

Modulname Modulname	Mechanical Design II BA MERO	BM4
Modulverantwortlicher/ Modulverantwortliche Module responsibility	Prof. Dr.-Ing. Andreas Dietzel (Modulverantwortung)	
Qualifikationsziele Qualification goals	On completion of this course, the students should have some background knowledge to the design of jigs and fixtures and their economic use in automated production systems. With regards to selected machine elements, which are typical for jigs and fixtures, the students are able to analyse and calculate them with regard to their function and application and select them from corresponding standards and tables. The participants can also create assembly models using a 3D CAD system and derive drawings and parts lists from them that meet requirements.	

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Modulinhalte Module contents	Lecture: • structure of jigs and fixtures • function and application of fixture elements ◦ determining/determining elements, tolerance analysis ◦ clamping/clamping elements, clamping force calculations ◦ tool guidance o grippers, vacuum grippers and sensors • function, application and calculation principles of selected machine elements ◦ screw connections ◦ bolt and pin connections ◦ springs ◦ sliding and rolling bearings Exercise: Application of all basics covered in the lecture by means of design exercises incl. various calculation examples Lab: • introduction to assembly modelling using a commercially available 3D CAD system, based on the design of a jig • create simple CAD models of assemblies as well as derive drawings and parts lists with industry-standard, computer-aided tools.
Lehrformen Forms of teaching	Vorlesung (2 SWS) Übung (1 SWS) Laborpraktikum (1 SWS)
Voraussetzungen für die Teilnahme Requirements for participation	Mechanical Design I MERO
Literatur/multimediale Lehr- und Lernprogramme Further readings/Learning programmes	Lecture notes and standard literature of design engineering are made available via studIP.
Lehrbriefautor Textbook author	keiner

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Verwendbarkeit Usability	Mechatronics & Robotics 210 CP B.Eng.	
Arbeitsaufwand/Gesamtworkload Workload/Total workload	Selbststudium 60 h + Präsenzzeit 60 h + Vorbereitung 30 h = 150 Stunden = 5,0 Credit Punkte independent work 60 h + presence 60 h + preparation 30 h = 150 hours = 5,0 credit points	
ECTS und Gewichtung der Note in der Gesamtnote ECTS and weighting in overall grade	5 5/210	1
Leistungsnachweis Performance record	Written exam: 120 min	
Semester Semester	4	
Häufigkeit des Angebots Frequency of the offer	Annually in winter semester	
Dauer Duration	1 Semester	
Art der Lehrveranstaltung Type of course	Compulsory Module 4. Semester WiSe 2026/27	
Besonderes Peculiarity		