

**Five Day Online/Offline
Short Term Training Program (STTP)**

on

**Next Generation Semiconductor
Devices, Memories, and Sensors**

(SDMS 23)

July 24 - 28, 2023



(Getty Images/iStockphoto for representation)

Organized by



**Department of Electronics and
Communication Engineering
National Institute of Technology Calicut**

SILVACO



About the Department

The UG programme in Electronics & Communication Engineering started in 1980 in the Department of Electrical Engineering. The rapid development in Electronics and Communications initiated the inception of a separate Department of Electronics & Communication Engineering in 1997, after the bifurcation of the Department of Electrical Engineering.

The department offers four regular M. Tech programmes, viz., Electronic Design Technology, Microelectronics & VLSI, Signal Processing, and Telecommunication leading to the M. Tech degree of the institute. In addition to the above, a number of students are pursuing research at the Department in various fields of Electronics & Communication Engineering leading to Ph.D. The Department is a recognized QIP Centre of the AICTE for both M. Tech and Ph.D. programmes. The Department is also actively engaged in R&D activities. Sponsored research programmes funded by various agencies are undertaken by the faculty of the department. For details see our website: www.ece.nitc.ac.in

About NIT Calicut

National Institute of Technology Calicut (NITC) is fully centrally funded by MHRD and is governed by the NIT Act 2007. Institute has ten departments, three schools and nine research centers. It offers ten UG, and thirty PG programmes along with the Ph.D. programme in various fields of Science, Technology and Engineering. Faculties in the various Departments have active collaborations with universities and elite institutions within and outside India for research and have active consultancy for industries. For details visit the website: www.nitc.ac.in

Preamble

The Next Generation Semiconductor Devices, Memories, and Sensors (SDMS 23) is designed to provide participants with an in-depth understanding of the latest developments in semiconductor technology. The course will cover topics such as advanced semiconductor devices, non-volatile memories, and sensors. The course will begin with an overview of the fundamental principles of semiconductor technology and then move on to discuss the latest advancements in device design and fabrication. Participants will learn about new materials, advanced processing techniques, and device architectures that are being developed to improve device performance and enable new applications

Key Highlights

- The training program begins with an in-depth overview of the latest advancements in semiconductor devices, memories, and sensors.
- The training explores the next generation of memory technologies, including emerging non-volatile memory (NVM) technologies like resistive RAM (RRAM), phase-change memory (PCM), and magnetic RAM (MRAM).
- The program highlights the latest developments in sensor technologies, such as MEMS, IoT sensors, and wearable sensors.
- Online lab sessions on SILVACO (ATLAS, MixedMode, SMARTSPICE Circuit Simulator), and Virtual Metrology Technology for Semiconductor Manufacturing with Machine Learning (MathWorks) by Industry experts.

Tentative topics to be covered

This programme will cover the following topics:

- Beyond CMOS technology
- Wide bandgap semiconductor devices
- Nanoelectronic devices, circuits, and systems
- Next generation memory technologies
- Memristors for spiking neuromorphic learning systems
- Steep slope devices for neuromorphic circuits and systems
- Sensor Technologies
- Semiconductor Manufacturing with Machine Learning

Registration Fee

Fee for participants (including GST) is:

- UG, PG & Research Scholars: ₹ 1180
- Faculty: ₹ 3540
- Industry Professionals/Others: ₹ 5900
- Foreign (Other Than India): \$ 80

For registration, fill the online form at <https://forms.gle/QfPcgTWD3qVDSQFG7>

The registration fee has to be paid through an online transfer. The bank details are given below. *Please add note as SDMS'23 while doing payment.*

Account Name: Director, NIT Calicut,
Continuing education programme,
Account No: 37618269594
Bank: State Bank of India
Branch: NIT Calicut
IFSC code: SBIN0002207

Accommodation & Food

*****For the offline participants, accommodation (Twin Sharing type) and food can be arranged at Institute Hostel on payment basis***



The QR Code can also be used for online registration.

Last date for registration is 15th July 2023

Certificate will be provided to each participant upon completion of the course.

Resource Persons

All the sessions will be handled by faculty of NITC and invited experts from Industry / Academia. Confirmed Speakers are given below.

1. **Dr. Shree Prakash Tiwari**
Professor, IIT Jodhpur
2. **Dr. Kaushik Nayak**
Associate Professor, IIT Hyderabad
3. **Dr. Ravindra Kumar Jha**
Assistant Professor, IIT Guwahati,
4. **Dr. Kumar Prasannajit Pradhan**
Assistant Professor, IIITDM Kancheepuram
5. **Dr Vinayak B. Kamble**
Assistant Professor,
IISER Thiruvananthapuram
6. **Experts from Industry will handle session on MATLAB and SILVACO**

****Invited external experts will be taking sessions online***

Coordinators

Dr. Lintu Rajan & Dr. Gopi Krishna S.
Assistant Professors

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For registration and other information

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