Syllabus

MWI10049 Fundamentals of Engineering

Prof. Dr.-Ing. Philipp Jakob

Winter semester 2025/2026

Level	Master	
Credits	3	
Student Contact Hours	n/a	
Workload	90 hours	
Prerequisites	Bachelor Degree in Business Administration	
Time	Thursday, 08:00 – 09:30 a.m.	
Room	T2.4.10	
Start Date	02.10.2025	
Lecturer(s)	**Name**	Prof. Dr.-Ing. Philipp Jakob
	Office	T1.3.28
	Virtual Office	/
	Office Hours	Tuesday, 09:45 - 11:15 (appointment by E-Mail)
	Phone	07231/28-6596
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Summary
The lecture covers the technical fundamentals of engineering.

Outline of the Course
Technical fundamentals from the most important areas of engineering are presented in the lectures. Calculation examples and exercises are used to practice applying the relationships and formulas learned.

Lecture content outline:

- Units of measurement & fundamentals of technical calculation
- Technical mechanics
- Electrical engineering
- Technical drawings & design
- Material properties

Course Intended Learning Outcomes and their Contribution to Program Intended Learning Outcomes / Program Goals

	Program Intended Learning Outcomes	Course Intended Learning Outcomes
	After completion of the program the students will be able…	**After completion of the course the students will be able…**
1	**Responsible leadership in organizational contexts**	
2	**Creative problem solving skills in a complex business environment**	
3	**Research expertise and its practical application**	
4	**Interface expertise in the technical-economic field**	
4.1	... to utilise well-founded knowledge in the technical and economic fields for the integrative solution of complex tasks.	to apply basic methods of Engineering in practical situations within the technical-economic field.

Teaching and Learning Approach
Lecture with interactive teaching as well as example assignments.

Literature and Course Materials
Moaveni, S.: Engineering Fundamentals: An Introduction to Engineering, SI edition. Seventh Edition. Cengage: Boston (2024)

Additional literature (German):

Fischer, R.: Elektrotechnik für Maschinenbauer sowie Studierende technischer Fächer. Springer Vieweg: Wiesbaden (2019)

Labisch, S.; Wählisch, G.: Technisches Zeichnen: Eigenständig lernen und effektiv üben. Springer Vieweg: Wiesbaden (2020)

Assessment
A written exam will take place in the exam period.

Schedule
Information about the schedule and updates will be announced during the lecture.

Academic Integrity and Student Responsibility
The success of students' learning depends to a large extent on following up on lectures and completing exercises independently, so that any uncertainties can be discussed promptly. Students are advised to commit themselves accordingly.

Please note that audio and video recordings during lectures, seminars and labs are permitted only with the explicit consent of the lecturer and all other persons present. Without this consent, recordings are not allowed.

Code of Conduct for Students
Link to the Code of Conduct for online Teaching

Teaching Philosophy
This course is designed to be interactive. The content can be adapted to the previous knowledge of the participants.

Additional Information
Language: English