



COURSE INFORMATION

SOLNET PhD Course

System Integration of solar thermal plants and Computational Thermal Engineering

July 16th – July 20th 2012

Deadline for Accommodation Reservation: May 31st
Deadline for Application: April 30th

About SOLNET

SOLNET - Advanced Solar Heating and Cooling for Buildings- was the first coordinated international PhD education program on Solar Thermal Engineering. It is a Marie Curie Early Stage Research Training Network under the European Union FP 6 from 2006 – 2010. As the PhD School was a high success partners out of this consortium decided to continue with these PhD courses.

About this Course

This course will give 5 ECTS credit points and is offered within the official PhD courses of Innsbruck University. In order to get an official certificate for the course the student has to register as “außerordentliche Hörer”. Details on this procedure will follow.

The course is limited to 30 course-participants.

The course consists of two main elements:

- **System integration of solar thermal plants**
- **Computational thermal engineering**

The aim of the course on **system integration** is to show the interaction of different elements in a solar thermal system. The topics include components, guidelines, characterization, analysis of applications, hydraulics, control systems, dimensioning and optimization, design exercise and an excursion to built examples. The different elements are solar collector, solar loop and its components, storage, auxiliary heater, building and space heating system, domestic hot water demand, the climate and the control system. The course should give insight in how to optimize these elements with respect to their function in the system. “Very good components can be put together to a very bad system”.

In the **computational thermal engineering** lecture the following items will be addressed:

- Overview on the finite difference method and the stability of different procedures
- Simulation approaches to transient heat conduction and heat transport including boundary conditions
- Simulation of tubes, heat stores (water and PCM materials)
- General description of modules for a simulation
- Preprocessing, processing, postprocessing, how to detect errors
- Exercise (simulation of the same plant with different simulation tools)

Dates and Timetables

SOLNET PhD students are expected to arrive on Sunday-evening, July 15th, or early Monday morning, July 17th.

Day	Morning	Afternoon	Evening
Monday 16th	Welcome, organizational matters, Presentation of PhD Progress and Outlook (students)	Seminar on Systems Integration (Part 1, Streicher)	SOLNET Dinner
Tuesday 17th March	Excursion (options: TISUN, roboter based solar collector production, SICO: Solar collectors and PV plants company, large solar installations at Passive-Multifamily houses, PV-plant in the mountains)		
Wednesday 18th March	Seminar on Systems Integration (Part 2, Streicher)	Seminar on Systems Integration (Part 3, Streicher)	
Thursday 19th March	Seminar on Systems Integration (Part 4, Streicher)	Seminar on Systems Integration (Part 4, Streicher)	
Friday 20th	Seminar Computational Thermal Engineering (Streicher)	Seminar Computational Thermal Engineering (Streicher)	Roundtrip through Labs of UIBK
Sat / Sun 21st / 22nd	Voluntarily: Mountain tour (please bring mountain boots and cloth)		

Course Application

Application deadline is April 30th 2012 (**check also deadline for accommodation reservation!**). In order to be able to participate in this course, all applicants (SOLNET PhD or not) must do the following steps in this order:

1. Send an email to silke.habel@uibk.ac.at with your name, email-address, name of Institute, stating that you would like to participate in this course
2. Complete the application form for SolNet courses, available at www.solar.uni-kassel.de/solnet.
3. Then you must register yourself at the University of Innsbruck website (detailed instructions will follow).
4. If you managed to register properly, please send another mail to silke.habel@uibk.ac.at

Special Requirements for Applicants

Applicants must be in possession of a University or University of Applied Science Master in a technical direction (preferably, physics, mechanical or chemical engineering). Please send a copy of your master's degree, electronic or hardcopy, to:

Univ. Prof. DI Wolfgang Streicher
 Institut für Konstruktion und Materialwissenschaften
 Arbeitsbereich Energieeffizientes Bauen
 Technikerstrasse 13
 6020 Innsbruck, Austria
wolfgang.streicher@uibk.ac.at

All accepted applicants will have to prepare a paper on a topic given at the course in order to get a certificate for their ECTS credits (PhD students present their work). Further information will be given after acceptance of your application.

SOLNET PhD should bring a Laptop with a licensed installation of solar thermal simulation tool (TSOL, POLYSUN, TRNSYS or similar). For Windows XP the free of charge Software SHWwin (in German language) can be installed. It will NOT run on Windows 7 Systems.

Accommodation

There are 25 places reserved in the Studentenheim Tirolerheim, Technikerstraße 7, 6020 Innsbruck (<http://www.tirolerheim.org/>), for SOLNET and other PhD students (cost ~22 €/night double room, 19 €/night single room + 5,5 €/day for breakfast). Please give the name of our Institutions and Silke Habel when reserve the places in the hostel. The hotel is in walking distance (5 minutes) to the University. However, please inform Silke Habel (silke.habel@uibk.ac.at) by May 31st for how many nights (exact dates) you will stay at the hotel.

Visa

Those who hold a Passport of the European Union or are in the possession of a valid Schengen-Visa do definitely not need an extra Visa to travel to Austria. Others please check the website <http://www.bmi.gv.at/einreise/> or call the embassy of your home country for Visa-requirements.

Cost

The registration fee for the course is 40 €. However, you must pay for your accommodation, meals. The hotel is in walking distance (5 minutes) to the University.