At the completion of this module, the student will:
- have an understanding of the physical mechanisms in the ocean which are on the basis of the generation of surface waves, tides and currents, and their effects, as well as the biological processes that may affect or be affected by ocean energy devices.
- be familiar with the statistic description of waves and currents
- be able to use the statistical information in order to make evaluation of the energy resource
- be able to use GIS for site selection characterization.

- Ocean surface waves: linear wave theory (regular and random waves); wave spectrum; wave energy resource: parametrical characterisation of ocean waves, nearshore wave transformation, wave measurement and modelling.
- Other sources of ocean energy: ocean tidal currents (current measurement; current turbulence; current energy resource); ocean thermal energy conversion; ocean salinity gradient energy resource.
- Site selection and characterization for ocean energy systems: criteria on energy resource, expected cost levels, water depth, seabed geology and ecology, distance to shore, ports, O&M bases and electrical grid; marine environmental issues.

Reader's advisory

Links
Language of instruction: English
Duration (semesters): 1 Semester
Module frequency: jährlich
Module capacity: unlimited
Modulart: MM (Mastermodul / Master module)
Lern-/Lehrform / Type of program: Lectures, Tutorial, Self-study
Vorkenntnisse / Previous knowledge:
Examination: Time of examination: Final exam of module
Exam: end of lecture period (early June)
Report: deadline end of May
Type of examination: Written exam (60%): 2.5 hours
Written report (40%): essay on a chosen topic, 10-20 pages
Course type: Seminar
SWS: Frequency
Workload attendance: 0 h