

TEQIP –III, Sponsored 5-Days Online Workshop
On

**“Emerging CMOS Technologies and Beyond:
Trends and Challenges”
26th to 30th November, 2020**

Organized by
**Department of Electronics & Communication Engineering
MNIT Jaipur**



Emerging CMOS Technologies and Beyond : Trends and Challenges

Patron

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Important Date

Last date of registration:
25-11-2020, 2:00 PM

Link to the registration form
<https://forms.gle/IANugC4GjXdqdiDB6>

Registration Charges:

- Rs. 118/- for MNIT Jaipur student
- Rs. 236/- for outside MNIT students
- Rs. 590/- for Faculty

Online Payment Details:

A/c Name: The Registrar MNIT, Jaipur
(TEQIP Phase-III)
Bank Name: State Bank of India (SBI)
Current A/c No.: 36875887782
IFSC Code: SBIN0015921
Branch Name: MNIT Campus, Jaipur
OR

PAYTM to 8765423817 (Shreyas Tiwari)

Eligibility/Target Audience

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

Five days online workshop (e-workshop) from 26th-30th November, 2020 is being organised by **Department of Electronics and Communication engineering, Malaviya National Institute of Technology Jaipur**. MNIT Jaipur is ranked 35th in NIRF 2020 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, Layout Design, Spice Model 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.

Topics to be covered:

Module 1. CMOS Scaling trends, Moore's Law, CMOS fabrication challenges, Logical Effort Method of Digital CMOS IC Design, EDA Tool Demonstration for IC Design.

Module 2. Layout design and challenges, Stick diagrams, Design rules and layout: Lambda-based Design, Demonstration of Layout design using EDA Tool, Parasitic Extraction, Delay and Power Estimation.

Module3. Modelling of MOS Transistor using SPICE, Small Signal Analysis, Short Channel Effects and its Remedies. Demonstration of Digital IC Design Flow using Cadence PDK.

Module 4. 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.

Module 5. 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.

About the Department of ECE: The department of Electronics and Communication Engineering started functioning in 1984. The department offers four-year courses leading to the Bachelor's Degree and also offer four Post Graduate Programs. It offers Ph.D. programs in 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.

Venue/Mode: The e-workshop will be organized in online **Platform**. The joining link and minute to minute time table will be shared one day before the workshop.

Timing of the e-workshop:

(2-5) PM – for Working Day (26th & 27th November)
(10 AM-12 PM) and (2-5) PM – for Non-Working Day (28th -30th November)

Speakers



Prof. Brajesh Kumar Kaushik
Professor, IIT Roorkee



Dr. Brinda Bhowmick
Associate Professor, NIT Silchar



Dr. Sunil Pandey
Analog Design Engineer, Intel Corporation



Dr. Shubhankar Majumdar
Assistant Professor, NIT Meghalaya



Dr. Chitrakant Sahu
Assistant Professor, MNIT Jaipur



Dr. Rajesh Saha
Assistant Professor, MNIT Jaipur



Dr. Bharat Choudhary
Assistant Professor, MNIT Jaipur