

Hydromechanics of Offshore Structures

Hydromechanik meerestechnischer Baukonstruktionen

Prüfungs-/Studienleistungen K / -	Art/SWS 2V / 2Ü	Sprache E	LP 6	Semester WS	Prüfnr. 491
Dauer der Hausarbeit/-übung					

Ziel des Moduls

After an overview of the spectrum and tasks of ocean engineering, the students learn the hydromechanical basics and methods for the calculation of flow and wave forces on marine structures. The module is focusing on the force components to be considered, both on hydrodynamically transparent and on compact structures, like monopiles, jacket structures, submarine cables, and floating structures. Wave-structure interactions are discussed in particular for floating structures, which enable the students to determine the motion of different floating structures.

The successful completion of the module enables the students to:

- Estimate environmental conditions.
- Calculate and evaluate wave loads on hydrodynamically transparent, fixed structures.
- Calculate and evaluate wave loads on hydrodynamically compact, fixed structures.
- Determine forces and motions of floating components or structures.

Inhalt des Moduls

- Introduction to marine technology
- Marine constructions
- Flow around hydrodynamically compact and transparent structures
- Froude-Krylov forces, hydrodynamic mass forces, inertial wave forces
- Morison equation and extensions
- Determination of hydrodynamic loads on fixed structures
- Determination of hydrodynamic loads and motions on floating structures

Workload	180 h (60 h Präsenz- und 120 h Eigenstudium einschl. Prüfungs-/Studienleistung)
Empf. Vorkenntnisse	Fluid Mechanics & Coastal Engineering
Literatur	Faltinsen, O. (1990): Sea Loads on Ships and Offshore Structures, Ocean Technology Chakrabarti, S. K. (2005): Handbook of Offshore-Engineering, Volume 1+2, Elsevier, Oxford-UK, 2005 Bentham (1994): Advanced offshore engineering, Offshore engineering handbook series, ISBN: 1-87461-214-5 G. Clauss, E. Lehmann, C. Östergaard (1988): Meerestechnische Konstruktionen, Springer Verlag, Berlin Heidelberg New York
Medien	StudIP, ppt-Slides, Projector, Whiteboard, etc
Besonderheiten	none

Modulverantwortlich	Hildebrandt, Arndt
Dozenten	Meyer, Jannik; Landmann, Jannis; Grotebrune, Thilo; Hildebrandt, Arndt
Betreuer	Hildebrandt, Arndt
Verantwortl. Prüfer	Hildebrandt, Arndt
Institut	Ludwig-Franzius-Institut für Wasserbau, http://www.lufi.uni-hannover.de Fakultät für Bauingenieurwesen und Geodäsie

Studiengangsspezifische Informationen	P/W und Kompetenzbereich in Abhängigkeit von Vertiefungsrichtung			
	Konstruktiver Ingenieurbau	Wasser- und Küsteningenieurwesen	Windenergie-Ingenieurwesen	Baumanagement
	W ÜI	W FSV	W FSV	W ÜI