Modulbezeichnung	**Solar energy and biomass**
Semester	null
ECTS-Punkte (Dauer)	5 (1 Semester)
Art	Pflichtfach
Studentische Arbeitsbelastung	60 h Kontaktzeit + 90 h Selbststudium
Voraussetzungen (laut BPO)	
Empf. Voraussetzungen	Thermo- und Fluiddynamik, allgemeine Chemie
Verwendbarkeit	DEL
Prüfungsform und -dauer	Klausur 1,5h oder mündliche Prüfung oder Mündliche Präsentation und schriftliche Dokumentation
Lehr- und Lernmethoden	Vorlesung, Studentische Arbeit
Modulverantwortlicher	I. Herraez

Qualifikationsziele
The students understand the working principles of solar and biomass 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
Thermal energy demand, solar resource, components of solar thermal systems, physics of solar thermal energy, performance analysis, efficiency of solar collectors, design of solar thermal systems, solar thermal power plants.
Greenhouse effect, carbon dioxide emission; amount of biomass, biomass generation and drivers; utilization and potentials of biomass; energy plants and harvesting; availability and allocation, storage and ensilage; frame conditions and requirements on biomass; further aspects of power generation form biomass; combustion of biomass.

Literatur
Eicker, U.: Energy Efficient Buildings with Solar and Geothermal Resources, Wiley, 2014.
M. Kaltschmitt, H. Hartmann, H. Hofbauer; Energy from Organic Materials, Springer Verlag, 2018

Lehrveranstaltungen

Dozent	**Titel der Lehrveranstaltung**	**SWS**
I. Herraez	Solar thermal energy	2
R. Habermann	Biomass	2