

Europractice Summer School

**24-28 August
2026**

**ASIC DESIGN
INTRODUCTION:
FROM CONCEPT TO SILICON**

Application Specific Integrated Circuits (ASICs) are central to modern electronics, enabling the miniaturization and sophisticated functionality of countless devices in numerous application domains. They are fabricated on a single piece of semiconductor material, containing millions of semiconductor devices and performing complex functions.

Europractice and imec created this summer course to provide a foundation for analyzing and designing both analogue and digital ASICs, developing intuition for the design process from concept to silicon.

The experts from imec will discuss the operations, characteristics, and limitations of basic circuits that form complex ICs. A holistic understanding of these fundamentals is crucial for engineers, students, and professors using ICs in specialized applications.

We will start with an introduction to Complementary Metal Oxide Semiconductor (CMOS) IC design, deep submicron CMOS technology fundamentals, and device evolution. After detailing digital and analog design workflows, we will move on to packaging and ultimately system and chiplet integration. Further, we will discuss key aspects of production test and IC supply chain. Last but not least, we will cover IP fundamentals and challenges of design reuse.

MONDAY 24.08.26

Giuseppe Fiorentino

9:00-12:00

Introduction to integrated circuits and fabrication of silicon chips.

Hans Manhaeve

13:30-16:30

From ASIC to Product. Introduction to packaging and test: Relationship to design, technical, and economic aspects.

TUESDAY 25.08.26

Jorgo Tsouhlarakis

9:00-12:00

Digital front-end design flow: Basic steps.

Amir Najafi

13:30-16:30

Digital physical implementation foundation flow and low power methodologies.

WEDNESDAY 26.08.26

Florian De Roose

9:00-12:00

Analog Design: Introduction to analogue design flow.

Eduarda Silveira da Costa Losqui

13:30-16:30

Analog layout: Basics of analog physical layout, analog layout workflow, and failure mechanisms.

THURSDAY 27.08.26

Paul Zuber

9:00-12:00

IP fundamentals. Reasons for design reuse. Key legal and technical prospects and challenges.

Steven Dupont

13:30-16:30

**Design for testability:
The increasing cost of unfound defects and fault models overview.**

FRIDAY 28.08.26

Ugo Raia

9:00-10:00

**Integrated circuit production test:
Role and aspects.**

Jeroen Schelkens

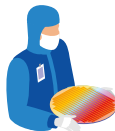
10:15-11:15

Integrated circuit packaging development.

Sara Louahdi

11:15-12:00

From classic to advanced packaging and chiplet integration.



16:45-17:15 Monday - Thursday

Imec clean room visits



16:30-18:00 Tuesday

Networking drink

If you have questions about this training course,
please contact Sara.Louahdi@imec.be



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