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

Module name	**Compiler Construction Lab**
Module number	INF-25-Ba-P-CB
Responsible lecturer	Prof. Dr. Jerónimo Castrillon jeronimo.castrillon@tu-dresden.de
Qualification objec-Tives	Students understand the influence of transformations on intermediate codes of complex mathematical calculations, such as those found in machine learning, on runtime and resource requirements. Students know methods for program translation for embedded systems and are able to apply these for special instruction set architectures.
Content	The module covers the optimization of complex mathematical calculations in intermediate code representations, as they occur in machine learning, for example, the basics of implementing intermediate code transformations based on a compiler framework, the influence of processor architecture on software performance, for example through the instruction set architecture of RISC-V, as well as basic and advanced optimization techniques.
Teaching and learning methods	The module comprises practicals amounting to 4 SWS and independent study. The language of instruction for the practicals may be German or English and will be specified by the lecturer at the beginning of each semester and announced in the usual manner .
Prerequisites for par-ticipation	In the Bachelor's degree program in Computer Science, the competencies to be acquired in the modules INF-25-Ba-AuD Algorithms and Data Structures, INF-25-Ba-AuB Automata and Computability Theory and INF-25-Ba-RA Computer Architecture and Hardware Laboratory, in particular knowledge of formal languages, algorithms and data structures as well as computer architecture, are required.
Applicability	In the Bachelor's degree program in Computer Science, the module is a compulsory elective module of the Bachelor's internship, which must be selected in accordance with the annex to the examination regulations. The module creates the prerequisites for the modules that name it under prerequisites for participation .
Requirements for earning credit points	The credit points are earned when the module examination has been passed. The module examination consists of a complex assignment of 80 hours. The examination language may be German or English and will be specified by the lecturer at the beginning of each semester and announced in the usual manner.
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 semester.
Workload	The total workload is 180 hours.

Module duration	The module comprises one semester.