<table>
<thead>
<tr>
<th>Modulbezeichnung/ Title of module:</th>
<th>Customization, Internet GIS, Visualisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kürzel/ Module code:</td>
<td>CIV</td>
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<tr>
<td>Semester:</td>
<td>PG 2</td>
</tr>
<tr>
<td>Modulverantwortliche(r)/ Responsible for module:</td>
<td>Prof. Dr. Franz-Josef Behr</td>
</tr>
<tr>
<td>Dozent(in)/ Lecturer:</td>
<td>Prof. Dr. Behr / Prof. Dr. Coors / Prof. Dr. Schröder</td>
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<tr>
<td>Zuordnung zum Curriculum/ Relation to curriculum:</td>
<td>Compulsory subject MSc Photogrammetry and Geoinformatics</td>
</tr>
<tr>
<td>SWS / Lehrform/ SHW/ Teaching methods:</td>
<td>Each topic is introduced by a lecture which seeks to identify the main issues in order to convey an understanding of the relative importance of the technical issues to the customization of software tools, Internet GIS and Visualization methods related to geomatics. The lectures are accompanied by guided practices and hands-on workshops in the computer lab. Students are expected to use the recommended online tutorials for the standard issues of programming language used (4 SWS).</td>
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<tr>
<td>Arbeitsaufwand/Workload:</td>
<td>contact hours 60 self-study 120 hours</td>
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<tr>
<td>Kreditpunkte/ Credit points:</td>
<td>6</td>
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<tr>
<td>Empfohlene Vorkenntnisse/ Recommended prerequisite subjects:</td>
<td>Basic knowledge of a programming languages, XML/HTML, CSS, JavaScript Knowledge of GIS and geospatial data processing and modelling</td>
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</table>
| Angestrebte Lernergebnisse/ Expected learning outcomes: | On successful completion of this module, students should be able to:  
  - list different customization approaches in modern system architectures and apply them,  
  - explain how geospatial applications works in the Internet and judge different approaches, applications, interfaces, and architectures to implement such applications,  
  - set up a multi-tier Internet / Intranet applications based on standard software components,  
  - list which components are required in modern visualization techniques and integrate them into existing workflows,  
  - set up a web-based 3D-visualization based on OGC standards. |
| Inhalt/ Content:                  | Part 1: Customization  
  - Customizing a graphical user interface  
  - Adding tools and Add-Ins |
## Title of module: Customization, Internet GIS, Visualisation

### Part 2: Web Mapping and Internet GIS
- Visual geoprocessing modelling
- client / server and multi-tier architectures
- relevant protocols for client / server communication (HTTP, FTP, AJAX)
- client-side and server side technologies
- administration of Web servers (like Apache)
- Map Servers and Mapping Clients
- Server side programming and geo-database integration
- Internet Mapping in the Web 2.0 context

### Part 3: Visualization
- Computer Assisted Cartography
- data aspects, 3D data formats (X3D, CityGML)
- simplification of terrain models
- visualization from urban and regional model to digital globes

### Study assessment and Examination:
- Written examination
  
  As a prerequisite for the written exam, a number of assignments have to be prepared.

### Forms of media:
- Lecture, Project based Learning, Moodle, video tutorials

### Literature:

### Web3D conference proceedings (selected papers)

### Course material
- Internet GIS: Client Side Technologies (HFT Stuttgart), Server Side Technologies (HFT Stuttgart)
- Online tutorial x3dom and geovisualization (Fraunhofer IGD / HFT Stuttgart)

### Software:
- ESRI ArcGIS
- Apache HTTPD, PHP, MySQL, JavaScript, d3js, OpenLayers