Centre for Electronics System Design, Calibration and Testing
NATIONAL INSTITUTE OF TECHNOLOGY , TIRUCHIRAPALLI

One Week Hands-on Workshop on

SEMICONDUCTOR DEVICE CHARACTERIZATION & PARAMETER EXTRACTION

14th December 2026 – 18th December 2026

Organized by

Centre for Electronics System Design, Calibration and Testing (CESDeCT)

Scan to register

About the Institute
The National Institute of Technology, Tiruchirappalli (NIT Trichy), is one of India's premier institutions of national importance. It is widely recognized for its academic excellence, cutting-edge research, innovation, and strong industry collaboration. The institute remains committed to developing future-ready engineers and driving technological advancements for societal impact.

About the Department
The Department of Electronics and Communication Engineering (ECE) at NIT Trichy was established in 1968, and launched its M.Tech. in VLSI System program in 1999. As a leading Centre for education and research, the department offers state-of-the-art facilities in VLSI, embedded systems, signal processing, wireless communication, and AI hardware. It consistently fosters innovation through interdisciplinary research and strategic industry partnerships.

About the Centre – CESDeCT
The Centre for Electronics System Design, Calibration and Testing was established in 2021 within the Department of Electronics and Communication Engineering (ECE). Funded with ₹145 Lakhs from the Higher Education Financing Agency (HEFA) under the Interdisciplinary Research Centre and Labs (IRCL) initiative, the Centre features advanced equipment for semiconductor, IC, and RF characterization, as well as antenna fabrication and testing up to 6 GHz.

About the Workshop
A five-day, hands-on training programme covering the characterization of semiconductor passive devices, MOSFETs, and HEMTs. The course features practical sessions on I-V and C-V measurements, as well as the use of RF sources, spectrum analyzers, and VNAs. Participants will also learn calibration techniques, LNA design, and parameter extraction. Sessions will be conducted by NIT Trichy faculty and industry experts from Tektronix.

Target Audience
UG/PG students/Research scholars, Staff members, Faculty members and Industry professionals interested in Semiconductor devices, RF devices and measurement.

Resource Persons
- Dr. Guruprasad G, Assistant Professor, ECE, NIT Trichy
- Dr. P Surya Teja Naga Srinivas, Assistant Professor, ECE, NIT Trichy
- Dr. Manikandan R.R. , Assistant Professor, ECE, NIT Trichy
- Dr. M. Bhaskar, Professor, ECE, NIT Trichy
- Industry experts from M/s Tektronix
- OTHER EXTERNAL EXPERTS from Academia and Industry

Coordinators
- Dr. Guruprasad G, Assistant Professor, ECE, NIT Trichy
- Dr. P Surya Teja Naga Srinivas, Assistant Professor, ECE, NIT Trichy
- Dr. Manikandan R.R. , Assistant Professor, ECE, NIT Trichy

Facilitator
- Dr. M. Bhaskar, Professor, ECE, NIT Trichy

Workshop Highlights

★ Hands-on Lab Sessions | ★ I-V & C-V Measurements | ★ RF & VNA Calibration | ★ MOSFET & HEMT Characterization

How to apply

Registration link : https://forms.gle/HLcX4rW3hKnVyKs69
Last date for registration : 7th December 2026
Registration fee : Rs. 7000/- (Student), Rs. 8100/- (Staff), Rs. 11000/- (Faculty)
Rs. 15800/-(Industry Professional)
(Accommodation at Hostel/Guest House and food will be extra as per our Institute norms)

Contact: Dr. Manikandan R. R., manirr@nitt.edu, +91 95351 44501
Dr. P Surya Teja Naga Srinivas, suryateja@nitt.edu, +91 62030 28048

Centre for Electronics System Design, Calibration and Testing (CESDeCT)
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI - 620015

One Week Hands-on Workshop on

Semiconductor Device Characterization and Parameter Extraction

PROGRAM SCHEDULE (14th December 2026 to 18th December 2026)

Day	Forenoon Session (Theory) (11:00 am to 11:15 am tea break)			Afternoon Session (Hands on experience) (03:30 pm to 03:45 pm tea break)	
	09:30 am to 11:00 am	11:15 am to 12:45 pm		02:00 pm to 03:30 pm	03:45 pm to 05:15 pm
14th	Introduction to the Centre (CESDeCT) facilities, list of equipment and its applications	Semiconductor passive devices and its performance parameters (with mathematical assignments)	Lunch Break 12:45 pm to 02:00 pm	Advanced Semiconductor and Integrated Circuit (IC) characterization equipment	Introduction to RF source, Spectrum Analyzer, and Vector Network Analyzer
	Dr. M. Bhaskar, Professor, ECE, NIT, Trichy	Dr. Manikandan RR Assistant Processor, ECE, NIT, Trichy		Industry Expert Talk from M/s Tektronics	Industry Expert Talk from M/s Tektronics
15th	One-port S-parameters, S-Y parameter conversion, Extraction of resistance and capacitance versus frequency characteristics from Sparameters	Invited Lecture - "Recent technology developments and Semiconductor Devices for power management applications"		Resistor (I-V) characteristics (0.5 Ω, 1 KΩ, 10 KΩ, & 10 MΩ), Measurements using Parameteric Analyzer	SMD resistor and capacitor characteristics versus frequency, Measurements using Vector Network Analyzer (VNA)
	Dr. Manikandan RR Assistant Processor, ECE, NIT, Trichy	Professor from IIT		Dr. Guruprasad G Assistant Professor, ECE, NIT, Trichy	Dr. Manikandan RR Assistant Processor, ECE, NIT, Trichy
16th	Technology options and device types available with a Process Development Kit (PDK), and PDK evaluation methods	MOSFET: Device structure, parameters, and characterization methods		Interdigitated Electrode (IDE) photodetector: (I-V) & (C-V) characteristics, Measurements using Parametric Analyzer	MOSFET (I-V) characteristics and MOSFET parameter extraction (Vth, λ, β, etc) using Parametric Analyzer
	Dr. Guruprasad G Assistant Processor, ECE, NIT, Trichy	Dr. Surya Teja N S P, Assistant Professor, ECE, NIT, Trichy		Dr. M. Bhaskar, Professor, ECE, NIT, Trichy	Dr. Surya Teja N S P, Assistant Professor, ECE, NIT, Trichy
17th	Design and characterization methods of on-chip spiral Inductors and Inductor structures on printed-circuit board (PCB)	Invited Lecture on Recent Advances and Emerging Trends in Semiconductor Materials and Device Technologies		MOSFET (C-V) characteristics and device parameter extraction, Measurements using Parameteric Analyzer, Data Analysis	SMD Inductors and PCB Inductors, L measurements versus frequency, Measurements using Vector Network Analyzer (VNA)
	Dr. Guruprasad G Assistant Processor, ECE, NIT, Trichy	Professor from IIT		Dr. Guruprasad G, Assistant Professor, ECE, NIT, Trichy	Dr. Manikandan RR Assistant Processor, ECE, NIT, Trichy
18th	LNA/RF-Amplifier fundamentals, gain, noise figure, and linearity performance parameters	High Electron Mobility Transistor (HEMT) - Device physics fundamentals, (I-V) characteristics, and device parameters		HEMT (I-V) characteristics and device parameter extraction, Measurements using Parameteric Analyzer	LNA/RF-Amplifier gain and linearity measurements using real-time Spectrum Analyzer and Vector Signal Generator (VSG)
	Dr. Manikandan RR Assistant Processor, ECE, NIT, Trichy	Dr. Surya Teja N S P, Assistant Professor, ECE, NIT, Trichy		Dr. Surya Teja N S P, Assistant Professor, ECE, NIT, Trichy	Dr. Manikandan RR Assistant Processor, ECE, NIT, Trichy