

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

Course MV-iMAD-86263-K-7

Vehicle vibrations (2V, 3.0 LP)

Course Type

SWS	Type	Course Form	CP (Effort)	Presence-Time / Self-Study
2	V	Lecture	3.0 CP	28 h 62 h
(2V)			3.0 CP	28 h 62 h

Basedata

SWS	2V
CP, Effort	3.0 CP = 90 h
Position of the semester	1 Sem. in SuSe
Level	[7] Master (Advanced)
Language	[EN] English
Lecturers	Teutsch, Roman, Prof. Dr.-Ing. (PROF DEPT: MV, GS)
Area of study	[MV-iMAD] Mechanical and Automotive Design
Additional informations	Informations about the course
Lifecycle-State	[NORM] Active

Contents

Vertical dynamics of motor and commercial vehicles (MV, CV)

- Vibrational systems and models
- Single Mass Oscillator
- Excitations, irregular vibrations
- Evaluation criteria and their calculation
- Simplified vehicle vibrational systems (Single/Two Mass Oscillator, multi body system)
- Parameterstudies
- Non-linear vibration systems

Introduction to multi-body simulation (MBS)

Competencies / intended learning achievements

The students are able to

- describe vibrational systems and their properties
- characterize the vibrational phenomena arising in vehicles
- compute characteristic values for the analysis of vehicle vibrations
- derive simplified vehicle models corresponding to the case study
- suggest solutions to obtain the desired dynamic behavior of a vehicle
- evaluate the ride comfort and driving safety of a vibrating vehicle

Literature

- MITSCHKE, M.; WALLENTOWITZ, H.: Dynamik der Kraftfahrzeuge, 4. Aufl. (2004), Springer-Verlag, Berlin, Heidelberg
- KNOTHE, K.; STICHEL, S.: Schienenfahrzeugdynamik, (2003), VDI-Buch, Springer-Verlag, Berlin Heidelberg

Materials

PowerPoint presentation, blackboard, flipchart, lecture slides. For further information and course materials please consider the corresponding OLAT-course.

Requirements for attendance (informal)

Modules:

- [MV-CPE-M209-M-4] Dynamics of Structures (M, 5.0 LP)
- [MV-MEC-22-M-4] Dynamics of Machines (M, 5.0 LP)

- [MV-TM-279-M-4] Engineering Mechanics IV (M, 4.0 LP)
- [MV-TM-8-M-4] Engineering Mechanics II (M, 5.0 LP)
- [MV-TM-9-M-4] Engineering Mechanics III (M, 5.0 LP)

Requirements for attendance (formal)

None

References to Course [MV-iMAD-86263-K-7]

Module	Name	Context	
[MV-IMAD-164-M-7]	Vehicle vibrations	P: Obligatory	2V, 3.0 LP