

Module Handbook

TUK MODHB Homepage

Notes on the module handbook of the department Mechanical and Process Engineering

Die hier dargestellten veröffentlichten Studiengang-, Modul- und Kursdaten des Fachbereichs Maschinenbau und Verfahrenstechnik ersetzen die Modulbeschreibungen im KIS und wurden mit Ausnahme folgender Studiengänge am 28.10.2020, bzw. am 13.01.2021 verabschiedet.

Ausnahmen:

- BEd. Lehramt Metalltechnik (Stand WS 19/20): https://www.mv.uni-kl.de/fileadmin/mv/Studium_Lehre/Modulhandbuecher/MHB_Bachelor_Lehramt_Metalltechnik.pdf
- MEd. Lehramt Metalltechnik Werkstoffe und Fertigung (Stand WS 19/20): https://www.mv.uni-kl.de/fileadmin/mv/Studium_Lehre/Modulhandbuecher/MHB_Master_Lehramt_Metalltechnik_-_Werkstoffe_und_Fertigung.pdf
- MEd. Lehramt Metalltechnik Maschinen- und Fahrzeugtechnik (Stand WS 19/20): https://www.mv.uni-kl.de/fileadmin/mv/Studium_Lehre/Modulhandbuecher/MHB_Master_Lehramt_Metalltechnik_-_Fahrzeugtechnik.pdf
- MEd. Lehramt Metalltechnik Verfahrenstechnik (Stand WS 19/20): https://www.mv.uni-kl.de/fileadmin/mv/Studium_Lehre/Modulhandbuecher/MHB_Master_Lehramt_Metalltechnik_-_Verfahrenstechnik.pdf

Module MV-SAM-M137-M-4

Conventional Energy Technology (M, 5.0 LP)

Module Identification

Module Number	Module Name	CP (Effort)
MV-SAM-M137-M-4	<i>Conventional Energy Technology</i>	5.0 CP (150 h)

Basedata

CP, Effort	5.0 CP = 150 h
Position of the semester	1 Sem. in WiSe
Level	[4] Bachelor (Specialization)
Language	[DE] German
Module Manager	Reviol, Thomas, Dr.-Ing. (WMA DEPT: MV)
Lecturers	Reviol, Thomas, Dr.-Ing. (WMA DEPT: MV)
Area of study	[MV-SAM] Fluid Mechanics and Turbomachinery
Reference course of study	[MV-88.B10-SG] M.Sc. Energy and Process Engineering
Lifecycle-State	[NORM] Active

Courses

Type/SWS	Course Number	Choice in Module-Part	SL	PL	CP	Sem.
2V+2U	MV-SAM-86359-K-5	P	-	PL1	5.0	WiSe

- About [MV-SAM-86359-K-5]: Title: "Conventional Energy Technology"; Presence-Time: 56 h; Self-Study: 94 h

Examination achievement PL1

- Form of examination: **written or oral examination**
- Examination Frequency: each semester
- Examination number: 10366 ("Conventional Energy Technology")

Written (90-120 minutes) or oral (30-45 minutes) examination

Evaluation of grades

The grade of the module examination is also the module grade.

Contents

From [MV-SAM-86359-K-5] Conventional Energy Technology:

- Design of power plant processes: Calculation and design of heat transfer and of polytropic processes in turbomachinery
- Design of combustion processes: heat of combustion calculations of different fuels, calculation of boiler systems
- Calculation of combined heat and power systems
- Illustration of the key components of a fossil fuel power station using case studies

Competencies / intended learning achievements

From [MV-SAM-86359-K-5] Conventional Energy Technology:

1. Lecture:

The students are able to

- develop power plant processes and analyse them with regard to the energy flow
- differentiate between power plant processes with regard to ideal and polytropic change of state
- optimise given power plant processes from real examples and propose solutions
- list the advantages of a combined heat and power system, describe them and implement them in a given example.

2. Exercise:

The students are able to

- apply the contents of the lecture to calculation examples in individual and team work
- present their proposed solutions defend them and criticise and evaluate other proposed solutions

Literature

From [MV-SAM-86359-K-5] Conventional Energy Technology:

- Baehr, H. D. & Kabelac, S., Thermodynamik - Grundlagen und technische Anwendungen, Springer, 2009
- Strauss, K., Kraftwerkstechnik - zur Nutzung fossiler, nuklearer und regenerativer Energiequellen, Springer, 2006

Requirements for attendance of the module (informal)

Modules:

- [MV-LTD-B130-M-4] Energy process and systems engineering (M, 3.0 LP)
- [MV-SAM-B129-M-4] Introduction to Energy Technology (M, 5.0 LP)
- [MV-TD-18-M-4] Thermodynamics I (M, 5.0 LP)

Requirements for attendance of the module (formal)

None

References to Module / Module Number [MV-SAM-M137-M-4]

Course of Study	Section	Choice/Obligation
[MV-88.B10-SG] M.Sc. Energy and Process Engineering	[Compulsory Modules] Pflichtmodule	[P] Compulsory
Module-Pool	Name	
[MV-ALLG-2022-MPOOL-6]	Wahlpflichtmodule Master allgemein 2022	
[MV-ALL-MPOOL-6]	Wahlpflichtmodule allgemein	
[MV-EVT-2022-MPOOL-6]	Wahlpflichtmodule M.Sc. EVT 2022	
[MV-MV-SIAK-DT-ENG-MPOOL-6]	SIAK Zertifikat "Digitale Transformation" - Module MV "Engineering"	
[MV-PE-2022-MPOOL-6]	Wahlpflichtmodule M.Sc. Produktentwicklung 2022	
[MV-PE-MPOOL-6]	Wahlpflichtmodule Produktentwicklung im Maschinenbau	