

<b>Module level</b> Master	<b>Credit points</b> 6	<b>Language</b> English	<b>Return</b> annual
<b>Module designation</b> Towers			
<b>Course(s)</b> Towers			
<b>Code</b>	<b>Subtitle</b>		
<b>Person responsible for the module</b>	Prof. Dr.-Ing. Detlef Kuhl		
<b>Lecturer</b>	N.N.		
<b>Workload</b>	180h (30h contact time, 90h private study, 60h homework)		
<b>Relation to curriculum</b>	Specialist studies, Simulation and Structural Technology, elective		
<b>Type of teaching, contact hours</b>	Skype, virtual classrooms, online presentation, digital communication		
<b>Requirements according to examination regulations</b>	None		
<b>Recommended prerequisites:</b> None			
<b>Module objective / intended learning outcomes</b> At the end of the course <ul style="list-style-type: none"> <li>– students know the basic construction of towers for wind turbines (lattice tower, concrete tower, steel tube tower) and their connection to cable and foundation.</li> <li>– they have the knowledge of static and dynamic structural behavior of the tower.</li> <li>– they understand reduced mechanical models and their analytical solution.</li> <li>– they are able to generate finite element models of the towers and to interpret the approximate solution for the design and use of towers.</li> <li>– understand mathematical optimization methods and application to optimize the various tower designs.</li> </ul>			
<b>Content</b> <ul style="list-style-type: none"> <li>• Construction of towers</li> <li>• Steel tower and calculation concepts</li> <li>• Steel concrete tower and calculation concepts</li> <li>• Fundaments, swimming fundaments</li> <li>• Fundaments of concrete technology</li> <li>• Grouted joints</li> <li>• Strength characteristics, deformational behavior and fatigue behavior</li> <li>• Durability</li> </ul>			
<b>Study and examination requirements and forms of examination</b>	Written exam (120 min) or online oral examination (30 min) or written homework (25 pages) with presentation of the homework (30 min). The examinations are going to 75% (written homework) of the shares and 25% (presentation) in the final grade of the module.		
<b>Media employed</b>	online script		
<b>Reading list</b> Reading list will be provided by lecturer via Moodle online platform.			