

Studiengang: <b>Internationales Studium</b> Program: <i>International Studies</i>														
1	Modul: <b>Fluid Mechanics I</b> Modul: <i>Strömungslehre I</i>	English <i>English</i>												
		<b>Semester</b> <i>Semester</i>	<b>Dauer</b> <i>Duration</i>	<b>Status</b> <i>Status</i>										
		4. Semester	1 Semester	Mandatory										
	<b>Kreditpunkte</b> <i>Credits</i>	<b>Aufwand</b> <i>Workload</i>	<b>Kontaktzeit</b> <i>Contact-hours</i>	<b>Selbststudium</b> <i>Student's efforts</i>										
4 ECTS	120 h	3 SWS = 45 h In class 1 SWS = 15 h practical training	30 h preparations 30 h practical training											
2	<b>Beschreibung</b> <i>Description</i> Because of its variety in application Fluid mechanics is one of the fundamental topics in mechanical engineering. The course gives an overview over the fundamental physics of fluid dynamics and the student should be enabled to apply existing experimental results and corresponding models on engineering topics. The underlying physics should be understood and thus the applicability and limits of the model used should be understood. The content and extent of the practical training will be planned flexible in a way that it fits to Fluid Mechanics II which is held at MSOE. The Contact hours and students offered are adjusted that the total amount of effort and contact hours keep the same.													
3	<b>Lernziele</b> <i>Learning Outcomes</i> <ul style="list-style-type: none"> <li>• Computation and understanding of hydrostatic loads and lift phenomenons</li> <li>• Understanding of fundamentals of kinematics, balance equations, friction, similarity and characteristic numbers</li> <li>• Understanding of the model of stream-tubes</li> <li>• Computation of hydraulic pipe systems and related topics including physical understanding of phenomenons appearing</li> </ul> Optional <ul style="list-style-type: none"> <li>• Understanding of basic compressible flow phenomenons</li> <li>• Introduction to and usage of experimental methods of fluid-mechanics</li> </ul>													
4	<b>Schlüsselqualifikationen</b> <i>Key qualifications</i> <table border="1" data-bbox="204 1176 1513 1249"> <tr> <td>Sozialkompetenz</td> <td>Methodenkompetenz</td> <td>Selbstkompetenz / Personenkompetenz</td> <td>Interkulturelle Kompetenz</td> <td>Medienkompetenz</td> </tr> <tr> <td>X</td> <td>X</td> <td>X</td> <td></td> <td>X</td> </tr> </table>				Sozialkompetenz	Methodenkompetenz	Selbstkompetenz / Personenkompetenz	Interkulturelle Kompetenz	Medienkompetenz	X	X	X		X
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X	X	X		X										
5	<b>Lehrveranstaltung/ -methoden</b> <i>Course type and methods</i> <b>Vorlesung</b> <ul style="list-style-type: none"> <li>• Course in class room</li> <li>• Usage of calculation methods on related exercises</li> </ul> <b>Praktikum/Projekt</b> <ul style="list-style-type: none"> <li>• Typical experimental or simulation examples of fluid mechanics if offered</li> </ul>													
6	<b>Vorbedingungen / Vorkenntnisse</b> <i>Prerequisites</i> Vorkenntnisse sollten aus folgenden Bereichen sollten vorhanden sein <ul style="list-style-type: none"> <li>• Mathematics (multidimensional integrals, differential calculus, partial differential equations)</li> <li>• Thermodynamics (state variables, entropy , material equations) – class can be held in par</li> <li>• Basic knowledge of mechanics (balance of forces, point mechanics)</li> </ul>													
7	<b>Arbeitsmittel / Literatur</b> <i>Required material / Literature</i> <ul style="list-style-type: none"> <li>• Literature or course packs according to recommendations in class</li> <li>• Course pack for practical training if offered</li> </ul>													
<b>Detailinformationen</b>														
8	<b>Inhalte</b> <i>Course topics</i> Physical fundamentals and properties of fluids Fluids at rest Fundamentals of fluid-dynamics One-dimensional theory of stream-tubes Pipe-hydraulics and related topics Optional: Compressible flow													
9	<b>Prüfungsform</b> <i>Assessment</i>													

	Prüfungsvorleistung / Prerequisite: None Fachprüfung / Examination: Writen test						
10	<b>Voraussetzung für die Vergabe von Kreditpunkten</b> <i>Requirements for granting of credits</i> Successful passing of all individual parts of the examination according to row 9 „Assessment“ Successful attendance on all related flow practical trainings if offered						
11	<b>Weiterführende Veranstaltungen</b> <i>Related courses</i> Turbomachinery, Wind Turbines, CFD, Fluid Mechanics II						
12	<b>Zuordnung</b> <i>Classification</i>						
	Mathematik & Naturwissenschaft	Ingenieurwissenschaften	Ingenieur-anwendungen	Entwicklung & Konstruktion	Werkstoffe	Wirtschaft, Management, Sprachen	Anderes
	X	X	X				X
13	<b>Modulbeauftragter / Lehrpersonen</b> <i>Responsible person / Lecturers</i> Prof. Dr. Warnack / Prof. Dr. Warnack						