**Renewable Energies**

**Fach-Nr.:** ...  

**Lecturer:** Prof. Dr.-Ing. Karl-Heinz Stier  

**ECTS-Credits** 5  

**No. of hours** 4 hours per week (3 hours of lectures, 1 hour of practical exercises)  

**Language** English  

**Total Workload** 150 h  

**Learning objectives:** The Students know the basics of environmental engineering and relevant technologies. They are familiar with technologies for renewable energy generation and techniques of efficient energy usage. They are able to identify current environmental problems and define possible solutions to be applied in practice.

**Contents:** Basics of environmental issues and resource management as well as technologies for renewable energy generation and efficient energy usage. After a general overview, the current status of individual technologies is considered in detail. The basic knowledge of different technologies provided shall qualify the students to be employed in the corresponding professional branch.

- Current energy and environment situation  
- Photovoltaic and photovoltaic facilities  
- Solar thermal power plants  
- Wind power, hydropower  
- Geothermal energy  
- Solar thermal energy  
- - Biomass, etc.

**Media forms:** Seminar-based lectures, technical excursions  

**Recommended basics:** Physics I and II, Basics in Electrical Engineering and Thermodynamics
Literature:

Quaschning, V., Regenerative Energiesysteme, Hanser, 6. Auflage 2009
Quaschning, V., Erneuerbare Energien und Klimaschutz, Hanser, 2008

Further English literature will be discussed during the classes.

Participants: 25

Type of examination:

Written examination

Students have the possibility to give a topic related presentation (group with 2-4 participants) as a preliminary examination. The presentation is voluntary and is valid up to 10% of the examination points of the final examination.