CS-209 **Computer architecture II**

Ienne Paolo

Cursus	Sem.	Type
Communication systems	BA4	Opt.
Computer science	BA4	Obl.
Electrical and Electronical Engineering	MA2, MA4	Opt.

Language of teaching	English
Credits	4
Session	Summer
Semester	Spring
Exam	Written
Workload	120h
Weeks	14
Hours	**4 weekly**
Courses	2 weekly
TP	2 weekly
Number of positions	

Summary

The course completes the introduction to computer architecture.

Content

- Inputs/Outputs and Interrupts
- Exceptions
- Computer Performance
- Pipelining
- Dynamic Scheduling
- Superscalar and VLIW Processors
- Multiprocessors and Cache Coherence

Keywords

Computer Architecture, Processor, CPU, ILP, Multiprocessors, Coherence

Learning Prerequisites

Required courses

- CS-173 (Digital System Design)
- CS-208 (Computer Architecture I)

Learning Outcomes

By the end of the course, the student must be able to:

- Design a simple exception handler in assembler
- Design pipelined digital circuits at Register Transfer Level
- Optimize the performance of a processor pipeline by reordering instructions
- Explain possible solutions to the cache coherence problem

Teaching methods

Ex-cathedra courses and labs on an FPGA board.

Assessment methods

- Labs and online tests during the semester : 30%
- Final written exam in the session : 70%

Supervision

Office hours	No
Assistants	Yes
Forum	Yes

Resources

Virtual desktop infrastructure (VDI)

No

Bibliography

David A. Patterson and John L. Hennessy, Computer Organization and Design: The Hardware/Software Interface, Morgan Kauffman, 5th edition, 2013.

Ressources en bibliothèque

- Computer organization and design

Moodle Link

- https://moodle.epfl.ch/course/view.php?id=14153

Prerequisite for

- CS-470 (Advanced Computer Architecture)