

Robotics – Fundamentals and Industrial Applications

Course number:	new
Hours per week:	2
ECTS:	3
Scheduled:	Winter Semester
Format:	Lecture
Examination:	tbd
Lecturer:	Prof. Dr.-Ing. Alexander Czinki
Objectives:	<ol style="list-style-type: none"> 1. Gained Knowledge: This course offers students a comprehensive understanding of the foundational principles of robotics, including kinematics, sensors, actuators, and control system. Students will explore diverse industrial applications, and examine emerging trends within the field of robotics. 2. Gained Skills: Students will develop analytical skills necessary to evaluate robotic systems and their applications. A significant component of the course is preparing and delivering a presentation on a relevant topic, which will enhance students' research, communication, and presentation skills. The course also fosters collaborative learning through team-base activities. 3. Gained Competences: By completing this course, students will gain the competence to assess and articulate the technical implications of robotics. They will be prepared to understand and analyze real-world applications and discuss potential improvements. The presentation requirement ensures students build confidence in conveying complex ideas effectively, equally preparing the for academic or professional scenarios.
Contents:	<ul style="list-style-type: none"> ▪ Introduction to robotics ▪ Fundamentals of Robotics ▪ Robotic Programming and Simulation ▪ Industrial Applications of Robotics ▪ Emerging Trends in Robotics ▪ Case Studies and Real-World Applications ▪ Conclusions and Outlook
Pre-requisites	<ul style="list-style-type: none"> ▪ class should be booked in combination with the class "Robotics – Lab" ▪ proper knowledge of English ▪ basic understanding of computer programming
Recommended Reading:	Information on additional readings is provided at the beginning of the class.