

## REGISTRATION FORM

### Two days workshop on “Solid State Device Modeling & Simulation”

(November 4 & 5, 2011)

Name:

Qualification:

Designation:

Address for Correspondence

e-mail ID:

Mobile Number:

Experience (if any):

Details of Demand Draft

Place: Signature of the Applicant  
Date:

### Participants:

This workshop is addressed to Engineering Faculty, Research scholars, PG students and engineers from industry.

At the end of the course, the successful trainees will be able to gain insight into the principles of MOSFET operation and modeling, thereby improving their design skills which can be used for the student design projects in the field of analog integrated circuits and radio frequency integrated circuits.

### Details of Registration:

Filled in application form should be accompanied by a Demand Draft of

Rs.750/- For Fulltime research scholars & PG students

Rs.1000/- For Faculty members

Rs.2000/- For Industry participants

drawn in favor of “**The Principal, Thiagarajar College of Engineering, Madurai**”, payable at Madurai. The registration fee includes the workshop kit, snacks and working lunch.

**The number of seats is limited to 50.**

Last Date for Registration: 28.10.2011

Intimation through e-mail: 30.10.2011

### Address for Correspondence:

**Dr. N. B. Balamurugan**

Coordinator

Asst. Professor, Dept of ECE,  
Thiagarajar College of Engineering  
Madurai 625015

e-mail: [nbbalamurugan@tce.edu](mailto:nbbalamurugan@tce.edu)

Mobile: +919894346320 Fax: 0452-2483427

Web: [www.tce.edu](http://www.tce.edu)

## Two days workshop on “Solid State Device Modeling & Simulation”

(November 4 & 5, 2011)

Organized by



Department of  
Electronics & Communication  
Engineering

Thiagarajar College of Engg.  
Madurai 625015

Course Coordinators

Dr.S. Rajaram

Dr N. B. Balamurugan

## TCE:

Thiagarajar College of Engineering (TCE), Madurai, an ISO 9001:2000 certified institution, affiliated to Anna University, Thirunelveli, 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 also established National Instruments Electronics system Design lab using Educational Laboratory Virtual Instrumentation suite. The laboratory facilities in this department include 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 and 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

## Need for Device Modeling:

The Remarkable progress in science, in communication technology and in many other wonderful amenities of modern society are permeated by and made possible by modern microelectronics. A driving force behind this fantastic progress is the long-term commitment to a steady downscaling of MOSFET/CMOS technology needed to meet the requirements on speed, complexity, circuit density, and power consumption posed by the many advanced applications relying on this technology. Very important issues in this development are the increasing levels of complexity of the fabrication process and the many subtle mechanisms that govern the properties of deep submicrometer FETs. These mechanisms, dictated by device physics, have to be described and implemented into circuit design tools 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:

- Bridge the gap between device modeling and analog circuit design.
- To present the state-of-the art MOSFET models that are available in analog and SPICE-type circuit simulators.
- To understand the importance of the related modeling issues to circuit designers.

## Course Outline:

- Basic MOS physics and modeling of MOS structures and MOSFETS
- Issues in modeling MOSFETS
- Advanced MOSFET modeling
- Resistance and capacitance modeling
- Modeling for accurate distortion analysis
- Modeling of Noise in MOSFET
- BSIM Modeling and MOSFET models
- Modeling of process variation and Device mismatch
- Quality assurance of device models.