

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, 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 (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 (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-TM-7-M-1

Applied Mechanics I (M, 5.0 LP)

Module Identification

Module Number	Module Name	CP (Effort)
MV-TM-7-M-1	<i>Applied Mechanics I</i>	5.0 CP (150 h)
BI-BSCBI-003-M-2	<i>Applied Mechanics I</i>	5.0 CP (150 h)

Basedata

CP, Effort	5.0 CP = 150 h
Position of the semester	1 Sem. in WiSe/SuSe
Level	[1] Bachelor (General)
Language	[DE] German
Module Manager	Müller, Ralf, Prof. Dr.-Ing. (PROF DEPT: MV) (/staff/83/)
Lecturers	Müller, Ralf, Prof. Dr.-Ing. (PROF DEPT: MV) (/staff/83/) Sator, Carolin, Dr.-Ing. (WMA DEPT: MV) (/staff/270/) Sator, Christian, Dr.-Ing. (WMA DEPT: MV) (/staff/84/)
Area of study	[MV-LTM] Applied Mechanics
Reference course of study	[MV-82.103-SG] B.Sc. Mechanical Engineering (/mhb/FB-MV/cos-508/)
Lifecycle-State	[NORM] Active

Courses

Type/SWS	Course Number	Choice in Module-Part	SL	PL	CP	Sem.
3V+1U	MV-TM-86001-K-1	P	-	PL1	5.0	WiSe/SuSe

- About [\[MV-TM-86001-K-1\]](/mhb/courses/MV-TM-86001-K-1/): Title: "Applied Mechanics I"; Presence-Time: 56 h; Self-Study: 94 h

Examination achievement PL1

- Form of examination: **written exam (Klausur) (75-105 Min.)**
- Examination Frequency: each semester
- Examination number: 10001 ("Applied Mechanics I")

Evaluation of grades

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

Contents

From [\[MV-TM-86001-K-1\] Applied Mechanics I](/mhb/courses/MV-TM-86001-K-1/):

- fundamental concepts regarding the statics of rigid bodies (force, classification of forces)
- forces with common point of origin (equilibrium on a plane and in space)
- general systems of forces (force groups on a plane and in space)
- centroid of loads, bodies, volumes, surfaces and lines
- bearing and joint reactions (static and kinematic determinacy)
- trusses (zero force bars, method of joints and sections)
- beams, frames, arches (forces on cuts)
- concept of work (principle of virtual displacement, potential, stability)
- static and kinetic friction (Coulomb and belt friction)

Competencies / intended learning achievements

From [MV-TM-86001-K-1] Applied Mechanics I (/mhb/courses/MV-TM-86001-K-1/):

1. Lecture

Students are able to

- describe fundamental concepts regarding statics (force and torque)
- classify structural elements regarding their load-bearing behavior
- compute resultants of load systems and distributed volume, area, and line forces
- label forces on cuts of structures
- explain the computation of static and kinetic friction forces
- explain the application of the principle of virtual displacement

2. Tutorials

Students are able to

- analyze systems by cuts and equilibrium conditions
- compute bearing and joint reactions
- compute the centroid of loads and bodies
- compute forces on cuts of structures
- analyze systems with static and kinetic friction
- compute bearing reactions and forces on cuts by means of the principle of virtual displacement
- present and discuss their results among themselves

Literature

From [MV-TM-86001-K-1] Applied Mechanics I (/mhb/courses/MV-TM-86001-K-1/):

- Gross, Hauger, Schröder, Wall: Technische Mechanik 1 – Statik, Springer
- Gross, Ehlers, Wriggers, Schröder, Müller: Formeln und Aufgaben zur Technischen Mechanik 1 – Statik, Springer
- Hagedorn: Technische Mechanik 1 – Statik, Verlag Harri Deutsch

Requirements for attendance of the module (informal)

None

Requirements for attendance of the module (formal)

None

References to Module / Module Number [BI-BSCBI-003-M-2]

Course of Study	Section	Choice/Obligation
[BI-82.17-SG] B.Sc. Civil Engineering (/mhb/FB-BI/cos-502/)	[Fundamentals] Mathematical and scientific fundamentals	[P] Compulsory
[WIW-82.789-SG] B.Sc. Business Studies with Technical Qualifications (/mhb/FB-WIW/cos-524/)	[Fundamentals] Field of study: Civil Engineering	[P] Compulsory

References to Module / Module Number [MV-TM-7-M-1]

Course of Study	Section	Choice/Obligation
[MAT-82.105-SG] B.Sc. Mathematics (/mhb/FB-MAT/cos-509/)	[Subsidiary Topic] Subsidiary Subject (Minor)	[P] Compulsory
[MV-82.103-SG] B.Sc. Mechanical Engineering (/mhb/FB-MV/cos-508/)	[Fundamentals] Ingenieurwissenschaftliche Grundlagen I (IWG I)	[P] Compulsory
[MV-82.814-SG] B.Sc. Mechanical Engineering with a minor in Economics (/mhb/FB-MV/cos-525/)	[Fundamentals] Ingenieurwissenschaftliche Grundlagen I	[P] Compulsory
[PHY-82.B90-SG] B.Sc. TechnoPhysics (/mhb/FB-PHY/cos-531/)	[Compulsory Modules] Grundlagen des Maschinenbaus	[P] Compulsory
[WIW-82.?-SG#2021] B.Sc. Business Studies with Technical Qualifications 2021 [2021] (/mhb/FB-WIW/cos-682/)	[Core Modules (non specialised)] Technical Profile Area	[P] Compulsory