



Course: “Solar Power”

29 August - 03 September 2016 – Kassel (Germany)

Content

This *Solar Power* course will consist of a theoretical aspect made up of lectures, presentations, and exercises along with a practical aspect where participants will have the chance to visit a German Manufacturer/Operator in the solar power branch and take part in a sight tour of a solar park. These activities provide participants the opportunity to discuss their topics of interest and projects with experts, producers and potential business partners. The training facilities used by the German Academy are some of the most up to date facilities in the Renewable Energy sector today. This provides participants the chance to take part in courses that are custom designed to their needs in both On-Grid und Off-Grid specialities. At a high level of learning intensity and efficiency.

The **German Academy for Renewable Energy and Environmental Technology** offers the *Solar Power* course in cooperation with the Fraunhofer Institute for Wind Energy and Energy System Technology (IWES).

Profile of Partner Organization



Fraunhofer Institute for Wind Energy and Energy System Technology IWES is one of the largest and well known German research institutes for renewable energy. It has two main thematic areas, wind energy (IWES, Northwest) and energy system technology (IWES, Kassel). IWES in Kassel mainly researches on energy system technology for the integration of renewable energy such as wind, solar and bio energy into supply structures. The current focus is on the transformation of the German energy system. In its two offices in Kassel and Bremerhaven Fraunhofer IWES has a staff of 500 scientists, engineers, non-technical staff, and students.



Course Objectives

Knowledge – After the course, the participants will have an understanding of the following topics.

This one week course covering PV solar power continues with the basics of PV technology, as well as the resource assessment, planning, and managing of PV projects. We give a professional overview of the whole PV project life cycle: location decision, energy yield assessment, technology and construction, operation, and maintenance.

A field trip to one of the most successful manufacturers of inverters will show an impressive on-grid, but indeed autonomous, academic building which offers the possibility of viewing modern PV components. A visit of an operator who operates and maintains different large scale solar fields with roof-top as well as tracker systems will complement the photovoltaic lessons.

Venue

German Academy's classroom at Fraunhofer IWES, in Kassel, Germany.

Target Group

Engineers, technicians, professional, decision makers, experts, academic scholars, industry newcomers; as well as practitioners of manufacturers, suppliers, operators, developers and investors in the renewable energy sector with basic knowledge pertaining to electrical engineering and/or mechanical engineering.

Certificate

A certificate of participation will be handed out upon completion, to participants who have attended at least 90% of the *Wind Energy* course.

Registration Procedure

For registration, please fill out the attached form and send it along with your updated CV to the address located under the Registration and Contact Information section. Please specify that you wish to join our *Course: "Solar Power"- 29 August - 03 September 2016 – Kassel*. Within a few days you will know if your application has been accepted.

Application and Payment Finalization Deadlines:

- 1- For Non-EU participants who need a visa to enter Germany: **30.05.2016.**
- 2- For EU participants or participants who have a visa to enter Germany: **30.06.2015.**

Space is limited. Please register early to avoid disappointment.!



It is highly recommended that Non-EU participants who need a visa to enter Germany to apply for your Visa at least 3 months before your arrival in Germany!





Schedule

Module 2: Solar Energy - Fraunhofer IWES - Kassel

Mon, 29 Aug.	Tue, 30 Aug.	Wed, 31 Aug.	Thu, 01 Sept.	Fri, 02 Sept.	Sat, 03 Sept.	Sun, 04 Sept.
Fundamentals of PV Technology I <ul style="list-style-type: none"> ➤ Introduction to PV Electricity Generation ➤ Technological Concepts of PV Power Plants ➤ Energy Meteorology Solar 	Fundamentals of PV Technology II <ul style="list-style-type: none"> ➤ Measurement of Characteristic Curves ➤ Calculations on the Design and Optimization of Grid Connected PV-Systems (Group exercises) 	 Site Tour to a Manufacturer of the Solar Power Branch: <ul style="list-style-type: none"> ➤ SMA Solar Technology AG Kassel: Business Fields, Examples of Installed PV Power Plants ➤ PV Systems Components and PV Power Plants, Technology and Design of Inverters, Basic Set up of Grid Connected PV Systems ➤ Visit of Laboratories and Production Facilities 	PV Project Planning <ul style="list-style-type: none"> ➤ Overview of Project Planning Phases: Location Decision, Legal Aspects, Stakeholders, Energy Yield Assessment, Technology and Construction, Operation and Maintenance, ➤ Solar Investments, Economic Assessment and Financing: Costs of Components, the Total Investment and Operation, Project Cash Flows and Validation, Risk Assessment And Risk Mitigation, Quality Assurance, ➤ Case Study 	 Field Trip to Manufacturer and Solar Fields <ul style="list-style-type: none"> ➤ Field Trip to Manufacturer and Solar Fields ➤ Visit of Kirchner Solar Group GmbH, Alheim ➤ Business Fields, Planning Aspects from an International Operator`s Point of View ➤ Site Tour to Various Solar Fields ➤ Roof-top Systems at Company ➤ Solar Field Münzelsberg: Tracker Systems ➤ Solar Field Aua: Open Area Plant on pillars Certificates, Feedback	Optional: <p>Guided Sight Seeing Tour in Kassel, Hillside Park Wilhelmshöhe - UNESCO World Heritage Site</p> <p>Time for shopping</p>	Free time

* Please arrange your arrival on Sunday August 28th, In the evening, the German Academy will welcome you and brief you on the program.



Suggested Accommodation in Kassel

1- Hotel Chassalla.

This **3-star hotel** enjoys a quiet location in the heart of Kassel, and benefits from easy access to public transportation. A tram stop is just a short walk away. The Hotel Chassalla takes its name from Kassel's medieval name, Chassella. It offers comfortable, well-equipped rooms. Thanks to the hotel's convenient location, you can easily reach the Bergpark, with its famous statue of Hercules atop the Oktagon, the Fridericianum museum and the middle of the city.

The Hotel Chassalla has 44 rooms with 77 beds, each room has shower or bath-tub/WC, hair dryer, (nail file, sewing case, comb, shaving and mouth care set available at the reception), telephone, colour television set with cable

connection, Radio, sound-isolated window, desk with halogen bulb, with mini bar if desired, Free of charge internet access with WiFi in all guest rooms and public areas. We can book a single room for you which includes a rich breakfast buffet. Lunch and dinner are not included in the price, but are available at the hotel for an extra charge.

The Hotel Chassalla is only 8 minutes walk away from the Fraunhofer IWES institute, where the course will take place. For more information about the hotel check the links below:

<http://www.hotel-chassalla.de/inhalte/english/index.html>



2- City Hotel, Kassel City Centre.

The **City Hotel** is a three star hotel centrally located in Kassel close to the historical Allee, approximately a 5 minutes walk from the German Academy's classroom at Fraunhofer IWES, where the course will take place. With friendly and attentive personnel, the City Hotel's atmosphere ensures that guests feel well looked after so that they can begin their day rested and relaxed. We can book for you a single standard/economy. A generous breakfast buffet, WLAN access, and access to the hotel's wellness area are included in your room price. Rooms are furnished with a bath/shower, toilet, hairdryer, cable TV, telephone, mini bar, and a living room area with desk. Lunch and dinner are not included in the price, but are available at the hotel for an extra charge.

For more information check the website : <http://www.city-hotel-kassel.de/en/index.php>



Where to eat on a budget in Kassel

The University of Kassel, offers a nice canteen and cafeteria to both students and the public, where you can get your breakfast, lunch, and drinks at a reasonable price. The university cafeteria is only a 5 minutes walk away from the German Academy's classroom at Fraunhofer IWES, where the course will take place. For meal prices please check the links below:

<http://www.studentenwerk-kassel.de/?id=189>

<http://www.studentenwerk-kassel.de/index.php?id=203&L=1>

Kassel – the City of Energy

Kassel, the “Capital of the German Fairy Tale Route” is a city with 200,000 residents in the region of North Hessen, which is located in the middle of Germany. This region is known for its high-performing small and middle-sized firms as well as for its innovative companies, which are among the world’s best developers of new environmental technologies. The University of Kassel, founded in 1970, offers high standard teaching and research activities and attracts more than 22,000 students from over 100 countries worldwide. Kassel combines the quiet coziness of a green city with beautiful parks and the Fulda River, with the vibrancy of its art scenes and academic life. During the *Wind Energy and Solar Power* programs, the German Academy will organize guided sightseeing tours, giving participants the chance to explore the city of Kassel for themselves. [Read more!](#)



On 23 June, 2013 the Mountain Park and Herkules, in Kassel were proclaimed as a world heritage site during the UNESCO meeting in Phnom Penh.

Fees

1. A fee of ***EUR 1400** will cover tuition fees for the *Course: "Solar Power"*, course materials, documentation, site tours, coffee break & fruit, and a program certificate.

Early bird price: book before 30th of April 2016 and pay only *EUR 1300!

2. A fee of ***EUR 1780** will cover tuition fees for the *Course: "Solar Power"*, course materials, documentation, site tours, coffee break & fruit a program certificate, accommodation with breakfast buffet, in a single room at the **Hotel Chassalla***** (7 nights).

Early bird price: book before 30th of April 2016 and pay only *EUR 1680!

3. A fee of ***EUR 1890** will cover tuition fees for the *Course: "Solar Power"*, course materials, documentation, site tours, coffee break & fruit, a program certificate, accommodation in a single room with a generous breakfast buffet, WLAN access, and access to the hotel's wellness area at the **City Hotel** (7 nights).

Early bird price: book before 30th of April 2016 and pay only *EUR 1790!

* All the above prices are per person!

** Group rates: We offer special group rates, which require a minimum of 5 participants for group registration. Ask us for more details!

*** In all hotels the option is available to share a double room. If you book as a 2, then please specify if you would like to share a room and with which participant on your registration form. Ask us for more details!

****Lunch, dinner and drinks are not included in your room fee; however they are available at either hotel. for an additional charge!

Payment in increments is possible in certain cases, please contact us for further information!

Letter of Invitation/VISA

We welcome international participants worldwide to take part in our program. If you will need a visa to enter the Federal Republic of Germany, we will gladly support you through the process and send both you and the German embassy in your home country an invitation letter to support your visa application. The invitation letter/certificate for obtaining a visa will be issued by either the German Academy or a partner organization, once the minimum number of participants is met and payment of the course fee is received. All costs associated with the visa process, including the cost of: the invitation letter, delivery fee to participants through a courier service such as DHL or EMS, delivery fee to the German embassy, as well as all other fees associated with obtaining a visa must be paid by the participants themselves. Please keep in mind the time needed for the entire visa process, as it may take up to three months to obtain in some countries. Please contact us as soon as possible if you would like us to support you through the visa process.

***The costs associated with obtaining a visa, are not included in the total amount stated under the Fees section and are an additional cost. ***

Registration and Contact Information

The German Academy of Renewable Energy and Environmental Technology

Kaiser-Friedrich-Str. 4a, 10585 Berlin, Germany

E-mail: info@germanacademy.net

Web: www.germanacademy.net

Phone: +49 (0)30 33778033

Mobile: +49 (0)173 83 90 318

Fax: +49 (0)30 63426227



Education Course Registration Form



GERMAN ACADEMY

For Renewable Energy And Environmental Technology

I want to book for the following course (please select your choice):

Summer School “Wind Energy, Solar Power, & Biogas Plants”

Date: 22 August - 09 September 2016

Location: – Kassel- (Germany)

Wind Energy – 22- 27 August 2016 - Kassel

Solar Power – 29 August - 03 September 2016 - Kassel

Biogas Plants –15-19 September 2016 - Kassel

Course Language: English

Fee (varies according to accomadations): _____

Register EARLY— Attendance is limited!

Please fill out the form clearly in capital letters. All fields must be carefully filled in and the document must be signed.

Incomplete forms will not be considered.

Application and Payment Finalization **Deadlines:**

1- For Non-EU participants who need a visa to enter Germany: **30.05.2016.**

2- For EU participants or participants who have a visa to enter Germany: **30.06.2016.**

First Name: _____ Last Name: _____

Date of Birth (day/mo/yr)(required): _____ Gender: _____

Address: _____

City: _____ Zip Code: _____ Country: _____

Nationality: _____ E-mail address: _____

Degree: _____ Major: _____

Institute/ Organization: _____ Work Experience: _____

Function: _____ Title: _____

Phone Number: _____ Work Phone Number: _____

I hereby confirm that arrangements for payment for the abovementioned course delegate are in place, and agree to the payment procedures and terms and conditions as outlined on: www.germanacademy.net

By signing this registration form, I hereby confirm my participation by agreeing to all German Academy terms and conditions.

Signature:

Date:

Location:

(Only handwritten signature is acceptable)

Please send the completed registration form by post/fax/e-mail to:

German Academy of Renewable Energy and Environmental Technology

Mr. Hossam Gamil,

The Director of Educational Programs for Renewable Energies & Environment.

Kaiser-Friedrich-Str. 4 A, 10585 Berlin

Fax: +49 30- 63426227

Tel: +49 30 - 33778033 or +491738390318

E-mail: info@germanacademy.net