India Semiconductor Workforce Development Program (ISWDP)
Custom Module offered by Tektronix

May 24, 2025 | 10:00 - 13:00
Custom Module on Electrical Characterization of Material and Device by Tektronix

May 25, 2025 | 11:00 - 12:00
Custom Module Test

Course Objective:

To provide a comprehensive overview of precision characterization techniques essential for evaluating and qualifying semiconductor materials, processes, and devices. This course will highlight the importance of accurate measurements in semiconductor fabrication and demonstrate the use of Keithley-Tektronix instruments for various characterization tasks.

1. Introduction to Semiconductor Characterization (30 minutes)
- Importance of Characterization.
- Role of characterization in material evaluation, process optimization, and device fabrication.
- Overview of key characterization tasks: material evaluation, process qualifications, and device testing.
- Overview of Electrical Characterization Techniques.

2. Material and Process Characterization (30 minutes)
- Material Characterization.
- Techniques and equipment used for precision requirements.
- Importance for substrate qualification and doping.
- Resistivity Measurements.
- Application in deposition and metallization process qualifications
- Conductivity Measurements.
- Key steps in evaluating fabrication processes and process Characterization.

3. Device Characterization (45 minutes)
- Application in material qualification and process optimization.
- Test Structures for IV and CV Measurements.
- Testing resistors, junctions, capacitors, and MOS-CAP.
- Importance of MOSFET Testing.
- MOSFET parameter testing such as Voltage handling capability, Breakdown voltages, - Leakage current, Saturation voltages and currents, gain and Rds ON measurements.
- Wafer-Level Testing, assessing devices on a wafer to determine process yield.

4. Q&A and Wrap-Up (15 minutes)
- Addressing participant questions and clarifications.

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https://iswdp.registeryourseat.in/index.php

This module, along with its certification, is available free of charge exclusively to Cohort 4 participants of ISWDP. To enroll, participants must click on the registration link, log in with their credentials, and choose the Custom Module. The registration deadline is 22 May 2025, 11.59 PM. Please note that the meeting link will be shared only after successful registration.