

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-VPE-B101-M-4

Integrated Design Engineering Education (M, 7.0 LP)

Module Identification

Module Number	Module Name	CP (Effort)
MV-VPE-B101-M-4	<i>Integrated Design Engineering Education</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	Stephan, Nicole, Dr.-Ing. (WMA DEPT: MV) (/staff/279/) Teutsch, Roman, Prof. Dr.-Ing. (PROF DEPT: MV, GS) (/staff/327/)
Lecturers	Göbel, Jens-Christian, Prof. Dr.-Ing. (PROF DEPT: MV) (/staff/312/) Stephan, Nicole, Dr.-Ing. (WMA DEPT: MV) (/staff/279/)
Area of study	[MV-VPE] Virtual Product Engineering
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.
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/)	P	PROJ-Schein	no	3.0	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-IMAD-86250-K-4]**:

Study Achievement (proof of successful participation in written examination) can be completed every semester.

- 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-86702-K-4]**:

Study Achievement (proof of successful completion of the projekt(s)) can only be completed in the summer semester.

Evaluation of grades

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

Contents

Integrated design engineering education I:

- Descriptive geometry (projections, sections, unwindings, penetrations)
- Technical drawing (types of drawing, content and creation of drawings, taking into account standards)
- Introduction to computer-aided design

Integrated design engineering education II:

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.

In detail, students are taught basic knowledge in the following modules:

Design Theory:

- The design process in general
- The planning phase
- The concept phase
- The design and elaboration phase

Machine elements:

- Application of clearance and interference fits
- Strength calculation of components
- Component connections
- Torque transmission

CAD exercises:

- Application of the CAD system Onshape

Group work:

- Independent work on the CAD system
- Organized teamwork

Competencies / intended learning achievements

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.

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)

Requirements for attendance (informal)

None

Requirements for attendance (formal)

None

References to Module / Module Number [MV-VPE-B101-M-4]

Course of Study	Section	Choice/Obligation
[MV-82.103-SG] B.Sc. Mechanical Engineering (/mhb/FB-MV/cos-508/)	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/)	Ingenieurwissenschaftliche Grundlagen I	[P] Compulsory
[MV-82.B10-SG] B.Sc. Energy and Process Engineering (/mhb/FB-MV/cos-528/)	Ingenieurwissenschaftliche Grundlagen I	[P] Compulsory