Module Name	Circuit Simulation and System Identification
Module Number	EuI-ET-E-SiSys, EuI-IST-E-SiSys
Responsible Lecturer	Prof. Dr. phil. nat. habil. Ronald Tetzlaff ronald.tetzlaff@tu-dresden.de
Qualification Objectives	After completing the module, students possess knowledge and skills in circuit simulation. They are able to create and analyze models for various modeling paradigms, select a suitable modeling approach for system identification, define and evaluate the required data set, and are familiar with methods of system identification.
Contents	The module covers the fundamentals and practical application of modeling and simulation of analog and mixed analog-digital circuits, as well as the mathematical foundations of model creation and system identification, including their practical application. This includes important modeling approaches and analysis methods, essential aspects of signal selection and data preparation, and the adjustment of model parameters using appropriate methods.
Teaching and Learning Forms	3 hours per week of lectures, 2 hours per week of exercises, and self-study.
Prerequisites for Participation	The competencies to be acquired in the modules Basics of Electrical Engineering, Systems Theory, and Circuit Design are required.
Usability	The module is an elective module from 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 field of Information Technology in the diploma program Electrical Engineering. Furthermore, it is an elective module from 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 Microelectronics, Electronic Circuits, and Systems in the diploma program Information Systems Engineering. The module creates the prerequisites for the modules that list it 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 written exam lasting 180 minutes.
Credit Points and Grades	7 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 210 hours.
Duration of the Module	The module lasts one semester.