

Module: Fluid Mechanics I

Level	Bachelor	Short Name	FMe	
Responsible Lecturers	Warnack, Dieter, Prof. DrIng.			
Department, Facility	Mechanical Engineering and Business Administration			
Course of Studies	Mechanical Engineering, Bachelor			
Compulsory/elective	Compulsory	ECTS Credit Points	4	
Semester of Studies	5	Semester Hours per Week	4	
Length (semesters)	1	Workload (hours)	120	
Frequency	SuSe	Presence Hours	60	
Teaching Language	English	Self-Study Hours	60	
The following section is filled on	ly if there is exactly or	ne module-concluding exam.		
Exam Type	Written Exam	Exam Language	English	
Exam Length (minutes)	90	Exam Grading System	One-third Grades	
Learning Outcomes	According to the listed contents of the lecture below, the students should be able to analyse and compute corresponding problems in fluid mechanics.			
Participation Prerequisites	Understanding and participation of lectures in mathematics and thermodynamics			
The previous section is filled on	y if there is exactly on	e module-concluding exam.		
Consideration of Gender	 Use of gender-neutral language (THL standard) 			
and Diversity Issues	 X Target group specific adjustment of didactic methods 			
	X Making subject diversity visible (female researchers, cultures etc.)			
Applicability	thermodynamics, turbomachinery, wind turbines, heat transfer, CFD			
Remarks				



Module Course: Fluid Mechanics (Lecture)

(of Module: Fluid Mechanics I)

Course TypeLectureForm of LearningPresenceMandatory AttendancenoECTS Credit Points3Participation LimitSemester Hours per Week3Group SizeEnglishWorkload (hours)90Teaching LanguageEnglishPresence Hours52Study Achievements ("Studienleistung", SL)Self-Study Hours38SL Length (minutes)SL Grading SystemImage: Study AchievementsSL Length (minutes)Image: Study AchievementsImage: Study AchievementsExam TypeExam Cading SystemImage: Study AchievementsExam TypeExam Cading SystemImage: Study AchievementsExam TypeExam Grading SystemImage: Study AchievementsExam Section is filled only if there is a course-specific exam.Image: Study AchievementsParticipation PrerequisitesImage: Study AchievementsParticipation PrerequisitesImage: Study AchievementsStudy AchievementsImage: Study AchievementsIter arring OutcomesImage: Study AchievementsIter arring OutcomesImage: Study AchievementsImage: Study Achieve					
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Participation LimitSemester Hours per Week3Group SizeWorkload (hours)90Teaching LanguageEnglishPresence Hours52Study Achievements ("Studienleistung", SL)Self-Study Hours38SL Length (minutes)SL Grading SystemThe following section is filled only if there is a course-specific exam.Exam TypeExam LanguageExam Length (minutes)Exam Grading SystemLearning OutcomesParticipation PrerequisitesThe previous section is filled only if there is a course-specific exam.Contents• basic definitions• basic definitions• hydrostatic pressure distribution in liquids and gases• hydrostatic pressure distribution in liquids and gases• indamentals about kinematics, balance equations, friction, similarity and characteristic numbers, turbulence, flow separation • one-dimensional theory of stream-tubes and pipe-hydraulics including pumps and liquid turbines• compressible flowLiteratureas recommended in classRemarks	Mandatory Attendance	no	ECTS Credit Points	3	
Group SizeWorkload (hours)90Teaching LanguageEnglishPresence Hours52Study Achievements ("Studienleistung", SL)Self-Study Hours38SL Length (minutes)SL Grading SystemThe following section is filled only if there is a course-specific exam.Exam TypeExam LanguageExam Length (minutes)Exam Grading SystemLearning OutcomesExam Grading SystemParticipation PrerequisitesThe previous section is filled only if there is a course-specific exam.Contents• basic definitions • hydrostatic pressure distribution in liquids and gases • fundamentals about kinematics, balance equations, friction, similarity and characteristic numbers, turbulence, flow separation • one-dimensional theory of stream-tubes and pipe-hydraulics including pumps and liquid turbines • momentum equation of fluid mechanics -> computation of forces • compressible flowLiteratureas recommended in class	Participation Limit		Semester Hours per Week	3	
Teaching LanguageEnglishPresence Hours52Study Achievements ("Studienleistung", SL)Self-Study Hours38SL Length (minutes)SL Grading System38The following section is filled only if there is a course-specific exam.Exam LanguageExam TypeExam LanguageExam Length (minutes)Exam Grading SystemLearning OutcomesExam Grading SystemParticipation Prerequisitessection is filled only if there is a course-specific exam.The previous section is filled only if there is a course-specific exam.basic definitionsContentsbasic definitionshydrostatic pressure distribution in liquids and gasesfundamentals about kinematics, balance equations, friction, similarity and characteristic numbers, turbulence, flow separationone-dimensional theory of stream-tubes and pipe-hydraulics including pumps and liquid turbinesmomentum equation of fluid mechanics -> computation of forcesCiteratureas recommended in classas recommended in class	Group Size		Workload (hours)	90	
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Literature as recommended in class Remarks	Contents	 basic definitions hydrostatic pressure distribution in liquids and gases fundamentals about kinematics, balance equations, friction, similarity and characteristic numbers, turbulence, flow separation one-dimensional theory of stream-tubes and pipe-hydraulics including pumps and liquid turbines momentum equation of fluid mechanics -> computation of forces compressible flow 			
Remarks	Literature	as recommended in class			
	Remarks				



Module Course: Fluid Mechanics (Practical Training)

(of Module: Fluid Mechanics I)

Course Type	Practical Training	Form of Learning	Presence		
Mandatory Attendance	no	ECTS Credit Points	1		
Participation Limit		Semester Hours per Week	1		
Group Size		Workload (hours)	30		
Teaching Language	English	Presence Hours	8		
Study Achievements ("Studienleistung", SL)	Practical Training	Self-Study Hours	22		
SL Length (minutes)		SL Grading System	Pass		
The following section is filled only if there is a course-specific exam.					
Exam Type		Exam Language			
Exam Length (minutes)		Exam Grading System			
Learning Outcomes					
Participation Prerequisites					
The previous section is filled only if there is a course-specific exam.					
Contents	experiments on measurment of flow rates and velocity in liquids and gases				
Literature	as recommended in class				
Remarks					