**pre332 - Modelling and Control of Ocean Energy Systems**

<table>
<thead>
<tr>
<th>Module label</th>
<th>Modelling and Control of Ocean Energy Systems</th>
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<tbody>
<tr>
<td>Module code</td>
<td>pre332</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
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<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
<tr>
<td>Used in course of study</td>
<td>Master's Programme European Master in Renewable Energy (EUREC) &gt; Mastermodule</td>
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<tr>
<td>Contact person</td>
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**Skills to be acquired in this module**

- be familiar with the linear hydrodynamic theory of wave energy systems
- be familiar with the hydrodynamic theory of marine current turbines (BEM)
- be introduced to advanced numerical hydrodynamic modelling of wave and current systems and control simulation
- be familiar with experimental testing and monitoring of OE systems
- acquire basic knowledge of other forms of ocean energy and their systems as OTEC and salinity gradients.

**Module contents**

- Other types of energy systems: Ocean Thermal Energy Conversion (OTEC). Energy from salinity gradients. Laboratory
- Wave Flume of the Civil Engineering Department of IST: Characterization of systems of regular and irregular 2D waves. Energy spectra. (Duration 3 h).
- Wave Flume of the Civil Engineering Department of IST: Characterization of a floating body response RAO in a system of regular 2D waves. (Duration 3 h).

**Reader’s advisory**

Lecture Notes. To be produced.

**Links**

Language of instruction: English
Duration (semesters): 1 Semester
Module frequency: jährlich
Module capacity: unlimited
Module level: MM (Mastermodul)
Modulart: Pflicht
Lern-/Lehrform / Type of program: Lectures, Tutorial, Laboratory, Self-study

**Vorkenntnisse / Previous knowledge**

**Examination**

<table>
<thead>
<tr>
<th>Time of examination</th>
<th>Type of examination</th>
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<tr>
<td>Written exam (Wave Energy): early April</td>
<td>Written exam (40%): Wave Energy, 2.5 hours</td>
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<tr>
<td>Written exam (Marine Current Turbines): early June</td>
<td>Written exam (50%): Marine Current Turbines, 2.5 hours</td>
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<tr>
<td>Written report (Lab): mid-May</td>
<td>Written report (10%): Lab report, 10 - 20 pages</td>
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**Course type**

Seminar

**SWS**

Frequency: 0 h
Workload attendance: 0 h