Modulbezeichnung	Solar energy
Semester (Häufigkeit)	4 (jedes Sommersemester)
ECTS-Punkte (Dauer)	5 (1 Semester)
Art	Pflichtfach
Studentische Arbeitsbelastung	60 h Kontaktzeit + 90 h Selbststudium
Voraussetzungen (laut BPO)	
Empf. Voraussetzungen	Thermo- und Fluiddynamik, Elektrotechnik
Verwendbarkeit	BSES
Prüfungsform und -dauer	Klausur 1,5h oder mündliche Prüfung oder Mündliche Präsentation und schriftliche Dokumentation
Lehr- und Lernmethoden	Vorlesung, Studentische Arbeit
Modulverantwortliche(r)	I. Herraez

Qualifikationsziele
The students understand the physical and working principles of solar thermal as well as photovoltaic energy systems. They are capable to select and size the components required for the mentioned types of technologies. They are in a position to assess the performance and potential of those renewable energy systems. They are also able to design efficient hybrid energy systems combining different technologies and energy sources.

Lehrinhalte
Solar resource, thermal and electrical energy demand, components of solar thermal and photovoltaics systems, physics of solar energy utilization, performance analysis, efficiency of solar collectors and photovoltaic cells, design and sizing of solar thermal and photovoltaic systems, combination of solar energy systems with heat pumps.

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	Solar thermal energy	2
I. Herraez	Photovoltaics	2