

Two days workshop on
"3D System Design & Device
Modeling"

(December 29 & 30, 2010)

REGISTRATION FORM

Name:

Qualification:

Designation:

Address for Correspondence

e-mail ID:

Mobile Number:

Experience (if any):

Details of Demand Draft

Place:

Date:

Signature of the Applicant

Participants:

This workshop is addressed to Faculty members and Research Scholars of various Engineering colleges who work in the area of VLSI Technology.

At the end of the course, the successful trainees will be able to gain insight into the Fabrication of 3D Technology and principles of MOSFET operation and modeling, thereby improving their design skills which can be used for the student design projects in the field of 3D System Design, Analog Integrated Circuits and Radio Frequency Integrated Circuits.

Details of Registration:

Filled in application form should be accompanied by a Demand Draft of ₹ 2,000/- (Two thousand only), drawn in favour of "The Principal, Thiagarajar College of Engineering, Madurai", payable at Madurai. The registration fee includes the course kit & working lunch with refreshments.

The number of seats is limited to 20.

Last Date for Registration: 24.12.2010
Intimation through e-mail: 26.12.2010

Address for Correspondence:

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Two days workshop on
"3D System Design &
Device Modeling"



(December 29 & 30, 2010)

Organized by

Department of
Electronics & Communication
Engineering

Thiagarajar College of Engg.
Madurai 625015

Course Coordinators

Dr.S. Rajaram
(BOYSCAST Fellow @ Georgia Tech, USA)

Dr N. B. Balamurugan

TCE:

Thiagarajar College of Engineering (TCE), Madurai, an ISO 9001:2000 certified institution, affiliated to Anna University of Technology, Madurai, is one among the several educational and philanthropic institutions founded by Late. Shri Karumuttu Thiagarajan Chettiar, established in 1957. This Govt. aided institution was granted autonomy in 1987 and is accredited by National Board of Accreditation (NBA). TCE offers 7 undergraduate (UG), 13 postgraduate (PG) and Doctoral programmes in Engineering and Science.

ECE Department:

Department of Electronics and Communication Engineering offers an UG programme in Electronics and Communication Engineering and PG programmes on Communication Systems and Wireless Technologies. This DST FIST supported department has completed 14 research projects with research organizations like DRDL, RCI, DEAL, BrahMos Aerospace and ISRO and consultancy works for companies like Motorola, Honeywell, Texas Instruments, TVSICS, Amphenol Antel, in Wireless Communication system. The department has established National Instruments Electronics system Design lab having Educational Laboratory Virtual Instrumentation suite, vector network analyzer, vector signal analyzer, NI IF RIO boards, NI RF and Communications platform, Speedy 33 DSP kits, ASIC prototyping boards and OMAP 1510 kit code compose studio.

TIFAC CORE:

Mission REACH launched by TIFAC, DST, Govt. of India aims to create a constellation of world class COREs (Centre of Relevance & Excellence) in diverse disciplines across the country. The objective of TIFAC CORE at TCE is to generate trained manpower in emerging Wireless Technologies, to carryout collaborative research and product development in the allied areas of Wireless technologies

3D System Design and Device Modeling:

Microelectronics represents a trillion dollar industry today with every electronic product requiring integrated circuit chips to perform various functions. 3D Integration is being viewed by the Electronics Industry and Microelectronic research groups as the solution to Moore's Law reaching its limit. The current scenario in research is focusing towards 3D stacking of ICs and packaging to enable increase in transistor density and system component density, allowing for the miniaturization of 3D systems. When moving to 3D Technology the industry face issues in Electrical, Thermal, Mechanical, Fabrication and Domain, which cover important aspects of 3D Integration.

A driving force behind the long-term commitment to a steady downscaling of MOSFET/CMOS technology and 3D Technology needed to meet the requirements on speed, complexity, circuit density, and power consumption posed by the many advanced applications. The increasing levels of complexity

of the fabrication process dictated by device physics, have to be described and modeled to empower the circuit designers with the ability to fully utilize the potential of existing and future technologies. A deeper insight into these issues is therefore crucial for gaining the competitive edge needed to ensure first-time-right silicon and to reduce time-to-market for new products.

Course Goals:

- Exploration of the impact of 3D technologies on system design
- Bridge the gap between device modeling and analog circuit design.
- To understand the importance of the related modeling issues to circuit designers.

Course Outline:

- Introduction to 3D Technology
- 3D Integration and Embedded Components
- Thinking in 3D
- Improving Performance and Modularity
- 3D IC Stacking - Limits and Opportunities
- Basic MOS physics and modeling the MOS structures and MOSFETS
- Issues in modeling MOSFETS
- Advanced MOSFET modeling
- Noise Modeling