Modulbezeichnung	**Laboratory Course Solar Energy**
Semester	WPM
ECTS-Punkte (Dauer)	2 (1 Semester)
Art	Wahlpflichtmodul SES, Wahlplichtfach UT
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
Modulverantwortlicher	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 the solar energy utilization and expand their abilities for performing experimental work. They are capable to evaluate and analyze measurement results from photovoltaics 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 competences 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

Dozent	**Titel der Lehrveranstaltung**	**SWS**
I. Herraez	Laboratory Course Solar Energy	2