

Module Name	Advanced Communication Networks
Module Number	Eul-ET-E-ACN, Eul-IST-E-ACN
Responsible Lecturer	Prof. Dr.-Ing. Dr. h. c. Frank H.P. Fitzek frank.fitzek@tu-dresden.de
Qualification Objectives	After completing the module, students possess in-depth knowledge of software-based communication networks and their performance evaluation. They are familiar with the processes and protocol structures in communication networks, have an overview of currently deployed technologies and their development directions, and are acquainted with methods of investigation through prototyping and implementation. Students master the most important network technologies, their functional principles, and protocols, can apply these to new problems, and are able to correctly model, analyze, and evaluate the performance of systems encountered in practice.
Contents	The module focuses on modern and software-based networks, including selected fundamentals of technologies and protocols, routing in communication networks with an in-depth examination of the associated protocols, as well as methods for prototyping, implementation, and performance evaluation of communication networks.
Teaching and Learning Forms	2 hours per week of lectures, 1 hour per week of exercises, 1 hour of practical lab courses, and self-study. The language of instruction for lectures, exercises, and practical sessions is English.
Prerequisites for Participation	In the diploma program in Electrical Engineering, the competencies to be acquired in the modules "Communication Engineering" and "Communication Networks" are required. In the diploma program in Information Systems Engineering, the competencies to be acquired in the modules "Computer Networks" and "Systems Theory" 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 field of Information Technology in the diploma program in 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 Communication Technology in the diploma program in 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 complex assessment with a workload of 30 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 summer semester.
Workload	The total workload is 150 hours.
Duration of the Module	The module lasts one semester.