

COURSE DETAIL

COMPUTER ARCHITECTURE

Country

France

Host Institution

University of Bordeaux

Program(s)

University of Bordeaux

UCEAP Course Level

Upper Division

UCEAP Subject Area(s)

Computer Science

UCEAP Course Number

118

UCEAP Course Suffix**UCEAP Official Title**

COMPUTER ARCHITECTURE

UCEAP Transcript Title

COMPUTER ARCHITECTR

UCEAP Quarter Units

6.00

UCEAP Semester Units

4.00

Course Description

This course covers how modern computers operate and how to program them efficiently by making optimal use of their capabilities. The lectures introduce the internal functioning of computers through a progressive approach to fundamental concepts, organized into three main stages. First, it introduces machine-level programming, including binary and hexadecimal arithmetic (signed and unsigned), and the use of registers, memory, and the stack. The second stage focuses on digital electronics, covering Boolean algebra and logic functions, as well as the design of memory circuits and data paths. The final stage examines processor design, including instruction encoding and the wiring of the processor data path. Tutorial sessions deepen understanding through paper-based problem solving, emphasizing conceptual reasoning without the need for a physical computer. Practical sessions provide hands-on experience using educational simulators that correspond to the three phases of the course: execution of simplified machine-language programs, design of digital electronic circuits, and processor wiring simulation, allowing students to modify and experiment with instruction sets.

Language(s) of Instruction

English

Host Institution Course Number

4TIN408U

Host Institution Course Title

ARCHITECTURES DES ORDINATEURS

Host Institution Course Details

<https://formations.u-bordeaux.fr/details-formation?type=enseignement&id=29384>

Host Institution Campus

Université de Bordeaux

Host Institution Faculty

Sciences, Technologies, Santé

Host Institution Degree

Licence

Host Institution Department

Informatique

Course Last Reviewed

2025-2026

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