Biomimetics in Engineering

Technical Pull – Top Down

- Technical problem
  - Identifying principles
  - Abstraction
  - Technical realisation

- conventional tape
- super-adhesive tape expectation:
  - no rest traces by removing
  - made out of one material
  - one tape for all surfaces
  - reusable with the same properties

Application:
- usage as conventional tape
- in medicine
- bicycle handle bars
- nanoplast

Experiment:
- Youtube tutorial - NISEnet
- do it yourself components:
  - silicone from hardware store
  - water / vinegar / soap
- conclusion
  - acceptable results for the minimalistic sources
  - no achievement of nanostructure

Biology Push – Bottom Up

Biology
- Identifying principles
- Abstraction
- Technical realisation

Breathing system

Blood circularity system

Cooling, humidity and dehydration of the nose

Cooling of head and brain

Biomimetics

The Seawater Greenhouse

Cooling and fresh water in agriculture


Structure:
- Hexagons, quasi-horizontal
- Regularity reminds of crystals

Forces:
- forces dispense

Advantages:
- lightweight, stable
- min. material and energy
- high air amount → good warmth and sound absorption

Moulding of the bricks

Methods
1. Bricks
2. Modular with interlocks
3. Modular with aligners

Center Wall Principle

Workplace
Water Flow
Pre-formed
100% recyclable

Hochschule Nordhausen
University of Applied Sciences