



**Fraunhofer**  
ACADEMY

Certificate of Advanced Studies (CAS)

## **CAS 1 – SOLAR CELLS AND PHOTOVOLTAIC SYSTEMS**

**STEP UP YOUR PROFESSIONAL SKILLS  
WITH AN ACCREDITED CERTIFICATE**

Offered by

**UNI  
FREIBURG**



## LEARN FROM GERMANY'S LEADING EXPERTS IN SOLAR ENERGY



Come and join the worldwide growing solar community and become part of our successful and renowned society of solar scientists and engineers. We offer continuing education courses and a Master of Science degree program which will allow you to gain scientific and technical knowledge in solar energy. You will study part-time with our renowned experts in solar energy through e-learning and online courses as well as hands-on workshops in the facilities of the Fraunhofer Institute for Solar Energy Systems ISE.

Our program provides not only in-depth knowledge and a suitable and flexible learning environment for working professionals but also enjoyable events and networking meetings with R & D and industry experts. Thanks to our enthusiastic and well-versed lecturers, I am convinced that you will maximize your knowledge in solar energy and become an expert yourself.

Yours faithfully

Prof. Dr. Stefan Glunz

Program Director Master of Science Solar Energy Engineering

## PROGRAM OVERVIEW AND TARGET GROUP

### Study Part-Time – From Anywhere in the World

You want to improve your skills and your knowledge in the field of solar energy – and at the same time continue working in your job? This Certificate program is ideal for professionals like you. During the last decade we created an innovative and flexible online learning environment – adapted to your needs.

### Become an Expert in Solar Cells and Photovoltaic Systems

You will learn from Germany's leading experts in solar energy. This CAS provides a comprehensive understanding about the fundamental physical processes of solar cells and the design and function of PV systems.

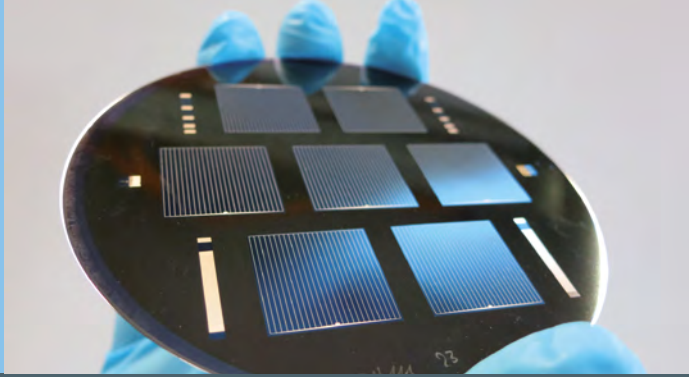
### Step Up Your Career Ladder

Gain additional qualification and specialized knowledge to broaden your expertise and multiply your career opportunities. Our international programs offer a unique chance to join a highly motivated community of solar energy practitioners.

### Our Study Offer Is Made For You

This CAS is an ideal choice for people with:

- Existing knowledge in the energy sector, or
- Professional experience in the photovoltaic industry



## CAS – ACCREDITED PROGRAMS FROM PRESTIGIOUS INSTITUTIONS

“This course is a toolbox that will give you the ability to understand any type of solar cell.” *Dr. Uli Würfel, Fraunhofer Institute for Solar Energy Systems ISE*

### What is a Certificate of Advanced Studies?

A Certificate of Advanced Studies (CAS) is an advanced training program which is compliant with the European Credit Transfer System (ECTS).

These standards secure the high quality of CAS programs as well as their comparability and recognition across educational institutions. Thus it is possible to combine CAS programs from the same or different institutions from Germany and Switzerland to form a more extensive degree in a modular fashion.

### CAS Programs in Solar Energy Engineering

Our CAS course offers are the result of a long-standing scientific cooperation between the University of Freiburg and the renowned Fraunhofer Institute for Solar Energy Systems ISE.

Studying one of our CAS programs gives you access to expert knowledge from a world-leading research institute and awards you with a certificate of one of Germany's top universities.

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Our Certificate programs are designed to be a convenient way for you to study online while working. All our CAS programs can be completed within 6 or 12 months and are awarded with 10 ECTS each.

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### 1.1 – Solar Cells

5 ECTS

**Lecturer: Dr. Uli Würfel**

Researcher at the Freiburger Materialforschungszentrum – FMF and Head of the Department “Organic and Perovskite Photovoltaics” at Fraunhofer ISE.

### 1.2 – Photovoltaic Systems

5 ECTS

**Lecturer: Dr.-Ing. Oliver Stalter**

Director of the Division “Energy Technology and Systems” in the Business Division “Power Electronics, Grids and Smart Systems” at Fraunhofer ISE.

This CAS condenses the expertise gained over the years to enable a scientific understanding of photovoltaic energy conversion. Participants gain an overview of the overall system of photovoltaic energy conversion and a detailed scientific foundation of the underlying principles of solar cells.

- Experienced engineers will be qualified to design and optimize photovoltaic systems
- Enthusiasts will be able to understand in detail the physical principals of every kind of solar cell.

Participants will become proficient in explaining the physical and engineering principles, analyzing and assessing new solar cell concepts as well as latest trends in photovoltaics based on fundamental principles.



## GENERAL INFORMATION

**Start:** Mid October

**Duration:** 6 months

**Credits required:** 10 ECTS

**Program Fee:** € 2500

**Participation requirements:**

- Basic knowledge of semiconductor physics, semiconductor devices and power electronics
- English language proficiency

**Study Format:**

- E-learning and online video lectures accompanied by readings, exercises and online meetings with tutors and lecturers
- Two written exams (75 minutes each) in a study center close to where you live
- Join our voluntary Campus Phase here in Freiburg, Germany

**Degree:** Certificate of Advanced Studies (CAS)

**Application:** [www.studysolar.uni-freiburg.de](http://www.studysolar.uni-freiburg.de)

In scientific cooperation with



## YOUR BENEFITS AT A GLANCE

- »» Gain a comprehensive understanding about the fundamental physical processes of solar cells and photovoltaic systems
- »» Learn about the physics, technology and designs of solar cells
- »» Learn how PV Systems are designed and optimized – for optimal energy production and storage
- »» Advance your professional career by learning from Germany's leading experts in solar energy
- »» Keep working in your job and enjoy the flexibility of studying an online, part-time Certificate Program
- »» Earn an accredited Certificate of Advanced Studies (CAS) from two prestigious institutions
- »» Broaden your expertise and multiply your opportunities by combining different accredited Certificate Programs offered by us and our partners



## DO YOU HAVE ANY QUESTIONS FOR US?

About content related issues?

About the registration process/general issues?

About further similar programs?

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