

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-BEMT-6-M-4

Construction (M, 7.0 LP)

Module Identification

Module Number	Module Name	CP (Effort)
MV-BEMT-6-M-4	<i>Construction</i>	7.0 CP (210 h)

Basedata

CP, Effort	7.0 CP = 210 h
Position of the semester	2 Sem. from WiSe
Level	[4] Bachelor (Specialization)
Language	[DE] German
Module Manager	Göbel, Jens-Christian, Prof. Dr.-Ing. (PROF DEPT: MV) (/staff/312/)
Lecturers	Altmeyer, Michael, Dipl.-Ing. (EXT DEPT: MV) (/staff/236/) Göbel, Jens-Christian, Prof. Dr.-Ing. (PROF DEPT: MV) (/staff/312/) Klam, Thomas, Dipl.-Ing. (EXT DEPT: MV) (/staff/694/) Stephan, Nicole, Dr.-Ing. (WMA DEPT: MV) (/staff/279/)
Reference course of study	[MV-47.108-SG] B.Ed. LaBBS Metals Technology (/mhb/FB-MV/cos-599/)
Lifecycle-State	[NORM] Active

Courses

Type/SWS	Course Number	Choice in Module-Part	SL	PL	CP	Sem.
2V+2U	MV-IMAD-86250-K-4 (/mhb/courses/MV-IMAD-86250-K-4/)	P	K-Schein	no	4.0	WiSe
2V	MV-VPE-86702-K-4 (/mhb/courses/MV-VPE-86702-K-4/)	WP	PROJ-Schein	no	3.0	SuSe
4L	MV-VPE-86711-K-4 (/mhb/courses/MV-VPE-86711-K-4/)	WP	L-Schein	no	3.0	WiSe/SuSe

- About **[MV-IMAD-86250-K-4]**: Title: "Integrated Design Engineering Education I"; Presence-Time: 56 h; Self-Study: 64 h
- About **[MV-IMAD-86250-K-4]**: The study achievement **[K-Schein] proof of successful participation in written examination** must be obtained.
- About **[MV-VPE-86702-K-4]**: Title: "Integrated Design Engineering Education II"; Presence-Time: 28 h; Self-Study: 62 h
- About **[MV-VPE-86702-K-4]**: The study achievement **[PROJ-Schein] proof of successful completion of the project(s)** must be obtained.
- About **[MV-VPE-86711-K-4]**: Title: "Laboratory 3D-CAD"; Presence-Time: 56 h; Self-Study: 34 h
- About **[MV-VPE-86711-K-4]**: The study achievement **[L-Schein] proof of successful participation in the practical course / lab** must be obtained.

Evaluation of grades

The module is not graded (only study achievements)..

Contents

From **[MV-IMAD-86250-K-4] Integrated Design Engineering Education I** (/mhb/courses/MV-IMAD-86250-K-4/):

- Descriptive geometry (projections, section views, uncoiling, penetrations)
- Technical drawing (types of drawings, content and preparation of (manufacturing) drawings (dimensioning, graphic symbols, tolerances and fits), Drawing of basic machine elements)
- (Introduction to computer-aided design (optional; offered by VPE for participants of "Integrierte Konstruktionsausbildung II"))

From **[MV-VPE-86702-K-4] Integrated Design Engineering Education II** (/mhb/courses/MV-VPE-86702-K-4/):

Lectures provide students with fundamental knowledge in the subjects of design theory and machine elements. Accompanying refresher courses in the CAD system Onshape are offered, in which the students work independently on the computer.

From [MV-VPE-86711-K-4] Laboratory 3D-CAD (/mhb/courses/MV-VPE-86711-K-4/):

Students gain basic knowledge about the use of professional IT solutions for three-dimensional Computer Aided Design (3D-CAD) and its possible applications in design tasks. Starting from sketches, the basic functions for geometric modeling in two and three-dimensional space are covered. Subsequently, students learn how to create assemblies from individual components. Interactive exercises and tasks are based on the established design methods of direct and parametric modeling. Thus, the acquired knowledge can also be transferred to the application of other CAD systems and thus be used in a more general application context.

The module itself takes place on one to three of the following CAD software systems, depending on the semester plan and availability. The exact combination, which CAD systems is offered in English language can be seen in the Olat course.

- NX (Siemens)
- Creo (PTC)
- Catia (Dassault Systemes)
- Onshape (PTC)
- Inventor/Fusion (Autodesk)

Competencies / intended learning achievements

Die Studierenden verstehen die wesentlichen Grundlagen der Darstellenden Geometrie und des CAD und deren Anwendung in der Technik, insbesondere in den für berufsbildende Schulen wichtigen Gebieten, und beherrschen deren grundlegende Methodik.

From [MV-IMAD-86250-K-4] Integrated Design Engineering Education I (/mhb/courses/MV-IMAD-86250-K-4/):

1. Lecture

Students will be able to:

- explain and apply basic geometrical methods of descriptive geometry
- explain and apply the rules for making technical drawings
- read, understand and create simple technical drawings.

2. Exercise

Students will be able to:

- represent three-dimensional objects in the two-dimensional drawing plane (multiview orthographic projection)
- create section views, penetrations, uncoilings and technical curves
- create and dimension simple drawings

From [MV-VPE-86702-K-4] Integrated Design Engineering Education II (/mhb/courses/MV-VPE-86702-K-4/):

Students will be able to

- use a CAD system
- work out concepts based on the fundamentals of design theory and machine elements.
- to proceed methodically with concrete tasks.
- organize and moderate work meetings and sessions.
- work in a team.
- present project results.

From [MV-VPE-86711-K-4] Laboratory 3D-CAD (/mhb/courses/MV-VPE-86711-K-4/):

Students are able to

- perform computer mechanical design tasks using geometric shapes, CAD methods and identify design problems
- use basic functions for drawing creation, convey structured design process, use of standard parts and model exchange (model export)
- apply different solutions and strategies for a design problem

- apply theoretical knowledge from previous courses on the subject of component design in practice

Literature

From [MV-IMAD-86250-K-4] Integrated Design Engineering Education I (/mhb/courses/MV-IMAD-86250-K-4/):

- Fucke, R.; Kirch, K.; Nickel, H.: Darstellende Geometrie für Ingenieure, 15.Aufl. (1998) unveränderter Nachdruck, Fachbuchverlag Leipzig, München, Wien.
- Hoischen, H.: Technisches Zeichnen, 29. Aufl. (2003), Cornelsen Verl., Berlin.

From [MV-VPE-86702-K-4] Integrated Design Engineering Education II (/mhb/courses/MV-VPE-86702-K-4/):

- Hoischen, Hesser; Technisches Zeichnen; Cornelsen Verlag 2007; ISBN-13: 978-3589241309
- Pahl, Beitz; Konstruktionslehre: Grundlagen Erfolgreicher Produktentwicklung. Methoden und Anwendung; Springer-Verlag, Berlin 2006; ISBN-13: 978-3540340607
- Steinhilper, Sauer; Konstruktionselemente des Maschinenbaus 1. Grundlagen der Berechnung und Gestaltung von Maschinenelementen; Springer-Verlag, Berlin 2008; ISBN-13: 978-3540766469
- Lindemann; Methodische Entwicklung technischer Produkte. Methoden flexibel und situationsgerecht anwenden: Methoden Flexibel Und Situationsgerecht Anwenden; Springer-Verlag, Berlin 2006; ISBN-13: 978-3540374350

a.o. (the literature list is updated every semester)

From [MV-VPE-86711-K-4] Laboratory 3D-CAD (/mhb/courses/MV-VPE-86711-K-4/):

To be announced in the lab.

Registration

Anmeldung bei Integrierte Konstruktionsausbildung II oder Labor 3D-CAD erforderlich.

Requirements for attendance (informal)

None

Requirements for attendance (formal)

None

References to Module / Module Number [MV-BEMT-6-M-4]

Course of Study	Section	Choice/Obligation
[MV-47.108-SG] B.Ed. LaBBS Metals Technology (/mhb/FB-MV/cos-599/)	Lehramt an berufsbildenden Schulen	[P] Compulsory
[MV-B5.108-SG] ZEP LaBBS Metals Technology (/mhb/FB-MV/cos-666/)	Lehramt an berufsbildenden Schulen	[P] Compulsory