ADVANCED ELECTRONICS LABORATORIES

CENTRE FOR ADVANCED ELECTRONICS & PHOTOVOLTAIC ENGINEERING (CAEPE)

4th WORKSHOP ON CHIP PROCESS DESIGN & ANALYTICAL TESTING

In continuation to the previous workshops in last three years, Advanced Electronics Laboratories offer a 6-days workshop on ***CHIP PROCESS DESIGN AND ANALYTICAL TESTING*** for all of its graduate students who have entered into research phase from SUMMERS 2017. The lab engineers and faculty members from Faculty of Engineering & Technology, Faculty of Basic and Applied Sciences and Iqra College are also encouraged to attend the workshop to gain the knowledge of technological processes of IC design as well as post-process reliability, efficiency and failure analysis of circuits, devices and nano-systems. The training will be conducted on internationally licensed softwares and R&D grade sophisticated machines in the laboratories.

Day 1 & Day 2: Introduction to State of the art Licenced tools	• Why Device Design is phenomenally important? • CMOS Scaling & Efficiency, IC Fab specific design and processes • Road to technology files, ATHENA, ATLAS, BLAZE, LUMINOUS, ORGAN
Day 3 & Day 4: Advanced Electrical/Electro-Optical Characterizations	• Nano chip reliabality grade Hall Effect Chip level Characterization • Multi-head Probe station assembeled with varaity of different device/circuit level techniques • Introduction to van der paw, Hall and Clover leaf patterens for Hall Analysis • Effect of Magnitization, Electric Field, Transient of bais sweeps, Resistivity/Conductivity Scans, Charge Carrier Cocentrations, Electon/Hole Mobilities for Chip level assesment • Practical hands on Open Circuit Voltage (Voc) and Short Circuit Current (Isc) for PV devices • Effect of Current Voltage (I-V) and Capcitance Voltage (C-V) profiling for research prospects • Introduction to very sophisticated characterization techniques; Charge Deep Level Transient Spectropcopy (Q-DLTS) and Photo stimulated Internal Field Transient Spectroscopy • Issues in device reliability
Day 5: Optical Assessment & Rapid Thermal Processing	• Optical profilometry and scanning of optical parameters like refractive index, dielectrics, extinction coefficients, critical thickness at subnano scales • Optical Characterization of *Si* based Quadrant photo detector (basic overview) and spectroscopic ellipsometry • Hands on with multiple devices and samples, working out the electro-optics • Experimentation on Rapid thermal annealing machine, Technique of RT-CVD, RTO and RTP, ITRS specific Thermal budget
Day 6: Back End Processes	• Device's Metalization, Cleaning, Etching, Spin Coating, Baking. • Wet chemistry, contact development, Physical Layer Depostion, packaging etc.

AELP HIGHLIGHTS

- State of the art Device Design and Process Characterization Facilities under one roof
- Over 100 running scientific projects besides over 400 of Quality Assurance runs
- Problems converging on the forefronts of Micro & Nano Electronics, Photonics & Optoelectronics, Photovoltaic Energy Engineering and Sensing & Detection
- 34% of the total running projects are from outside the IIUI including other universities, industry and national scientific organizations

Days: 10th to 15th July, 2017
Time: 10:00 AM – 4:00 PM
Venue:
Advanced Electronics Laboratories, Ibn-Khaldun Block, IIUI

For Confirmation and Queries
Contact: Engr. Shoaib Alam
Phone # 051-9019927; 03015785837
Email: aelp@iiu.edu.pk

INTERNATIONAL ISLAMIC UNIVERSITY - ISLAMABAD
Ibn Khaldun Block, Sector H-10, Islamabad - Pakistan Ph: +92-51-9019453, Fax: +92-51-9258019
www.iiu.edu.pk/aelp