

COURSE DETAIL

COMPUTER SYSTEMS ARCHITECTURE

Country

Germany

Host Institution

Technical University Berlin

Program(s)

Technical University Berlin

UCEAP Course Level

Upper Division

UCEAP Subject Area(s)

Computer Science

UCEAP Course Number

115

UCEAP Course Suffix**UCEAP Official Title**

COMPUTER SYSTEMS ARCHITECTURE

UCEAP Transcript Title

COMP SYSTEMS ARCH

UCEAP Quarter Units

5.50

UCEAP Semester Units

3.70

Course Description

The following topics are covered in this course: computer arithmetic, number formats (place value systems, fixed- and floating-point numbers); basics of digital design ((combinatorial logic, gates, truth tables, storage elements, finite state machines); basic technologies and components of a (secure) computer architecture; assembly programming (MIPS): assembly language, control flow, addressing; structure and operation of a multi-cycle data path (MIPS), structure and operation of a multi-cycle implementation; measuring and evaluating performance (SPEC benchmarks, Amdahl's law); structure and operation of a simple Von Neumann model; introduction to pipelining: concepts, hazards, forwarding, solutions; memory hierarchy, caches, virtual memory; input/output techniques (addressing, synchronization, direct memory access).

Language(s) of Instruction

German

Host Institution Course Number

0401 L 410

Host Institution Course Title

RECHNERORGANISATION

Host Institution Campus

FAKULTÄT IV ELEKTROTECHNIK UND INFORMATIK

Host Institution Faculty

Host Institution Degree

Host Institution Department

Institut für Technische Informatik und Mikroelektronik

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