Robotics

Module overview
EDP designation: NN, (EITB640A, German course)
Module Responsible(s): Prof. Dr. Daniel Braun
Module scope (ECTS): 5 points

Classification (semester): 6th semester
Content Requirements: Computer engineering
Prerequisites as per SPO: According to SPO, no formal requirements are necessary.
Competencies: The participants learn how to work with robots in which they a) Learn the necessary theoretical basics about robotics b) Use coordinate transformations and kinetic modeling for path planning c) Learn about hardware, software and sensor technology for robots d) Apply programming methods and programming languages to be able to process common operations in automation technology with robots.
Examination Credits: The students' theoretical knowledge and their knowledge acquired in the laboratory are assessed in a written exam (duration 90 min). The practical skills are evaluated in the laboratory experiments by colloquia and by written reports on each laboratory experiment.
Usability: Control of robots in automation technology applications, application of coordinate transformations, path planning.

Course: Robotics
EDP designation: NN (EIT641A, German course)
Lecturer(s): Prof. Dr. Daniel Braun
Scope (SWS): 2
Cycle: Summer semester
Type, mode: lecture compulsory subject
Teaching language: English
Contents: • Areas of application for industrial and service robots • Kinematic types • Coordinate transformations • Kinetic modeling of manipulators • Railroad planning • Sensors • Control architecture in hardware and software • Programming methods and programming languages
Recommended reading: • Dillmann, R.; Huck, M.: Information Processing in Robotics, Springer-Verlag Berlin, Heidelberg, 1991. • Hertzberg, J.: Mobile Robots, Springer Vieweg, 2012

Course: Robotics Lab
EDP designation: EITB642A
Lecturer(s): Prof. Dr. Daniel Braun
Scope (SWS): 2
Cycle: Summer semester
Type, mode: laboratory, compulsory subject
Teaching language: English
Contents: Try to: • Basics of robot programming • Teach-in procedure • Programming of complex motion profiles • Implementation of palletizing tasks • Drawing complex geometries • Realization of joining processes
Recommended reading: • Dillmann, R.; Huck, M.: Information Processing in Robotics, Springer-Verlag Berlin, Heidelberg, 1991. • Hertzberg, J.: Mobile Robots, Springer Vieweg, 2012