

Module Handbook (<https://modhb.uni-kl.de/>)

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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 verabschiedet.

Ausnahmen:

- BSc. Bio- und Chemieingenieurwissenschaften (Stand WS 20/21): https://www.mv.uni-kl.de/fileadmin/mv/Studium_Lehre/Modulhandbuecher/MH_BSc_BCI.pdf (https://www.mv.uni-kl.de/fileadmin/mv/Studium_Lehre/Modulhandbuecher/MH_BSc_BCI.pdf)
- BEd. Lehramt Metalltechnik (Stand WS 19/20): https://www.mv.uni-kl.de/fileadmin/mv/Studium_Lehre/Modulhandbuecher/MHB_Bachelor_Lehramt_Metalltechnik.pdf (https://www.mv.uni-kl.de/fileadmin/mv/Studium_Lehre/Modulhandbuecher/MHB_Bachelor_Lehramt_Metalltechnik.pdf)
- MSc. Bio- und Chemieingenieurwissenschaften (Stand WS 20/21): https://www.mv.uni-kl.de/fileadmin/mv/Studium_Lehre/Modulhandbuecher/MH_Msc_BCI.pdf (https://www.mv.uni-kl.de/fileadmin/mv/Studium_Lehre/Modulhandbuecher/MH_Msc_BCI.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 (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 (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 (https://www.mv.uni-kl.de/fileadmin/mv/Studium_Lehre/Modulhandbuecher/MHB_Master_Lehramt_Metalltechnik_-_Verfahrenstechnik.pdf)

Module MV-SAM-106-M-7

Energy Technology II (M, 3.0 LP)

Module Identification

Module Number	Module Name	CP (Effort)
MV-SAM-106-M-7	<i>Energy Technology II</i>	3.0 CP (90 h)

Basedata

CP, Effort	3.0 CP = 90 h
Position of the semester	1 Sem. in SuSe
Level	[7] Master (Advanced)
Language	[DE] German
Module Manager	Reviol, Thomas, Dr.-Ing. (WMA DEPT: MV) (/staff/266/)
Lecturers	Reviol, Thomas, Dr.-Ing. (WMA DEPT: MV) (/staff/266/)
Area of study	[MV-SAM] Fluid Mechanics and Turbomachinery
Lifecycle-State	[NORM] Active

Courses

Type/SWS	Course Number	Choice in Module-Part	SL	PL	CP	Sem.
2V	MV-SAM-86360-K-7 (/mhb/courses/MV-SAM-86360-K-7/)	P	-	PL1	3.0	SuSe

- About **[MV-SAM-86360-K-7]**: Title: "Energy Technology II"; Presence-Time: 28 h; Self-Study: 62 h

Examination achievement PL1

- Form of examination: **written or oral examination**
- Examination Frequency: each semester
- Examination number: 10360 ("Energy Technology II")

Written (90 minutes) or oral (30 minutes) examination

Evaluation of grades

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

Contents

From **[MV-SAM-86360-K-7] Energy Technology II** (/mhb/courses/MV-SAM-86360-K-7/):

- Forms of energy conversion and basic definitions
- Thermal efficiency and thermodynamics of heat engines and heat pump processes and their optimisation
- Combustion (systems of combustion and flue gas treatment)
- Nuclear fission (physical principles and relevant reactor types)
- Renewable Energy (short overview)

Competencies / intended learning achievements

From **[MV-SAM-86360-K-7] Energy Technology II** (/mhb/courses/MV-SAM-86360-K-7/):

- The students are able to describe relevant thermodynamic cycles and compare them with each other as well as to select a suitable cycle for a given application case.
- They can name and describe the optimisations of cycles and calculate and create specific examples or proposals.
- They are able to list different methods of combustion and compare them with each other.
- They know relevant methods of flue gas treatment.

- The students know variants of nuclear reactions, compare them with each other and they know the technically usable one.
- They are able to enumerate and describe the steps for the utilisation of this nuclear reaction and to combine them if necessary.
- They can summarise the relevant renewable energy methods.

Literature

From [MV-SAM-86360-K-7] Energy Technology II (/mhb/courses/MV-SAM-86360-K-7/):

- Strauß: Kraftwerkstechnik, Springer 2006
- Zahoransky: Energietechnik, Vieweg 2002
- Gasch, Twele: Windkraftanlagen, Teubner 2007

Requirements for attendance (informal)

Modules:

- [MV-TD-18-M-4] Thermodynamics I (M, 5.0 LP) (/mhb/modules/MV-TD-18-M-4/)
- [MV-TD-19-M-4] Thermodynamics II (M, 4.0 LP) (/mhb/modules/MV-TD-19-M-4/)

Requirements for attendance (formal)

None

References to Module / Module Number [MV-SAM-106-M-7]

Module-Pool	Name
[MV-ALL-MPOOL-6 (/mhb/modulepools/MV-ALL-MPOOL-6/)]	Wahlpflichtmodule allgemein
[MV-BioVT-MPOOL-6 (/mhb/modulepools/MV-BioVT-MPOOL-6/)]	Wahlpflichtmodule Bioverfahrenstechnik
[MV-FT-MPOOL-6 (/mhb/modulepools/MV-FT-MPOOL-6/)]	Wahlpflichtmodule Fahrzeugtechnik
[MV-PE-MPOOL-6 (/mhb/modulepools/MV-PE-MPOOL-6/)]	Wahlpflichtmodule Produktentwicklung im Maschinenbau