

Application of Robots					AR-201
Rota	Duration	Semester	SWS	Credit Points	Workload
annually SS	1 Semester	2 nd (Semester)	3 SWS	5	150 h
1	Modul Structure				
	Course (Abbreviation)	Type/ SWS	Presence	Self Study	Credit Points
	a) Application of Robots (AoR)	Lecture/ 2 SWS	25 h	65 h	3
	b) Application of Robots (AoR)	Tutorial / 1 SWS	15 h	45 h	2
2	Language English				
3	Content This lecture covers applications of industrial robots and their specific requirements on the components of a robot system, on the properties of the robot mechanics and it's controller as well as on the programming methods. A special focus is on the simulation-based offline programming and it's automation for various robot applications. It also covers PLCs as an element of many automation systems and some basics of machine learning in robot control. Topics: <ul style="list-style-type: none"> • Production processes with robots: e. g. primary shaping, metal forming, cutting, joining, surface coating • Robot controllers • Programmable logic controllers (PLC) • Robot effectors • Sensors and vision systems • Simulation Systems and Offline-Programming • Basics of Machine Learning in Robot Programming 				
4	Competencies After the successful participation in this course participants are able to assess the requirements on a robotic system deriving from the characteristics of different applications. They can choose appropriate kinematic concepts and components of robot systems depending on a given task. This includes the choice of appropriate sensor types and the design of vision systems. They will be able to evaluate different methods of robot programming with regard to their suitability for specific application areas. They will have a basic understanding of the benefits of machine learning in robot control.				
5	Examination Requirements The final exam will be an oral (30 minutes) or written (1 hour) exam, depending on the number of participants.				
6	Formality of Examination <input checked="" type="checkbox"/> Module Finals <input type="checkbox"/> Accumulated Grade				
7	Module Requirements (Prerequisites)				
8	Allocation to Curriculum: Program: Automation & Robotics, Field of study: Robotics				
9	Responsibility/ Lecturer PD Dr. J. Bickendorf/ PD Dr. J. Bickendorf				