Valid from 2024.HS

Module description: Applied Heat Transfer

Module Code	t.BA.XX.FTH3.19HS
ECTS Credits	4
Language of Instruction/Examination	German
Organizational Unit	IEFE
Module Coordinator	Mirko Bothien
Legal Framework	The module description is part of the legal basis in addition to the general academic regulations. It is binding. During the first week of the semester a written and communicated supplement can specify the module description in more detail.
Module Characteristic	Type 3b 2 lecture lessons per semester week and class+ 4 lab bi-weekly lessons per semester and half-class
Module Description	The Applied Heat Transfer module from the Fluid and Thermodynamics (FTH) series teaches the fundamentals of heat transfer. The overall aim is to master the various heat transfer mechanisms and the design of heat exchangers for technical applications.
Module Content	• Classes: • - Heat transport mechanisms • - Stationary and transient heat conduction; 1D and 2D • - Convective heat transport • - Technical radiation • - Design of heat exchangers with and without phase change • - Dimensionless numbers • - Evaporation and condensation • Practical training: • - Instationary heat conduction • - Heat exchanger (variation in number of plates, operating mode) • - Water / air heat exchanger • - Heating wall (free convection)
Prerequisite Knowledge	

Learning Objectives (Competences)

Students...	Competencies	Taxonomies
Students are able apply the relevant balancing theorems to heat transfer problems	M, F	K3
Students can analyze and design heat exchangers.	F, M	K4
Students can apply similarities and dimensionless characteristic numbers to solve heat transfer problems.	F, M	K4

Performance Assessment

End-of-module exam	Assessment	Length (min.)	Weighting	Form
written exam	Grade	90	100	acc. to module agreement

Performance assessment during the semester	Assessment	Length (min.)	Weighting	Form
-	-	-	-	-

Classroom Attendance Requirement	None
Learning material	

Module description: Applied Heat Transfer

Comments	Type of lessons: Lessons include 2 group lessons per week throughout the semester. The lessons are accompanied by a group practicum with 4 experiments (compulsory). Details are regulated in the module agreement. Students are expected to actively participate in the exercises and the practical course in particular. Self-study: Contents: Independent study of the heat transfer topics selected by the lecturer. This self-study material can also be the subject of the written exam.