Courses in English
Course Description

Department 07 Computer Science and Mathematics
Course title Compiler Construction
Hours per week (SWS) 4
Number of ECTS credits 5
Course objective Learning principles, techniques, and tools of compiler construction
Prerequisites Course: Algorithms and Data Structures
Teaching methods Interactive Lecture and Lab Sessions
Assessment methods Successful solution of all lab assignments, as a prerequisite for taking the graded written exam (90 minutes)
Language of instruction English
Name of lecturer Prof. Dr. Martin Ruckert
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Link

Course content Programs, that translate data from one form of representation into a different form of representation, while preserving the underlying data semantics - that is compilers - are part of many software packages and can be found as part of most large software systems. Compiler construction has a rich tradition of theory, formal techniques, algorithms, methods, and tools that can be put to use in the engineering of such programs, producing better results faster.

Compilers are usually split into two parts called the frontend and the backend. The first deals with reading and analysing textual input streams, checking for syntactic correctness, extracting structure, finding meaning, and constructing correct semantic representations. The second is concerned with intermediate representations and semantic preserving transformations to achieve optimized code, and the generation of target machine code.

While the study of the frontend covers topics of immediate importance to the practical software engineer, a deeper understanding of programming languages is not possible without thorough study of the compiler backend.

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