Modulbezeichnung	Laboratory Course Solar Energy
Semester (Häufigkeit)	WPM (nach Bedarf)
ECTS-Punkte (Dauer)	2 (1 Semester)
Art	Wahlpflichtmodul für BaSES und BaCTUT
Studentische Arbeitsbelastung	30 h Kontaktzeit + 30 h Selbststudium
Voraussetzungen (laut BPO)	Solar Energy
Empf. Voraussetzungen	
Verwendbarkeit	BSES, BCTUT
Prüfungsform und -dauer	Klausur 1,5h oder mündliche Prüfung
Lehr- und Lernmethoden	Vorlesung
Modulverantwortliche(r)	I. Herraez

Qualifikationsziele

The students apply the theoretical concepts learnt in the lectures “Solar Thermal Energy“ and “Photovoltaics“ for performing small-scale solar energy experiments. They broaden their understanding of the physical principles of solar energy utilization and expand their abilities for performing experimental work. They are capable to evaluate and analyze measurement results from photovoltaic modules as well as from solar thermal collectors and extract conclusions about their operation. They deepen their knowledge about the parameters affecting the performance of both solar thermal and photovoltaic systems. In addition, they improve their social and intercultural competencies by working in teams in an international environment.

Lehrinhalte

Characteristics of solar irradiation, one-diode model of solar cells, corrections of one-diode model, maximum power point, fill factor, effect of illuminance, influence of temperature, connection of solar cells, parasitic resistances, optical efficiency of solar collectors, thermal losses.

Literatur

Eicker, U.: Energy Efficient Buildings with Solar and Geothermal Resources,Wiley, 2014.
Arno Smets, Klaus Jager, Olindo Isabella.Solar Energy: The Physics and Engineering of Photovoltaic Conversion, Technologies and Systems, UIT Cambridge LTD, 2016

Lehrveranstaltungen

Dozenten/-innen	Titel der Lehrveranstaltung	SWS
I. Herraez	Laboratory Course Solar Energy	2