

Module Name	Process Control and Optimization
Module Number	Eul-ET-E-PFO, Eul-IST-E-PFO, Eul-RES-E-PFO
Responsible Lecturer	Prof. Dr.-Ing. habil. Leon Urbas leon.urbas@tu-dresden.de
Qualification Objectives	After completing the module, students are able to analyze and solve complex problems in process control using simulation and optimization tools. They can address issues of digitalization in the process industry by combining process engineering and automation methods.
Contents	The module covers the integrated application of methods for dynamic process engineering modeling as well as flowsheet simulation and optimization. Additional topics include interdisciplinary design and conceptualization of process control architectures and their configuration for complex applications.
Teaching and Learning Forms	2 hours per week of lectures, 2 hours per week of projects, and self-study. The language of instruction for lectures and projects may be German or English and will be determined by the lecturer at the beginning of the semester and announced in the usual manner.
Prerequisites for Participation	In the diploma programs Electrical Engineering and Information Systems Engineering, the competencies acquired in the module Automation Engineering are required. In the diploma program Regenerative Energy Systems, the competencies acquired in the module Control Engineering are required.
Usability	The module is an elective module in the elective area "Competence Deepening" according to § 6 paragraph 3 of the study regulations and § 33 paragraph 4 of the examination regulations of the main study program in the specialization Automation Technology and Robotics in the diploma program Electrical Engineering. Additionally, it is an elective module in the elective area "Competence Deepening" according to § 6 paragraph 3 of the study regulations and § 33 paragraph 3 of the examination regulations of the main study program in the field of Automation, Sensor Technology, and Robotics in the diploma program Information Systems Engineering. Furthermore, it is an elective module in the area "Competence Deepening" according to § 6 paragraph 3 of the study regulations and § 33 paragraph 3 of the examination regulations of the main study program in the diploma program Regenerative Energy Systems. The module creates the prerequisites for the modules listed under "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 portfolio with a total workload of 16 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.