



IEEE EDS & IEEE NT Council Sponsored 5-Days Workshop

On

“Emerging Cutting Edge Technologies in CMOS: Trends and Challenges”

11th to 15th December, 2024

Organized by

Department of Electronics & Communication Engineering

NIT Silchar



Emerging Cutting Edge Technologies in CMOS: Trends and Challenges

Chief-Patron

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Important Date

Last date of registration:
09-12-2024, 5:00 PM
Link to the registration form
<https://forms.gle/dJTB8caoUWp552TYA>

Registration Charges

No Fee Required for Registration and Participation

Eligibility/Target Audience

- PhD Scholars/UG/PG Students/Faculties of AICTE/UGC affiliated institutes.
- Applications will be accepted on **First cum first serve basis**.
- E-Certificates will be issued to the participants only after attending the complete workshop.

Five days online workshop (workshop) from 11th-15th December, 2024 is being organised by Department of Electronics and Communication engineering, National Institute of Technology Silchar.

About NIT Silchar: NIT Silchar is ranked 40th in NIRF 2024 among Top Engineering Institutions in India. This workshop will provide an opportunity to learn recent trends and challenges in the area of CMOS Technologies and its beyond from eminent experts from IITs/NITs/Industry. The participants will have an exposure to the state-of-the-art in CMOS IC Design and challenges in advanced semiconductor devices for various applications. This workshop will provide discussion/presentation on future research directions in the field of CMOS technologies and beyond. The participants will also learn new IC simulation Tools e.g. EDA/ TCAD tools from academic/industry experts.

About the Department of ECE: The Department of Electronics & Communication Engineering offers a four-year B. Tech. program and two-year M. Tech. programs in “Microelectronics and VLSI Design”, “Communication and Signal Processing Engineering”, “RF and Terahertz Communications”, and Ph.D. in various areas of the discipline. Two PG Programs (M. Tech. in ME&VLSID and M. Tech. in CSPE) are NBA accredited. The faculties of the department have a wide variety of expertise with a strong academic background and are alumni of reputed institutes around the world. The graduates of the department are placed in various organizations across the globe. Keeping in mind the great potential and demand for new communication technologies, the department aims at imparting its students with the latest knowledge in the field. To complement this, the department has well-stocked laboratories housing various modern pieces of equipment to enable the students to keep pace with the fast-changing technology. The various specializations like Artificial Intelligence, Device modelling, MEMS devices, optoelectronics, Antenna, RF-microwave, Wireless Networks, Image Processing, etc. The Department is equipped with state-of-the-art labs to support the UG, PG and Research Programs.

About IEEE-EDS Student branch, NIT Silchar: IEEE is the world's largest professional association dedicated to advancing technological innovation and excellence for the benefit of humanity. IEEE and its members inspire a global community through IEEE's highly cited publications, conferences, technology standards, and professional and educational activities. IEEE Electron Device Society Student Branch Chapter at NIT Silchar was formed on 6th May, 2013. Since its inception, it has successfully organized many workshops and DL talks in the college. The IEEE EDS student branch chapter at NIT Sachar has got enormous support from the college authorities and we want to capitalize this opportunity to create a knowledge sharing hub of latest researches and development in the various fields for the students, scholars and faculty members of the North Eastern region by organising workshops, DL talks, seminars and hands-on session under the banner of IEEE-EDS student branch chapter.

Speakers

- **Prof. Brinda Bhowmick**, Professor, NIT Silchar
- **Prof. Angsuman Sarkar**, Professor, KGEC, Kalyani
- **Prof. Pramod Kumar Tiwari**, Associate Professor, IIT Patna
- **Dr. Chitrakant Sahu**, Associate Professor, NIT Raipur
- **Dr. Navjeet Bagga**, Assistant Professor, IIT Bhubaneshwar
- **Dr. Pankaj Kumar Pal**, Assistant Professor, NIT Uttarakhand
- **Dr. Deepak Bharti**, Assistant Professor, MNIT Jaipur
- **Dr. Sheikh Wasmir Hussain**, Assistant Professor, IIIT Guwahati
- **Dr. Kavindra Kandpal**, Assistant Professor, IIIT Allahabad
- **Amit Saini**, Technical Leader, Cadre Design System
- **Mukesh Sukla**, Sr. Manager and Global R&D Head, Marquee Semiconductor Inc.

Topics to be covered:

- CMOS Scaling trends, Moore's Law, CMOS fabrication challenges, EDA Tool Demonstration for IC Design.
- Emerging devices beyond CMOS: Partially and fully depleted SOI MOSFETs, High-k MOS devices, Strained technology, FinFETs and Multi gate MOSFETs, 3D Transistors, Demonstration of TCAD Tools.
- Trends and Challenges in Nanoscale technologies: Si-Nanowire MOSFETs, JL and DL MOSFETs, Tunnel FET. Simulation and Analysis of Emerging low power devices using TCAD Tools.
- High Performance Content Addressable Memory (CAM), One Time Programmable (OTP) Memory, In-Memory Computing (IMC), Memristor for Memories

Venue/Mode:

The workshop will be organized in online Platform. The joining link and minute to minute time-table will be shared before the workshop.

Timing of the workshop:

The deatiled schedule/agenda will be provided one day before the workshop.