VIRTUAL CAMPUS HUB: A SINGLE SIGN-ON SYSTEM FOR CROSS-BORDER COLLABORATION

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# Partners in Virtual Campus Hub

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<tr>
<th>Institute</th>
<th>Acronym</th>
<th>Leading staff</th>
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Motivation

Universities have an increasing number of and increasingly diverse relations with the outside world, but ICT is still inward looking:

→ Barriers exist for access, collaboration, and data exchange across institutions and companies

→ Everybody has plenty of tools available, but using them across an institution’s border is cumbersome

→ Labour-intensive workarounds offer far from perfect solutions

→ New European research infrastructures are not fully exploited
Student mobility programs in renewable energy

- Select Master Program and Select+ PhD. Program

- KIC InnoEnergy Master and PhD Programs

- European Wind Energy Master

- Nordic Master in Innovative Sustainable Energy Engineering
Example: European Wind Energy Master

- Wind Physics
- Rotor Design
- Electric Power Systems
- Offshore Engineering

- MSc thesis free mobility
- MSc thesis free mobility
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- MSc thesis free mobility

- DTU
- DTU
- TUDelft
- NTNU

- Wind Energy Symposia
- Innovation and Entrepreneurship
- Internship
- Summer School

- DTU
- DTU
- DTU
- DTU

- Introduction to Wind Energy Technology
  Technology, Economics, Management and Organisation
Components of Virtual Campus Hub

1. **Inventory** of the most important ICT barriers for international collaboration in education.

2. **Demo platform** to prove that some of these barriers can be removed:
   - Easy access to partners’ applications
   - More efficient and more flexible setup of online activities or online participation in regular activities.
   - Easier collaboration with industry

3. **Vision** on how to apply these insights and experiences in concrete collaboration initiatives (e.g. international joint programs)
Virtual Campus Hub concept

Virtual education portal for joint program with apps from TU/e, DTU, KTH and PoliTo

- Education portal TU/e (OASE)
  - App 1
  - App 2
  - App 3
  - App 4
  - App 5
  - App 6
  - App 7
  - Online meetings, distance lectures
  - Collaborate on documents

- Education portal DTU
  - App 1
  - App 2
  - App 3
  - App 4
  - App 5
  - App 6
  - App 8
  - Online course wind energy

- Education portal KTH (Bilda)
  - App 1
  - App 4
  - App 7
  - App 8
  - Examination tool
  - Remote lab

- Education portal PoliTo
  - App 3
  - App 5
  - App 9
  - App 7
  - App 8
  - Virtual incubator
The technology behind

- **Federated authentication**
  - ✓ Use your own institution’s account for applications elsewhere

- **Group management**
  - ✓ Using cross-institutional and cross border group definitions (virtual organizations) for authorization at different locations and in different applications

  ✓ In this project: Surfteams (part of Surfconext). Also available as open source (Openconext, [http://www.openconext.org](http://www.openconext.org)).

  ✓ No general standard across NRENs available yet. However, work started on this within Géant.
Enabling international collaboration: National (NRENs) and European (Géant)
Virtual Campus Hub portal

Virtual Campus Hub

Virtual Campus Hub is a collaborative project between four technical universities in Europe. The project runs from October 1, 2011 to September 30, 2013. The project is partially funded by the European Commission under the 7th Framework Programme. More information can be found on the official project website.

Partners

- SURFNET
- WAYF
- SWAMID
- IDEM - Italy
Post educational course in wind energy (DTU)

- Course topic: wind resource assessment
- Aimed at the wind energy industry
- Integration into university courses planned
- Two test runs have been performed

4.2 Roughness classification

The purpose of this E-Lesson is to connect land cover types to the roughness length in practical terms. You will get familiar with roughness roses and their use in WASP. You will also get some useful tips on how to create roughness maps from different types of land cover information.

You may be inspired by a visit to the place Aalborg Denmark in Google Earth (this requires that the free application Google Earth is installed on your PC - alternatively, look at the image below). Take a look at the cultivated landscape surrounding this village and reflect over the roughness changes here.

View from above of the landscape surrounding the village Aalborg in Denmark.

Learning objectives

When you have completed this E-Lesson, you will be able to:

1. Make a roughness rose
2. Make roughness maps from maps of the land cover

Tasks

1. View the presentation: Roughness classification
2. Complete Exercise 4.2 where you will make roughness roses for two locations
3. Go to the discussion forum of your group (4.2A Discussion forum or 4.2B Discussion forum) and post your answer to the questions:

   How far away from a 100-m mast or wind turbine does the surface roughness have an impact on the anemometer or the wind turbine? So how big should your roughness map be?
Learning platform: itslearning

Demonstrates the connection of an external service provider
Remote laboratory exercises (KTH)

The **remote laboratory** is operated and monitored **on-distance** for **real-time experiments** and collection of measurement data.

More info:
Collaboration environment (TU/e)

• Sharing and collaborate on documents (Sharepoint)

• Efficient and reliable setup of online activities (unified communications, together with Surfnet)

• Fully online or with online participation of some
  - Remote lectures
  - Joint meetings and events
  - Supervision of student projects and consultation of experts
E-link functionalities (Polito)

**StartApp** for stimulating entrepreneurship and matching through:

- Access to data bases (patents, market & industry)
- Smart links
- Discussion forum
- Business model canvas
Conclusions so far

• Promising technology and fairly well standardized across NRENs (except for group management)

• Enables institutions to join forces in education

• Knowledge and motivation at local institutions still very limited

• Crossing borders is also new to NRENs

• Difficult to sell infrastructure improvements to users

• Not allowing industry on Géant infrastructure as identity provider hampers collaboration with industry
Potential of the Virtual Campus Hub concept

Can be re-used and up-scaled:

- Other countries and institutions
- Other collaborative programs
- Other disciplines
More about Virtual Campus Hub

www.virtualcampushub.eu

http://www.facebook.com/VirtualCampusHub

Virtual Campus Hub
@VirtualCampusHu

Video presentation of the project:
http://youtu.be/zNbJWS9Ywu8

Video demo of the login procedure via the VCH Portal:
http://youtu.be/0MOxmcP5160
Acknowledgements

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National federations are involved in Virtual Campus Hub

International e-Infrastructurce forms the backbone of the Virtual Campus Hub technology