

Modulname Modulname	Manufacturing Processes BA MERO	BM10
Modulverantwortlicher/ Modulverantwortliche Module responsibility	Prof. Dr. Carsten Löser (Modulverantwortung)	
Qualifikationsziele Qualification goals	The students learn the basics of machining processes with geometrically determined and undetermined cutting edges as well as ablation processes. They understand the functional principles of the individual processes which allows them to compare different cutting processes with regard to the technical and economic effort and essential work results to be achieved. By this, the suitability of specific processes for a particular task can be evaluated on the basis of the relationship between the functional principle, the work result and the effort required. By this, the understanding of manufacturing-compatible design is shaped. In the accompanying practical course, students work in groups to learn the procedure for planning and designing machining processes for the production of individual form and functional elements of a specific workpiece. A joint presentation and discussion of the results trains the participants' communication and teamwork skills as well as their ability to express themselves.	
Modulinhalte Module contents	• Definitions, classification and categorization of cutting and ablation processes. • Fundamentals of cutting with geometrically defined and geometrically undefined cutting edges: essential process variants, characteristics, design and machining results of the various manufacturing processes • Functional principles of the manufacturing processes turning, milling, drilling, grinding, honing and spark-erosive machining • Working in groups, students learn how to select, plan, and design appropriate machining processes and calculate manufacturing time and costs.	
Lehrformen Forms of teaching	Vorlesung (3 SWS) Laborpraktikum (1 SWS)	
Voraussetzungen für die Teilnahme Requirements for participation	Basic knowledge of reading of technical drawings; basic knowledge of 3D CAD software is helpful, but not required; fundamentals of Engineering Mechanics	

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Literatur/multimediale Lehr- und Lernprogramme Further readings/Learning programmes	<i>Supporting documents: Set of slides with solved and explained examples</i> <i>Recommended publications:</i> • Klocke, F.: Manufacturing Processes 1: Cutting. Springer Verlag, 2011, doi: 10.1007/978-3-642-11979-8. • Klocke, F.: Manufacturing Processes 2: Grinding, Honing, Lapping. Springer Verlag, 2009, doi: 10.1007/978-3-540-92259-9. • Tschätsch, H.: Applied Machining Technology, Springer Verlag, doi: 10.1007/978-3-642-01007-1. • Mechanical and Metal Trades Handbook, 4. Edition, Europa Verlag, 2018, ISBN 978-3-8085-1915-8.	
Lehrbriefautor Textbook author	keiner	
Verwendbarkeit Usability	Mechatronics & Robotics 210 CP B.Eng.	
Arbeitsaufwand/Gesamtworkload Workload/Total workload	Selbststudium 90 h + Präsenzzeit 60 h = 150 Stunden = 5,0 Credit Punkte independent work 90 h + presence 60 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 Prüfungsvorleistung : Graded presentation in groups as a part of the practical laboratory course	
Semester Semester	2	
Häufigkeit des Angebots Frequency of the offer	Annually in winter semester	
Dauer Duration	1 Semester	
Art der Lehrveranstaltung Type of course	Compulsory module 2. Semester WiSe 2025/26	
Besonderes Peculiarity		

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