

Seminario MUICR

- **Título:** Inside Semiconductor Companies: From Architecture to Silicon
- **Fecha de impartición:** los días 10, 11, 17 y 18 de diciembre de 2025
- **Horario:** 18h a 20h30
- **Lugar de impartición:** Aula máster MUICR (1G-2N17)
- **Ponente:** Gaspar Mora, OpenChip



- **Resumen:**

This course equips students with a comprehensive understanding of the engineering practices and organizational dynamics driving innovation in semiconductor companies, preparing them for roles in this dynamic field.

This 10-hour course provides an insider's perspective on how leading semiconductor companies, such as Nvidia and AMD, organize and execute chip design. Tailored for Master's students in Electrical & Computer Engineering, the course delves into the entire lifecycle of chip production, from architecture exploration to collaboration with hardware engineering teams working on validation, RTL development, and verification. Drawing from extensive experience working at Intel and more recently at Nvidia, the instructor will share real-life anecdotes that illustrate the complexities and triumphs of designing cutting-edge chips.

The course provides an overview of the semiconductor industry, focusing on the fabless business model and its implications for chip design and production. Students will gain insights into how companies structure their internal organizations to manage the intricate process of bringing a chip from concept to reality. This includes understanding the roles of various engineering teams, such as those involved in architecture exploration, RTL development, verification, and validation. Special emphasis will be placed on the importance of cross-functional collaboration among hardware, software, and verification engineers.

A key aspect of the course is the discussion of critical documentation, including HAS (High-Level Architecture Specification), MAS (Micro-Architecture Specification), and SAS (System Architecture Specification) documents. These documents serve as the foundation for aligning

teams and ensuring that the chip meets its performance, power, and area targets. Students will learn how these specifications are developed, maintained, and used throughout the design process to guide engineering efforts effectively.

The course also explores the challenges of managing information across large teams and projects, highlighting strategies for maintaining consistency and reducing errors. By sharing real-world experiences from Silicon Valley, the instructor will provide practical insights into the day-to-day operations of companies like Nvidia and Intel. Additionally, the course touches on future trends in semiconductor design, including emerging technologies and their potential impact on the industry.

By the end of this course, students will have a comprehensive understanding of the organizational structures, engineering roles, and design methodologies that enable leading semiconductor companies to innovate and deliver state-of-the-art chips. This knowledge will prepare them for roles within the semiconductor industry and provide a solid foundation for tackling the challenges of advanced chip design.