

Only the german version of the module description as part of the study regulations is legally binding.

Module name	Information and coding theory
Module number	INF-25-Ba-W-IKT
Responsible lecturer	Dr. Elke Franz elke.franz@tu-dresden.de
Qualification objectives	Students know the basics of information and coding theory. Students are able to define the concept of entropy and describe real sources quantitatively. They know basic relationships between entropy of the source and source coding as well as basic principles and code descriptions for error detection and error correction. Students have the ability to assess how compactly information can be represented with the given statistical properties and how securely information can be transmitted or stored with the possibilities of coding.
Content	The module covers the basics of information and coding theory, the quantitative description of real sources as a basis for the compact representation of information, the modeling of the interference behavior of transmission channels as a basis for interference-protected coding and, building on this, codes for error detection and error correction and selected examples of coding and error detection.
Teaching and learning methods	The module comprises lectures of 2 SWS, exercises of 2 SWS and the self-study. The language of instruction for the lectures and exercises is German.
Prerequisites for participation	No knowledge is required.
Applicability	In the Bachelor's degree program in Computer Science, the module is a compulsory elective module in the specialization area, which must be selected in accordance with the appendix to the examination regulations. In the Bachelor's degree course in Applied Computer Science, the module is a compulsory elective module in the specialization in Media Informatics and in the specialization in Medical Informatics, which must be selected in accordance with the annex to the examination regulations. The module creates the prerequisites for the modules listed under prerequisites for participation.
Requirements for earning credit points	The credit points are earned if the module examination is passed. The module examination consists of a written examination lasting 90 minutes. The examination language is German.
Credit points and grades	6 credit points can be earned through the module. The module grade corresponds to the grade of the examination.
Module frequency	The module is offered every winter semester.
Workload	The total workload is 150 hours.

Module duration	The module comprises one semester.
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