

Module Name	Control of Mobile Robots
Module Number	Eul-ET-E-StRob, Eul-IST-E-StRob, Eul-MT-E-StRob
Responsible Lecturer	Prof. Dr. techn. Klaus Janschek klaus.janschek@tu-dresden.de
Qualification Objectives	After completing the module, students are able to work with behavioral models for navigation, i.e., position, orientation, and path planning of autonomous mobile robot platforms, and they master the fundamental methodological and algorithmic approaches. Students are capable of solving a manageable design task as a small project using the methods they have learned.
Contents	The module covers the control of mobile robots with a focus on kinematic fundamentals, navigation (i.e., localization, map creation, path/trajectory planning), and trajectory-following control.
Teaching and Learning Forms	2 hours per week of lectures, 1 hour per week of exercises, 1 hour per week of practical sessions, and self-study.
Prerequisites for Participation	In the diploma program in Electrical Engineering, the competencies to be acquired in the module "Control Engineering" are required. In the diploma programs in Information Systems Engineering and Mechatronics, the knowledge to be acquired in the module "Control Engineering Basics" is required.
Usability	The module is an elective module in the elective area "Competence Deepening" according to § 6 paragraph 3 of the Study Regulations (SO) and § 33 paragraph 4 of the Examination Regulations (PO) of the main study program in the specialization Automation Technology and Robotics in the diploma program Electrical Engineering. Furthermore, it is an elective module in the elective area "Competence Deepening" according to § 6 paragraph 3 SO and § 33 paragraph 3 PO of the main study program in the field of Automation, Sensors, and Robotics in the diploma program Information Systems Engineering. Additionally, it is an elective module in the elective area "Methods and Applications" according to § 6 paragraph 3 SO and § 33 paragraph 3 PO of the main study program in the diploma program Mechatronics. It creates the prerequisites for the modules that list this module in the field "Prerequisites for Participation."
Prerequisites for the Award of Credit Points	Credit points are awarded when the module examination is passed. The module examination consists of a written exam lasting 120 minutes. A bonus achievement for the written exam is a practical performance review with a scope of 15 hours.
Credit Points and Grades	5 credit points can be earned through the module. The module grade corresponds to the grade of the examination performance.
Frequency of the Module	The module is offered every winter semester.
Workload	The total workload is 150 hours.
Duration of the Module	The module lasts one semester.