Extracurricular Internship- Semiconductor Test Engineering

Duration: 6 months
Location: Advantest Office Catania
Company: Advantest

About Advantest

Advantest is a global leader in Automatic Test Equipment (ATE) for the semiconductor industry. Our solutions ensure the quality, reliability, and performance of semiconductor devices powering today's digital world — from automotive and artificial intelligence to telecommunications and consumer electronics.

Internship Overview

This internship offers a unique opportunity to explore the often less visible but strategically critical world of **semiconductor testing**, focusing on its strong connection with:

- **Design for Testability (DFT)** – methodologies and architectural techniques that enable efficient and effective testing of integrated circuits
- **Test Program Software Development** – creation, implementation, and optimization of test programs for ATE platforms
- **Hardware Interface Development** – design of interface solutions (load boards, probe cards, custom interfaces) between test systems and Devices Under Test (DUT)

The internship provides exposure to the complete flow linking chip design to manufacturing validation, highlighting how design decisions directly impact test efficiency, production yield, cost, and overall product quality.

Key Responsibilities

During the 6-month internship, the candidate will:

- Study semiconductor test architectures for digital and/or mixed-signal devices
- Gain understanding of core DFT concepts (scan chains, BIST, boundary scan, fault coverage, yield optimization)
- Support development, debugging, and optimization of ATE test programs
- Contribute to defining hardware interface specifications between tester and DUT
- Analyze production test data (yield analysis, binning strategies, device characterization)
- Collaborate with cross-functional teams including Design, Product Engineering, and Application Engineering

The intern will follow a structured training path under the mentorship of senior engineers, with regular technical reviews and feedback sessions.

Learning Objectives

By the end of the internship, the candidate will have developed:

- A solid understanding of the strategic role of semiconductor testing in the product lifecycle
- Practical knowledge of DFT methodologies and their impact on manufacturability
- Hands-on experience in test software development and debugging
- Foundational understanding of hardware interface design for ATE systems
- Skills in interpreting and analyzing production test data

Candidate Profile

- Master's degree in Electronic Engineering, Computer Engineering, Telecommunications, or related fields
- Basic knowledge of digital and/or analog electronics
- Programming fundamentals (C/C++, Python, JAVA, or similar languages)
- Strong interest in semiconductor technologies and validation processes
- Analytical mindset, problem-solving attitude, and teamwork skills

Knowledge of digital architecture and IC testing fundamentals is considered a plus.

Why Join Advantest

Semiconductor testing is a highly specialized and strategic field that plays a crucial role in ensuring the reliability of modern electronics.

Joining Advantest means contributing to the quality and performance of technologies that drive global innovation.
