IC design II

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Summary
IC Design II presents the fundamentals of digital integrated circuit design. The methods and techniques aiming at the fabrication and development of digital integrated circuits are reviewed, the major design style pertaining to digital logic and memory are presented.

Content
Logic design
Process technology and integration
Layout and design rules
Physical design
Delay and power
Interconnects
Static logic
Dynamic logic
Sequential logic
Subsystems (logic, arithmetic)
Memory

Keywords
Digital logic, integrated circuit, VLSI

Learning Prerequisites
Required courses
EE-102 Systèmes logiques (introduction to digital logic), or
EE-110 Systèmes logiques (Introduction to digital logic)

Recommended courses
EE-320 IC Design I (introduction to analog integrated circuits)
EE-208 Microcontrollers and digital systems, or
MICRO-210 Microcontrollers

Learning Outcomes
By the end of the course, the student must be able to:
• Design components of digital integrated circuits
• Decide various transistor-level design options
• Analyze the operation of relevant digital ICs
• Explain fabrication and conception techniques of ICs

Transversal skills
• Assess one's own level of skill acquisition, and plan their on-going learning goals.

Teaching methods
Class lectures and exercises

Assessment methods
Written exam

Resources
Bibliography

Ressources en bibliothèque
• Introduction to VLSI Systems: A Logic, Circuit, and System Perspective / Lin

Moodle Link
• https://moodle.epfl.ch/course/view.php?id=15809

Prerequisite for
EE-490(b) Lab in EDA based design
VLSI and advanced VLSI classes