

Module Name	Optimal and Multivariable Control Systems
Module Number	Eul-ET-E-OptMR, Eul-IST-E-OptMR, Eul-MT-E-OptMR
Responsible Lecturer	Prof. Dr.-Ing. habil. Klaus Röbenack klaus.roebenack@tu-dresden.de
Qualification Objectives	After completing the module, students are able to develop control concepts for multivariable systems, enabling them to influence or decouple multiple variables simultaneously. Furthermore, they are capable of designing controllers and control systems to meet optimality criteria.
Contents	The module covers the design of control concepts for multivariable systems, such as the development of decoupling networks, as well as the design of time- and/or energy-optimal controllers and control systems.
Teaching and Learning Forms	4 hours per week of lectures 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 SO and § 33 paragraph 4 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, Sensor Technology, 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.
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 summer semester.
Workload	The total workload is 150 hours.
Duration of the Module	The module lasts one semester.