



Hands-on Training Programme on Computation, Fabrication, and Characterization of Devices and Systems

13 - 19 June 2022**Organized by****Department of Electronics & Communication Engineering, Tezpur University, India 784028****Under****SYNERGISTIC TRAINING PROGRAM UTILIZING THE SCIENCE & TECHNOLOGY INFRASTRUCTURE (STUTI)****An initiative of Department of Science & Technology (DST), Govt. of India**

About the Program

The technological advances in electronic devices, and systems need major attention in terms of training young scholars, and faculty members. The familiarization of equipment, tools, and techniques is necessary for a scholar's growth in overall aptitude in devices, and systems. With this objective, the Department of Electronics and Communication Engineering, Tezpur University proposes to organize a hands-on training program on computation, fabrication, and characterization of electronic devices, and systems.

The training program shall be of seven days long blended with expert talk and laboratory activities. The various activities targeted during the training program include familiarization of fabrication process (wet process), lithography technique, Thin Film Deposition, I-V Characterization on Probe Station, Biological signal Acquisition, and Device simulation on industrial simulator (Sentaurus TCAD) etc.

Eligibility Criteria for Participants of the Training Program

(a) Person of Indian origin; (b) Minimum qualification should be Post Graduate (Science) or B.Tech. (Technology). Professors/ Scientists/ Post-Doc Fellows/ Ph.D. Fellows/ Industry persons who are actively involved in research and development (R&D)

Not more than 3 people from one institute per training should be allowed from outside the host institute. All participants must submit a no-objection certificate during registration.

About the Department

Established in 1997, the Department of Electronics and Communication Engineering hosts an M. Tech. program in Electronics Design and Technology, and an M. Tech. program in Bioelectronics. The department offers a B. Tech. program in Electronics and Communication Engineering which started in 2006. In addition, the department offers Ph. D. program in different areas. At present, the department has a student strength of about 400. The faculty members of the department are involved in research activities in diverse domains: Microwave, Communication Engineering, Semiconductor Devices, Biosensors, Bioelectronics, Neuroengineering intelligent Instrumentation, Image and Signal Processing, Vehicular Electronics, Power Electronics, Robotics

About the University

Tezpur University was established by an Act of Parliament in 1994. The objects of this Central University as envisaged in the statutes are that it shall strive to offer employment oriented and interdisciplinary courses to meet the local and regional aspirations and the development needs of the state of Assam and also offer courses and promote research in areas which are of special and direct relevance to the region and in emerging areas in Science and Technology.

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Structure of the Program

The Department of Science and Technology (DST) intended to build human resources and knowledge capacity by arranging training programs through open access science and technology infrastructure across the country under the banner of 'Synergistic Training program Utilizing the Scientific & Technological Infrastructure (STUTI)'. The program shall be held *in-person*, and not virtually. The program shall tentatively comprise of expert lectures, and hands-on training on the tools, and facilities available in the department, including those which has been procured under DST-FIST program, and other DST funded projects of the department. A tentative list of the tools for the hands-on training program is listed below.

ACTIVITY	DESCRIPTION
Vacuum Thin Film Coating System	Physical Vapor Deposition (PVD) is a vacuum thin-film coating technology that utilizes physical movement of particles in the formation of a thin film. We would give brief explanation of the various thin film coating technologies with special emphasis on evaporation method.
Photolithography	Photolithography is the process of transferring geometric patterns on a mask to the surface of a silicon wafer. Participants will learn the lithography technique and get training on handling of the instrument in a clean room.
I-V Characterization on Probe Station	A probe station equipped with microscope and micro-positioner is tool to measure the electrical characteristics of any fabricated device. Participants will be demonstrated and trained on DC measurement of electrical device using source meter connected to the set-up.
Biological Signal Acquisition Set-up	The setup is used for biological data acquisition equipped PowerLab data acquisition hardware, 8 channel Octal Bio-and GSR amplifier. The participants will be able to learn recording, collection and analysis of physiological signals like ECG, EEG, EMG and GSR using software and systems.
Sentaurus TCAD	The Sentaurus TCAD tool by Synopsys Inc. is an industrial simulator for design, and assessment of 2D and 3D device architectures with built-in physics-based models ranging from MOSFETs to advanced sensors. Participants will learn to design MOS architectures on the TCAD tool.

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