how it worked at the beginning. (Edison)
IIRC, Tesla was the one to invent AC transmission.