Field-Based Insights into the Implementation of Renewable Energies (Summer School Mont-Soleil)

Dujic Drazen, Paolone Mario, Rufer Alfred, Various lecturers

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<tr>
<th>Cursus</th>
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<td>Energie</td>
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<td>Obl.</td>
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Language: English
Credits: 2
Session: Project report
Exam: Yes
Workload: 60h
Hours: 30
Lecture: 27
Exercises: 3
Number of positions: 50

Frequency
Every year

Remarque
From August 12th to 17th, 2019

Summary
The PhD/Summer school Mont-Soleil is dedicated to Advanced Methods and Technologies for integrated Renewable Energies. The extra-muros organisation of the course will include Field-Based Insights into the Implementation of renewable Energies. Total 19 lecturers 28 hours of lectures.

Content
- Climate change and the 1.5 goal of the Paris agreement - Stocker

- Solar energy and its grid integration
  - Swiss Energypark, Mont-Soleil PV plant, and airborne measuring techniques - Haussmann/Minder/Lanz, Schott

- Components for the grid integration of renewable energies - Haussmann
- Planning and control of active power distribution networks - Paolone
- Power electronic converters for Renewable Energy Sources - Dujic
- Power quality in distribution grids related to RES and power electronics - Hoeckel

- Wind energy and hydropower
  - Introduction to wind energy in Switzerland - Vollenweider
  - Advanced methods in the project development of wind power plants - NN ETHZ
  - Wind assessment in complex terrain - Koller
  - Visit of Juvent windpark - Vollenweider
  - Introduction to small hydropower in Switzerland - Bölli
  - Excursion and visit to a hydropower plant at the Doubs river

- Energy storage and advanced technologies for RES
  - Energy storage – systems and components - Rufer
  - Battery modeling - Hutter
  - Advanced technologies for High Efficiency PV Generators - Boccard
• Solar vessel - Ochsenbein
• Data analysis in the field of renewable energies - Ghorbel

• Closing session of the summer school
• Summary and results of the summer school (with diploma ceremony)

• Post-conference program
• Visit to High Altitude Research Station Jungfraujoch
• High Altitude PV technology, visit of the plants on Jungfraujoch

Keywords
Renewable energy and its grid integration, Planning and control of Active Power Distribution Networks, Energy Storage, Advanced Technologies (PV+Wnd)

Learning Prerequisites
Required courses
General knowledge on energy and systems at Master level

Teaching methods
By the end of the course, the student must be able to understand the most important issues and field constraints on the integration of renewable sources and storage. The integration includes the energy management interface (power electronics) the storage and the control methods of the powe of Active Power Distribution Networks.

Resources
Websites