## Study Card

### Module-No.
Geo_M305

### Semester
3

### Teaching staff
Dr. Anette Seibt-Winckler, Prof. Dr.-Ing. Volker Böder

### Module-coordinator (designated each sem.)
Prof. Dr.-Ing. Volker Böder

### Module name
Marine Geology / Geophysics

<table>
<thead>
<tr>
<th>Subject areas</th>
<th>Duration/sem.</th>
<th>Frequency of offering</th>
<th>Type (C/CE/E)</th>
<th>Emphasis in overall grade / %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrography</td>
<td>1 Semester</td>
<td>each WiSe</td>
<td>C</td>
<td>4,16 %</td>
</tr>
</tbody>
</table>

### CP (according to ECTS)

<table>
<thead>
<tr>
<th>Workload / h.</th>
<th>Self-study / h.</th>
<th>Contact time / h.</th>
<th>Contact hours / week (SWS)</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>146</td>
<td>90</td>
<td>56</td>
<td>4 + 0</td>
<td>oral (graded)</td>
</tr>
</tbody>
</table>

### Previous knowledge / Conditions for participation (in form and content)

- 

### Educational aims of the module (Learning objectives/results, skills)

Developing a comprehensive understanding of geological processes and geomorphology and the relevant measurement methods used in the marine environment.

### Course contents

#### Geology / Geomorphology:

- Undersea features: cartographic terminology, definitions, and symbology.
- Geomorphology: geomorphological and sedimentary processes and structures, effects on seabed topography, with special reference to the continental shelf.

#### Seismics:

- Seismic instrumentation: Energy sources, detectors, recording instruments (analog, digital).

#### Magnetics and Gravimetry:

- Theory of the geomagnetic field: actual field (representation, variations, magnetic storms etc.), model geomagnetic fields (international geomagnetic reference fields).
- Magnetic survey instrumentation: magnetometers (magnetic field balance, fluxgate, proton, optical pumping magnetometers), moving platform instrumentation.
- Magnetic data acquisition and reduction. Execution of magnetic surveys, special considerations for moving platforms, numerical reductions, contour maps.
- Applications: geophysical, wreck search at sea.
- Gravity survey instrumentation: absolute gravimeters (pendulum, free fall instruments, rise and fall instruments), relative gravimeters (pendulum, spring gravimeters), systems for use on ships and in aircraft. Acquisition and processing of gravity data. Applications in geodesy and geophysics.

### Teaching and learning methods

- Taught seminars

### Condition for awarding the ECTS-credits

- Combined Oral examination

### Additional Information

Latest update: 06/2011