

Certificates of Advanced Studies – Solar Energy Engineering

Recognized continuing education degree | Duration: 6-12 months | Scope: 10 ECTS

CAS fundamental modules:

CAS 1 „Solar Cells and Photovoltaic Systems“

Courses	Start	Lecturer	ECTS	Type	Institute
1.1 – Solar Cells	Oct.	U. Würfel	5	Lecture	ISE/FMF
1.2 – Photovoltaic Systems	Oct.	O. Stalter	5	Lecture	ISE

CAS 2 „Solar Thermal Energy Technology“

Courses	Start	Lecturer	ECTS	Type	Institute
2.1 – Fundamentals of Solar Thermal Collectors	Oct.	W. Platzer	5	Lecture	ISE
2.2 – Design of Solar Thermal Systems	Apr.	W. Platzer	5	Lecture	ISE

⇒ **Remark:** total module duration of 12 months / 2 Semesters.

CAS 3 „Crystalline Silicon Photovoltaics“

Courses	Start	Lecturer	ECTS	Type	Institute
3.1 – Feedstock and Crystallization	Apr.	M. Schubert	2	Lecture	ISE
3.2 – Silicon Solar Cells – Structure and Analysis	Apr.	S. Glunz	2	Lecture	ISE/IMTEK
3.3 – Solar Cell Production Technology	Apr.	R. Preu	2	Lecture	ISE
3.4 – Silicon Module Technology and Reliability	Apr.	H. Wirth	1	Lecture	ISE
3.5 – Hands-on Solar Cell Processing	Apr.	J. Rentsch	3	Lab	ISE

⇒ **Remark:** module requires an on-campus stay of 2 full days in the Fraunhofer ISE laboratories in Freiburg.

CAS specialization modules:

CAS CM „Solar Cell Characterization and Modelling“

Courses	Start	Lecturer	ECTS	Type	Institute
CM1.1 – Material and Solar Cell Characterization	Oct.	M. Schubert	3	Lecture	ISE
CM1.2 – Hands-on Measurement Instrumentation	Oct.	J. Haunschild	2	Lab	ISE
CM2.1 – Numerical Simulation of Solar Cells	Oct.	J. Schumacher	5	Lecture	ZHAW

⇒ **Remark:** module requires an on-campus stay of 2 full days in the Fraunhofer ISE laboratories in Freiburg.

CAS PG „Photovoltaics and the Renewable Electricity Grid“

Courses	Start	Lecturer	ECTS	Type	Institute
PG1.1 – Selected Semiconductor Devices	Apr.	O. Höhn	2	Seminar	ISE/IMTEK
PG1.2 – Grid Integration and Control of PV Systems	Apr.	B. Wille-Hausmann	4	Lecture	ISE
PG2.1 – Technologies for Renewable Energy Conversion	Apr.	Th. Schlegl	2	Seminar	ISE
PG2.2 – Smart Grids & Energy Autonom. Communities	Apr.	Ch. Wittwer	2	Lecture	ISE

CAS ST „Advanced Solar Cell Technologies“

Courses	Start	Lecturer	ECTS	Type	Institute
ST1.1 – Inorganic Thin-Film Solar Cells	Oct.	M. Powalla	4	Lecture	ZSW
ST1.2 – III-V Solar Cells and Concentrator Systems	Oct.	G. Siefer	3	Lecture	ISE
ST2.1 – New Concepts for PV Energy Conversion	Oct.	U. Würfel	2	Lecture	ISE/FMF
ST2.2 – Advanced Solar Cell Processing	Oct.	M. Heinrich	1	Seminar	ISE