International Islamic University, Islamabad
Faculty of Engineering & Technology (FET)

National Workshop on
Advanced Electronics: Device Design
&
Process Characterization
(2nd -3rd December, 2013)

WORKSHOP DAY 01 (Quaid-i-Azam Auditorium)

Technical Session Talks: Lecturing +QA:35+10 min   Hands-on Training Sessions: 2 hours each group

Timings	Topics (Tentative)/Themes
11:00- 11:45	Advanced Electronic Design and Fabrication: CMOS Critical Dimensions
11:45- 12:30	Device Design and Process Innovations in Semiconductor Manufacturing Industry (Development of a Process Characterization) Tool
12:30-13:15	Electronic Design: Flexible, Reconfigurable and Power Adaptive Power Amplifiers for wireless Communication
13:15-14:00	Lunch & Prayers Break
14:00-14:45	Physical Device Modeling and Simulations of III-V Material Systems
14:45- 15:30	Fabrication and Characterization of Semiconductor Nanomaterials for Device Applications
15:30-16:15	Physical simulation, fabrication and characterization of wide band gap semiconductor electronic and photonic devices
16:15-17:00	Photovoltaic cell (solar cell) modeling, fabrication and characterization for renewable energy systems
17:00-17:15	Tea

WORKSHOP DAY 02 (Faculty Block-II Auditorium & Advanced Electronics Design Suite)

Timings	Topics
09:00-09:45	Electro-mechanics for MEMS Design- Theoretical background with modeling in Comsol Multiphysics
09:45-10:30	MEMS Design for Intelligent Systems
10:30-11:00	Tea
11:00-11:45	Device Modeling: Optimization of LDMOS Transistor in Power Amplifiers for Communication Systems
11:45-13:15	Lab Session 1 (Hands-on Training on TCAD SILVACO) Group A
	Lab Session 2 (Hands-on Training on Mentor Graphics) Group B

13:15–14:00	Lunch & prayers Break
14:00–16:00	Lab Session 3 (Hands-on Training on TCAD SILVACO) Group B
	Lab Session 4 (Hands-on Training on Mentor Graphics) Group A
16:00–17:30	Lab Session 5 (Hands-on Training on MEMS PRO/COMSOL)
17:30– 17:45	Concluding Remarks/Certificates & Tea

Hands-on Training Sessions in Advanced Electronics Design Laboratory

1. Introduction to **TCAD SILVACO** design tools: Physical Device Simulations of Fabrication of a Si-MOSFET and testing of electrical characteristics with ATLAS *(Prof. Dr. Ahmed Shuja Syed/Engr. Shahid Hashmi/Engr. Mashhood Murtaza)*

2. Introduction to **Mentor Graphics** design tools: Work out real time examples on IC bench and other VLSI modules *(Prof. Dr. Ahmed Shuja Syed/Engr. Muhammad Shuaib)*

3. Introduction to **MEMS PRO** and **COMSOL**: Work out process routines on MEMS manufacturing segments *(Prof. Dr. Ahmed Shuja Syed/Dr. Laraib Alam Khan/Prof. Dr. Shafaat A Bazaz)*

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