

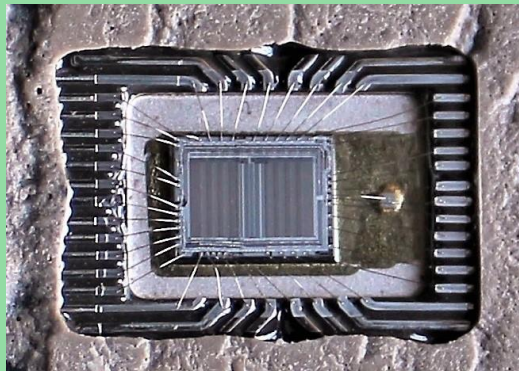
*Five Day Online Faculty Development  
Programme*

on

**MODELING, SIMULATION AND  
FABRICATION OF FUTURE  
NANO-ELECTRONIC DEVICES  
AND SENSORS**

**(MSFNS 20)**

**August 24 - 28, 2020**



**Organized by**



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

**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, there are a number of students 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 PhD programs. 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](http://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](http://www.nitc.ac.in)

**Preamble**

Device modeling is becoming very important in the view of increasing complexity of fabrication technologies and consequent rise in development costs, since it allows preliminary parameter optimization in an early design phase. The modeling and simulation can provide information on the feasibility of a proposed new technology. The goal of this FDP is to provide details of critical concepts in the understanding of the state-of-the-art modeling of semiconductor devices. It will cover the concepts from fundamentals to advanced level, giving thrust to nanoelectronics.

### Key Highlights

- This FDP mainly focuses on the modeling, simulation and fabrication of advanced semiconductor devices such as FD SOI, Tunnel FET, Junctionless (JL) FET, Negative Capacitance (NC) FET, Thin-Film Transistor (TFT), nanotechnology and MEMS etc.
- It will provide detailed overview of the new nano electronic materials and devices for the applications in memory, sensors, etc. Details of nano electronic device fabrication and characterization techniques will also be covered.
- Online lab session on Visual TCAD tool (device simulator) will be conducted.
- There will be sessions in morning and afternoon on every day of FDP.

### Topics to be covered

This programme will cover the following topics:

- Nano-materials and devices
- Beyond CMOS technology
- Advanced transistor technologies
- Wide bandgap semiconductor devices
- Self-heating in nanoscale devices
- Progress in modeling methodologies and approaches
- Modelling of thin-film transistors
- Modelling of sensors
- TCAD simulation of nano-electronic devices
- Fabrication and characterization techniques

### Registration Details

- The fee for participants: Rs.590/-
- For registration, fill the online form at <https://docs.google.com/forms/d/1c4HzNPNQNNdNNcQVvFv74HI9mbrAJWOdQgxNv0SrTaY/edit>.
- The registration fee has to be paid through online transfer. The bank details are given below.

Account Name: Director, NIT Calicut,  
Continuing education programme,  
Account No: 37618269594,  
Branch: SBI NIT Calicut,  
IFSC code: SBIN0002207

**Last date for registration is 15<sup>th</sup> Aug 2020.**



The QR Code can also be used for online registration.

*Certificates will be provided to registered participants upon completion of the course.*

### Who can apply?

Faculties/ research scholars/ PG students and Industry employees, who are working/ interested in the area of semiconductor devices and sensors can attend the course.

### Resource Persons

All the sessions will be handled by faculty of NITC and invited experts:

Confirmed speakers are

- 1. Dr. Shreepad Karmalkkar**  
Professor, IIT Madras
- 2. Dr. Anil Kottantharayil**  
Professor, IIT Bombay
- 3. Dr. Pramod Kumar Tiwari**  
Associate Professor, IIT Patna
- 4. Dr. Mirgender Kumar**  
Assistant Professor, Yeungnam University
- 5. Mr. Amit Saini**  
Director, Cadre Design Systems

### Co-ordinators

**Dr. Gopi Krishna S. & Dr. Lintu Rajan**  
Assistant Professors  
Department of Electronics and Communication Engineering  
National Institute of Technology Calicut NIT  
Campus P.O. - 673601, Kozhikode,

### For registration and other information

**Contact:** 8074317117/9495807919

**Email:** [msfns2020@gmail.com](mailto:msfns2020@gmail.com)