

Module: Principles of Thermodynamics II

Level	Bachelor	Short Name	PTDyn II
Responsible Lecturers	Pietsch, Arne, Prof. Dr.-Ing.		
Department, Facility	Mechanical Engineering and Business Administration		
Course of Studies	Mechanical Engineering, Bachelor		
Compulsory/elective	Compulsory	ECTS Credit Points	2
Semester of Studies	6	Semester Hours per Week	2
Length (semesters)	1	Workload (hours)	60
Frequency	SuSe	Presence Hours	30
Teaching Language	English	Self-Study Hours	30

The following section is filled only if there is **exactly one** module-concluding exam.

Exam Type	Written Exam	Exam Language	English
Exam Length (minutes)	60	Exam Grading System	One-third Grades
Learning Outcomes	Upon successful completion of this course, the student will be able to <ul style="list-style-type: none"> • work with phase diagrams • find state variables and process variables of steam cycles and overall efficiencies • determine absolute and relative humidity in technical processes with air 		
Participation Prerequisites	Prerequisite: lecture Principles of Thermodynamics I		

The previous section is filled only if there is **exactly one** module-concluding exam.

Consideration of Gender and Diversity Issues	<ul style="list-style-type: none"> ✓ Use of gender-neutral language (THL standard) ✓ Target group specific adjustment of didactic methods ✓ Making subject diversity visible (female researchers, cultures etc.)
Applicability	Seminar design project (4th year at MSOE)
Remarks	This is a continuation of basic thermodynamic concepts for mechanical engineering students. The thermodynamic principles are applied in the study of cycle processes and multi-phase and multi-component systems.

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Course Type	Lecture	Form of Learning	Presence
Mandatory Attendance	no	ECTS Credit Points	2
Participation Limit		Semester Hours per Week	2
Group Size		Workload (hours)	60
Teaching Language	English	Presence Hours	30
Study Achievements ("Studienleistung", SL)		Self-Study Hours	30
SL Length (minutes)		SL Grading System	One-third Grades

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	This is a continuation of basic thermodynamic concepts for mechanical engineering students. New topics are: steam, steam processes, humid air, mixtures of gases.
Literature	THERMODYNAMICS: AN ENGINEERING APPROACH, Yunus Çengel, Michael A Boles
Remarks	