

Module Name	Physical Layer Security
Module Number	Eul-ET-E-PLSec, Eul-IST-E-PLSec
Responsible Lecturer	Prof. Dr.-Ing. Rafael F. Schaefer rafael.schaefer@tu-dresden.de
Qualification Objectives	After completing the module, students are familiar with and understand essential models, strategies, methods, evaluation criteria, and parameters for the design and analysis of eavesdropping-secure communication on the physical layer. They are able to apply the acquired knowledge to typical problems in current communication systems.
Contents	The module covers the fundamentals and applications of secure communication on the physical layer – referred to as Physical Layer Security. This includes an overview of the possibilities for securing communication on the physical layer and, in particular, various security concepts and models for investigating secure communication from an information-theoretic perspective, as well as techniques for solving typical tasks. The reliable and eavesdropping-secure transmission over the so-called wiretap channel is also part of the module, as is key generation on the physical layer, which provides secure keys for cryptographic applications on higher layers.
Teaching and Learning Forms	3 hours per week of lectures, 1 hour per week of exercises, and self-study. The language of the lectures and exercises 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	The competencies to be acquired in the module Information 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 Electrical Engineering. Furthermore, 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 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 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 winter semester.
Workload	The total workload is 150 hours.
Duration of the Module	The module lasts one semester.