

Module Name	Integrated Circuits for Broadband Optical Communications
Module Number	Eul-ET-E-ICBC, Eul-NES-E-ICBC, Eul-IST-E-ICBC
Responsible Lecturer	Prof. Dr. sc. techn. Frank Ellinger frank.ellinger@tu-dresden.de
Qualification Objectives	After completing the module, students are able to understand and apply the fundamentals and methods of designing high-speed integrated circuits and systems for optical broadband communication. They can analyze and optimize these circuits and become familiar with design tools for circuits.
Contents	The module covers integrated circuits for optical broadband communication, such as transimpedance amplifiers, detector circuits, laser drivers, multiplexers, frequency dividers, oscillators, phase-locked loops, synthesizers, and circuits for data recovery.
Teaching and Learning Forms	3 hours per week of lectures, 1 hour per week of exercises, 2 hours per week of practical lab courses, and self-study. The language of instruction for lectures, exercises, and practical lab courses is English.
Prerequisites for Participation	In the Master's program Nanoelectronic Systems, basic knowledge of circuit design at the Bachelor's level is required. In the diploma programs Electrical Engineering and Information Systems Engineering, the competencies to be acquired in the module Circuit Design are required.
Usability	The module is an elective module according to § 6 paragraph 2 SO and § 33 paragraph 3 PO in the Master's program Nanoelectronic Systems. Furthermore, it 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 fields of Information Technology and Microelectronics in the diploma program Electrical Engineering. Additionally, 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 Microelectronics, Electronic Circuits, and Systems in the diploma program Information Systems Engineering. 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 in English. Students may choose to answer the exam in either English or German.
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 winter semester.
Workload	The total workload is 210 hours.
Duration of the Module	The module lasts one semester.