A collaborative quest for sustainability at DTU

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A collaborative quest for sustainability at DTU

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Sustain DTU – 17. December 2014
Abstract 135: Lisbeth Michaelsen, Sustainability Coordinator, DTU Campus Service:

Sustainability at DTU from Campus Service point of view - an invitation to use campus as learning lab

Abstract 136: Susanne Balslev Nielsen and Per Anker Jensen; Centre for Facilities Management; DTU Management Engineering. Lisbeth Michaelsen, DTU Campus Service:

The quest for sustainability in existing buildings

Abstract 137: Stig Irving Olsen and Susanne Balslev Nielsen, DTU Management Engineering. Tim McAloone, DTU Mechanical Engineering:

Teaching sustainability in engineering solutions with Campus Service as case
Action Learning for a sustainable DTU

Content:

The societal challenge and FM as solution

Campus Service and sustainability at DTU

Teaching Sustainability in Engineering Solutions

Next steps
The societal challenge and FM as a solution

Susanne Balslev Nielsen and Per Anker Jensen
Transforming cities through FM

- working with people, places and processes
DTU the case of a
- building owner, building user and building operator
- sustainability in Facilities Management: a management journey from vision to reality.
DTU Campus Service (CAS) and sustainability at DTU

Lisbet Michaelsen
About Campus Service

Strategy

1. “DTU's infrastructure is to support education, research, research-based advisory and innovation”
2. “DTU must prioritise a beautiful and functional campus with a visible and versatile social life, including an attractive student environment”
3. “DTU administration of its activities as an independent institution is to be developed into a model of efficient university operations”

Mission

CAS is DTU’s Facility Management organisation. CAS must ensure that the operation, maintenance and development of DTU’s buildings, as well as areas and facilities support DTU’s core activities; research, education, research-based advisory and innovation.

Vision

CAS must ensure that the campuses, buildings, facilities and service of DTU is nationally and internationally attractive, and CAS shall lead in its contribution to increasing the applicable standard.
Campus Service – 2014 figures

- Handle 13,234 error reports
- Handle 1,433 orders
- Approx. 700 daily guests in the meeting centre
- Project investments: Approx. 600 mio. Dkr.
- CAS has worked 274,636 hours
- Used more than 125,000 hours on cleaning
- Used more than 10,000 man hours on moving jobs
- Served food to more than 800,000 guests in the canteens
- Emptied more than 650,000 waste bins
- "Used" more than 6 mio. meters of toilet paper
Energy target in contract with FIVU

Target for energy consumption in MWh per FTE (incl. students)

Target for energy consumption in MWh per FTE (incl. students)
Waste target in contract with FIVU

Target (selected waste fractions) in tonnes per FTE (incl. students)

- Affald, ikke genanvendeligt
- Affald, genanvendeligt

Tallene på søjlerne angiver mængderne i tons
Numerous choices/dilemmas: What is the more sustainable?

Student projects investigating:
- Waste sorting at DTU Library
- Use of Oak trees from the Lifescience lot
- Sustainable materials for facades
- Sustainable flooring in laboratories
- Organic waste handling
- Hand drying - Paper vs. Electric dryer
- IT & Server rooms
- Weed control at DTU campus
- Bottled water vs. tap water
- Interior walls: glass vs plaster board
Teaching

Sustainability in Engineering Solutions

Stig Irving Olsen
Teaching sustainability in engineering solutions (42340)

• 5 ECTS June course
• Cooperation between three teachers, two department
• Cases from CAS (Lyngby school, Nordhavn)
• Open to all bachelor study lines (usually 4th to 6th semester students)
• Up til now between 18 and 47 students following (increasing each year in the four years it’s been running)
• Up to 13 different study lines (also increasing each year)
# Course structure

<table>
<thead>
<tr>
<th>Time</th>
<th>Morning</th>
<th>Afternoon</th>
<th>Lunch</th>
<th>Afternoon</th>
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</thead>
<tbody>
<tr>
<td>09:00-10:45</td>
<td>Teacher</td>
<td>DTU Campus introduction</td>
<td>Lunch</td>
<td>12:00-13:00</td>
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<tr>
<td>10:00-12:45</td>
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<td>DTU Campus introduction</td>
<td>12:00-13:00</td>
<td>13:00-14:45</td>
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<tr>
<td>13:00-17:00</td>
<td></td>
<td>DTU Campus introduction</td>
<td>14:00-15:45</td>
<td>15:00-17:00</td>
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</tbody>
</table>

1. **Introduction**
   - Introduktion til korrekt, læserne, og de medfører til
   - Introduktion til bæredygtighed: Bæredygtighedsdækning; udvikling af løsninger; Vurdering af miljøbelastninger
   - DTU Campus introduction

2. **Sustainability management**
   - Introduktion til projekten: det projekteres l
   - Omsyn i forskellige institutioner/bygninger/faciliteter

3. **Overview of product/system**
   - Gæsteforlænger: Martin Monsen, C2C-COWI
   - Hvorfor bæredygtighedsdækning? Strategiske overvejelser; aktører osv.
   - Bæredygtighedsdække "setting the scene"

4. **Assessing environmental impacts**
   - Gruppebedøvelse: Udviklingsbehov - hvilket vi gerne havde?
   - Definition af projektet: Formål, undersøgelsesområde, rammer osv.

5. **How to implement?**
   - Fastslagelse af blevrelæ for caser; brug af kunnskaber for caser; hvordan fastslagelse
   - Indsamling af data for caser: Hvilkj data skal bruges; identifikation af potentielle data leverandører; indsamling af litteraturdata - materialer og og

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<table>
<thead>
<tr>
<th>Time</th>
<th>Weekend</th>
<th>Weekend</th>
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<tr>
<td>10:00-12:45</td>
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6. **Weekend**
   - Indsamling af data for caser og begyndte MEKA-vurdering: Indsamling af litteraturdata for caser; indsamling af data hos aktører

7. **How to implement?**
   - Gæsteforlænger: Karen Bech-Nielsen, Veolia
   - Projektarbejde på caser

8. **Making environmental improvements**
   - Gæsteforlænger: Susanne Hjortforfald af konsortier; idekompeter; negativ
   - Kuhn, Rockwool

9. **Case work during week**
   - Arbejde på caser forbedringsforslag

10. **How to implement?**
    - Case: Vejledemodler: mlepamforbedringsforslag

11. **Making environmental improvements**
    - Case: arbejde med bæredygtighedsdækning i forhold til konkret miljøforbedringsforslag

12. **How to implement?**
    - Case arbejde med bæredygtighedsdækning i forhold til konkret miljøforbedringsforslag

13. **Making environmental improvements**
    - Case: arbejde med bæredygtighedsdækning i forhold til konkret miljøforbedringsforslag

14. **Making environmental improvements**
    - Case: arbejde med bæredygtighedsdækning i forhold til konkret miljøforbedringsforslag

15. **Making environmental improvements**
    - Case: arbejde med bæredygtighedsdækning i forhold til konkret miljøforbedringsforslag

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**Introduction**

**Sustainability management**

**Overview of product/system**

**Assessing environmental impacts**

**How to implement?**
Next steps in the collaborative quest for sustainability at DTU
Think of your experience as DTU user...

What are your ideas for Campus service and student projects (one idea pr. post-it)

- reaching DTU targets: Energy
- reaching DTU targets: Waste
- other sustainability improvements

Input to 42340 June 2015
Thank you!