Hands on Training on “Semiconductor Device Technology: Fabrication and Characterization”

Dec. 18 – 22, 2023
under
Continuing Education Programme (CEP)
Nanoscale Research Facility
Indian Institute of Technology Delhi

This course will primarily cover the hands-on training on design and fabrication of microelectronics devices. It will also include the introduction to current and future applications of microelectronics devices in various sectors/areas. The purpose of this programme is to train the manpower aligned for the India Semiconductor Mission (ISM).

Programme Objectives

- Develop a comprehensive understanding of the device design and fabrication techniques
- Provide hands-on training on Metal Oxide Semiconductor (MOS) device fabrication and clean room protocol
- Measurements and parameter extraction of the fabricated devices

Eligibility: B. Tech/ M. Sc/ M. Tech/ PhD/ PDF/ Scientists’ and faculty of AICTE approved institutions colleges and National laboratories

Registration Details

Last date for registration: Dec. 1, 2023

1. PhD/Masters/B. Tech. : 15,000* INR
2. Academician/Scientists : 25,000* INR
3. Industry participants : 35,000* INR

* Excluding 18% GST

Programme coordinator:
Prof. J. P. Singh
Conveners:
Prof. Samaresh Das
Prof. Pushparaj Singh

Venue:
Room No. 116, Block VI
NRF, IIT Delhi, Hauz Khas,
New Delhi - 110016

Open for 30 participants only (first come first serve basis)

Contact Us
Email Id : nrf.iitd.nano@gmail.com
Call us : +91 11 2659 6784
PROGRAMME CONTENTS

1. Introduction to micro/nano electronic device, concepts, design and fabrication
2. Si wafer processing and clean room protocol
3. Process flow and mask design
4. Gate dielectric: Oxidation process and Atomic Layer Deposition (ALD)
5. Lithography: Direct writing (Mask making) and Mask aligner
6. Etching: Wet and Dry
7. Metallization: Thermal and E-beam evaporation, sputtering
8. Device characterization and analysis: Semiconductor parameter analyzer, probe station
9. Future perspectives of Microelectronics devices

PROGRAMME SCHEDULE

Duration : Dec. 18 – 22, 2023
Course Orientation : Dec. 18, 2023
Mode of Sessions : Physical Sessions (In Person only)
Timings : 9.30 am to 5.00 pm

EXPERTS

• Prof. Samaresh Das, Centre for Applied Research in Electronics, IIT Delhi
• Prof. Pushparaj Singh, Centre for Applied Research in Electronics, IIT Delhi
• Prof. Rajendra Singh, Department of Physics, IIT Delhi
• Prof. Dhiman Mallick, Department of Electrical Engineering, IIT Delhi
• Prof. Bhaskar Mitra, Department of Electrical Engineering, IIT Delhi
• Prof. Madhusudan Singh Department of Electrical Engineering, IIT Delhi
• Prof. Nirat Ray, Department of Materials Science and Engineering, IIT Delhi
PROGRAMME CERTIFICATE

- Achievement of a certificate requires a minimum of 50% in the evaluation elements and consistent attendance of 75% in lectures and laboratory
- Maximize your learning journey by actively participating in the sessions. Your dedication is encouraged for an enriched learning experience
- The organizing department of this programme is Nanoscale Research Facility (NRF), IIT Delhi
- Only an e-certificate will be provided, and it will be issued by CEP, IIT Delhi

REGISTRATION DETAILS

Please email a scanned copy of your duly filled registration form along with the transaction details to email nrf.iitd.nano@gmail.com & cepaccounts@admin.iitd.ac.in

The Participation fees for the CEP programmes will be accepted only through of e-transfer/RTGS/NEFT

Bank detail as under for e-transfer
1. Bank Account No.: 36819334799
2. Bank Address: State Bank of India
   IIT Delhi, Hauz Khas
   New Delhi-16
3. Beneficiary: IITD CEP ACCOUNT
4. IFSC Code: SBIN0001077
5. MICR Code: 110002156

Accommodation for participants will be provided in the campus hostel IIT Delhi with basic facilities on chargeable basis
ABOUT NRF, IIT DELHI

Nanoscale research facility comprises class 100/1000 clean rooms with several state of the art fabrication/thin film deposition instruments and characterization laboratories facilities. The research program of the NRF has been focused on both thematic areas of national importance and basic research with significance to the development of Nanoscience and Nanotechnology. More than 50 faculty members from various Departments/Centres of IIT Delhi are participating in cutting edge research at Nanoscale Research Facility. For more details, please visit: https://nano.iitd.ac.in/

ABOUT CONTINUING EDUCATION PROGRAMME (CEP)

Executive education is a vital need for the companies to build a culture that promotes newer technologies and solutions and builds a workforce that stays abreast of the rapidly transforming needs to the technological, business and regulatory landscape.

Committed to the cause of making quality education accessible to all, IIT Delhi has launched Online Certificate Programmes under eVIDYA@IITD (ई-विद्या@IITD): enabling Virtual & Interactive-learning for Driving Youth Advancement@IITD for Indian as well as international participants. These outreach programmes offered by the Indian Institute of Technology Delhi (IIT Delhi) are designed to cater to the training and development needs of various organizations, industries, society and individual participants at national and international level with a vision to empower thousands of young learners by imparting high-quality Online Certificate Programmes in cutting-edge areas for their career advancement in different domains of engineering, technology, science, humanities and management. For more details, please visit: http://cepqip.iitd.ac.in

For any query please write to CEP, the programme coordinator at nrf.iitd.nano@gmail.com.

COMMUNICATION ADDRESS

Nanoscale Research Facility (NRF)
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Indian Institute of Technology Delhi (IIT Delhi),
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