

# Semiconductor Industry-Ready Student Certification Program

## Introduction

The semiconductor industry is at the forefront of technological innovation and is experiencing rapid growth driven by emerging applications across communications, healthcare, automotive, and renewable energy sectors, as well as technologies such as AI, IoT, and 5G/6G. As demand continues to rise for faster, more efficient, and increasingly compact electronic devices, the need for a highly skilled semiconductor workforce has never been greater.

Developed through collaboration between industry and universities, the **Semiconductor Industry-Ready Student Certification Program** is designed to equip students with essential in-depth knowledge and practical skills required for careers in the semiconductor industry.

A key component of this certification program is the use of Keysight's **Semiconductor Teaching Lab Solutions**. Through three standalone modules, students will be able to:

- Understand and characterize semiconductor devices, design and simulate a single-transistor mixer, and design and optimize a FET-based amplifier.
- Set up and operate semiconductor test systems, perform key I/V and C-V measurements, and apply advanced measurement techniques to improve accuracy and efficiency.
- Master photonics optical device characterization, understand polarization effects, and perform probe station setup, die handling, and precise alignment for accurate measurements.

# Keysight Requirements for Universities

The following requirements must be met by universities seeking to participate in the Semiconductor Industry-Ready Student Certification Program:

- The university must adopt Keysight's Semiconductor Teaching Solutions to be eligible to participate in the Semiconductor Industry-Ready Student Certification Program.
- The university must ensure students complete all Semiconductor Teaching Solutions lab sheets in the module that the certification is being pursued.

## Certification Process for Universities and Students

The certification process outlines the steps required for both universities and students to qualify for and complete the program:

- University completes and submits Keysight Semiconductor Industry-Ready Student Certification Program application form.
- Keysight certifies that the university course and lab topics meet the program requirements.
- Keysight notifies the university of acceptance.
- Students are notified of the certification program by the course professor.
- At the end of the course/labs, the top 15% – 20% of students are eligible for certification.
- Class professor provides Keysight with names of students qualifying for certification based on class grade and quality of lab work.

## Student Recognition

Students who successfully complete the certification program receive formal recognition from Keysight through the following mechanisms:

- Keysight provides verification of certification with certificate.
- Keysight inserts student name into list on Keysight's website: [University Student Certification Program](#)
- Certified students receive a digital badge that can be used to showcase their competencies.

## Types of Certifications

The program offers targeted certifications that align academic learning with real-world semiconductor design, measurement, and characterization skills.

Certification	Description
Basic Design and Measurement	Characterize key semiconductor devices, design and simulate single-transistor mixer using Keysight ADS, and design and optimize FET-based amplifier.
Parametric Test and On-Wafer Measurement	Set up and operate semiconductor test systems, perform key I/V and C-V measurements, and apply advanced measurement techniques for accuracy and efficiency.
Photonics IC Measurement	Master photonics optical device characterization, understand polarization effects; and perform probe station setup, die handling, and precise alignment for accurate measurement.

# Course Content

The course content is structured to provide progressive coverage of key semiconductor concepts, measurements, and practical laboratory skills.

Module	Lab Sheets
Basic Design and Measurement	<ul style="list-style-type: none"><li>• Basic Semiconductor Devices and Measurements</li><li>• Low-Power Single-transistor Active Mixer Design</li><li>• Amplifier Design Based on FET</li></ul>
Parametric Test and On-Wafer Measurement	<ul style="list-style-type: none"><li>• Hardware Setup and Software Basic</li><li>• Id-Vd Application Test</li><li>• Vth Measurement in Classic Test</li><li>• C-V Measurement</li><li>• Ultra-Low Current Measurement</li><li>• Sampling Measurement</li><li>• Id-Vg Tracer Test</li></ul>
Photonics IC Measurement	<ul style="list-style-type: none"><li>• Getting Started – Probe Station Operation</li><li>• Fixed Wavelength Power and Insertion Loss</li><li>• Swept Wavelength Insertion Loss</li><li>• Polarization Control and Measurement</li><li>• Swept Wavelength Insertion Loss (IL) and Polarization Dependent Loss (PDL)</li><li>• Swept Wavelength Optical to Electrical (OE) PIN Diode Responsivity</li></ul>

## Certification Acknowledgement

Provides visible recognition of technical excellence and distinguishes top-performing students in a competitive talent landscape:

- Identification as being among the best.
- Confirmation of technical expertise.
- Credentials verified through Keysight webpage and digital badge.

## Certification Value

Enhances student employability by validating industry-ready skills, strengthening resumes, and supporting career advancement:

- Equipped with industry-ready skills and knowledge.
- Create outstanding resumes.
- Increase in employment opportunities.

## Industry Access

Creates meaningful connections between academia and industry by highlighting certified students as high-value, workforce-ready talent:

- Demonstrated value for Industry.

## Conclusion

The **Semiconductor Industry-Ready Student Certification Program** delivers a powerful bridge between academic learning and industry expectations. By integrating hands-on experience with industry-standard measurement platforms, structured lab modules, and formal certification, the program supports universities in developing the next generation of skilled, workforce-ready talent to meet evolving industry needs.

Keysight enables innovators to push the boundaries of engineering by quickly solving design, emulation, and test challenges to create the best product experiences. Start your innovation journey at [www.keysight.com](http://www.keysight.com).



This information is subject to change without notice. © Keysight Technologies, 2025 – 2026, Published in USA, April 24, 2026, 3125-1041.EN