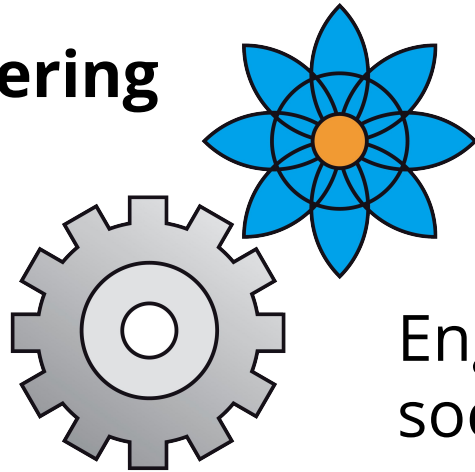
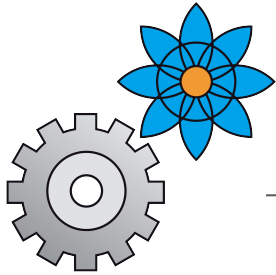


# Blue Engineering



Engineers with  
social and ecological responsibility



# **Technology as Panacea!?** **A Core Building Block** **of the Blue Engineering Course**

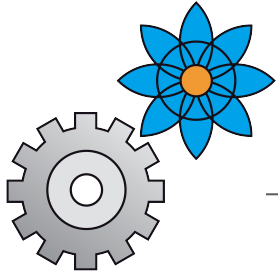
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ETALEE 2017

Exploring Teaching for Active Learning in Engineering Education

University of Southern Denmark

24 + 25 May 2017



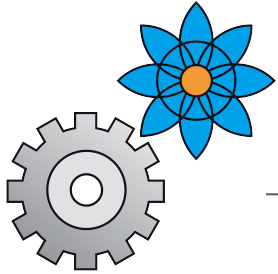
# Overview

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What is your image of nature? - Tesserae

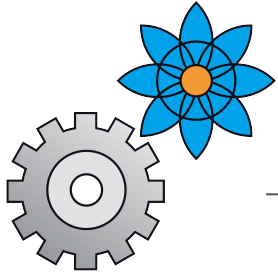
Blue Engineering Course at TU Berlin

Technology as Panacea!? - Improvised Skits - Building Block



**What is your image of nature?**

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## **Painting your Image of Nature**

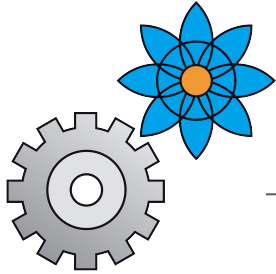
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partner up with one other person

place a A5 sheet in the middle of you

both of you take a pen into his/her hand

paint nature together without speaking with each other



# Society-Nature Relations

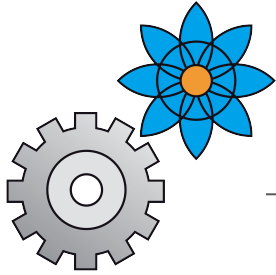
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no individual access to nature

nature is constructed as culture by society

romantisised images of nature are obscuring our view

democratize society-nature relations



## **Tesserae - Building Blocks**

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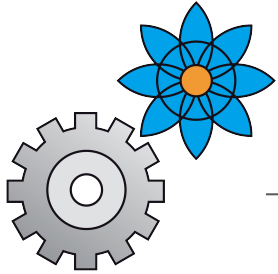
building blocks of five to ten minutes length

integration of responsibility into existing lectures

valuable break within a lecture - use of many didactical methods

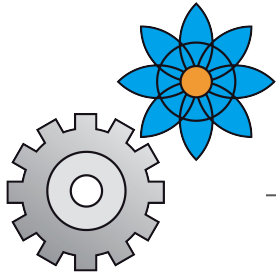
positive evaluation





# **Blue Engineering Course at TU Berlin**

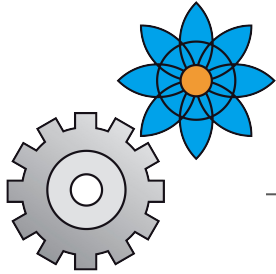
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# Blue Engineering

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started of as student-driven project in 2009/2010  
collectively and critically reflecting on technology and society  
democratic decision-making & collective action  
projected as network of universities, companies, practitioners



## **Development of the Course**

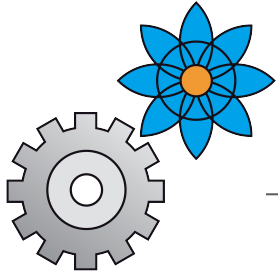
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2009/10 founding as two year project workshop

which grants credit points and pay for two tutors

2011/12 first implementation only by tutors - 25 participants

since 2012/2013 two lecturers and three tutors - 100 participants



## Course Design

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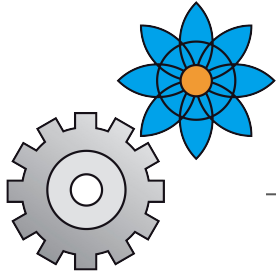
interactive and transferable course design

variety of alternative teaching methods / content

group and discussion oriented – minimum level of hierarchy

not teacher-centred but peer-to-peer learning

students conduct about half of the courses on their own



## **Course Design in Detail**

---

14 lessons on tuesdays - 14h - 17h - with a 15m break and snacks  
compulsory elective course in four master programmes  
capacity for 100 students each semester  
sometimes together, sometimes divided in three courses

TERMIN DATUM H3006

1 18.10

Einführung  
-> alle in H3006

2 25.10

Kombini Plastik  
-> gemeinsamer Start H3006  
-> BARCAMP

3 1.11

① Themen-/Gruppenfind.  
② TING-D

alle Pflichtarbeiten  
vorstellen (Anhand von  
Lern- und Passieren, Vorberichtigungen)

4 8.11

Verantwortung  
Kodizes

Produktivistisches  
Weltbil. Max

Technik als  
Problemlöser?!  
Theresa

5 15.11

1. Feedback  
Urschmeira  
2. Produktivistisches Weltb.

1. Feedback  
Urschmeira  
2. Technik als Problemlöser

1. Feedback  
Urschmeira  
2. Verantwortung + Kodizes

6 22.11

1. Feedback  
2. Technik als Problemlöser

1. Feedback  
2. Verantwortung + Kodizes

1. Feedback  
2. Produktivistisches Weltb.

Handwritten note about assignments and presentations.

Handwritten note about presentations and assignments.

Handwritten note about assignments and presentations.



H3007

MB Plastikzeitalter

MB Plastikzeitalter

H3008

TERMIN DATUM H3006

7 29.11

Energie  
1. Anno Domini Atomkraft  
2. Geschichte d. desent. Energieerzeugung

8 6.12

1. 2.5 Fragen  
2. Diversity, Technik & Gender

9 13.12

Ernährung  
1. Essen ist zumessen da  
2. Industrielle Fischerei

10 30.1

Arbeit, Gesellschaft  
SIEB 164

H3007

1. Peak Everything  
2. Seltene Erden Ressourcen

1. Blue Stories  
2. Diversity, Gender & Technik

Zeitwandelstand  
1. Arbeit & Zeit  
2. Eine kurze Geschichte der Zeit

u. Gewerkschaft

H3008

1. Technik als Drama  
Verantwortung  
2. To Fly or Not to Fly

1. Geschlechtsp. Spielzeug  
2. Diversity, Gender & Technik

zusammen Leben  
2. Stadt der Zukunft  
2. Global Village

- IG Metall

Semesterarbeiten

arbeiten

Präsentation

11 10.01

Schlussprologmal Klausur

12 17.01

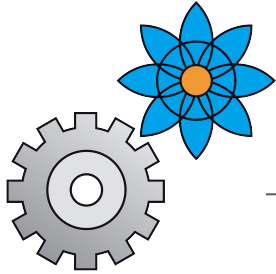
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13 24.01

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ABSCHLUSS





# **Building Blocks are Key Component**

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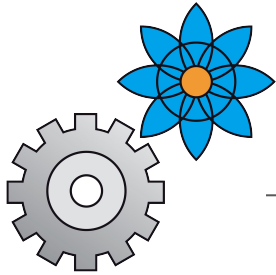
15 - 90 minute sessions on a complex issue

well documented, easy to use manuals – little preparation

combination of different methods and didactical concepts

“perspectives chest” with various materials

to appeal to all senses and to provide different perspectives



## Students...

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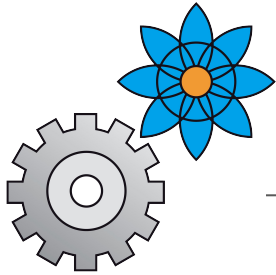
...write a personal, structured learning journal

...conduct a building block in a group of 3 – 5

...feedback, test, present, evaluate and document

a term project in a group of 3 - 5

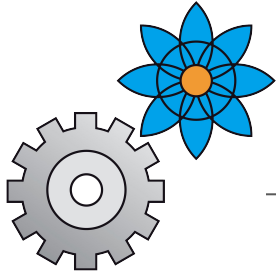




## **Student's Term Project**

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any topic with a clear link to social and ecological responsibility  
i.e. ship beaching; (de-)centralized power plants;  
work-life-balance; gender, diversity and technology,  
reusable and transferable to various teaching/learning settings  
by now over 120 building blocks, perspective chests, games...



## **Students Co-Design the Course**

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the course is conducted over 50% by students

the topics are set by the students through term projects

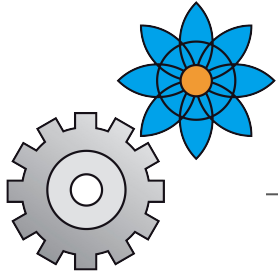
the term projects are meaningful work, as they are reused

by now the course is organized only by three tutors









## **Besides All That**

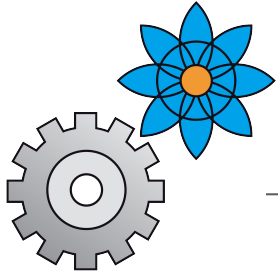
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complete documentation of the course

tutors are by now solely responsible for the course

constructive alignment and design down of learning outcomes

evaluation of the course



# **Technology as Panacea!?**

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