

# Short Course/FDP

on

## " VLSI Testing "

Under the aegis of

**Electronics & ICT Academy**

**IIT Roorkee**



Recognized by AICTE at par with  
QIP for recognitions/credits

Proficient candidates will get an  
opportunity to choose VLSI  
testing as a carrier in Qualcomm

**April 26-28, 2019**

**Experts from Academia/Industry**

Dr. Ankush Srivastava Dr. Anand Bulusu  
Qualcomm India Pvt. IIT Roorkee  
Ltd, Bengaluru

Supported by

Ministry of Electronics & Information  
Technology  
Government of India

Certificates to participants by  
E&ICT Academy IIT Roorkee

Venue

E&ICT Smart Classroom(N-316), ECE  
Department IIT Roorkee

## Why VLSI Testing?

Today's IC design involves dealing with complex VLSI systems and increasingly large number of design constraints. Modern technology demands techniques for efficiently designing high-performance low-power integrated circuits while requirements for shorter time-to-market push down the design time. Apart from design cycle time reduction, these circuits demand technology scaling from planar to 3D FinFETs structure to improve transistor propagation delay and associated static/dynamic power. Technology scaling beyond 28nm node comes with a penalty of more number of localized physical defects in the silicon during manufacturing. Typically, such defects originate from spatial and temporal statistical variations in the circuit. This course will help the participants to understand, why such defects are growing concern in current FinFET and emerging gate all around (GAA) technologies. We will discuss and analyze the real silicon defects using scanning electron microscope (SEM) images, taken from commercial ICs.

## Objective of the Course

- To discuss and analyze the real silicon defects using scanning electron microscope (SEM) images, taken from commercial ICs.
- Understand the techniques of modelling a defect into fault that can be used to generate test patterns.
- Introduction of static timing analysis (STA) fundamentals like setup, hold, slack, arrival time, slack merging etc, with an aim to root-cause the underneath problem during circuit timing.

## Program Features

- The program is split into lectures and labs/hands-on sessions.
- Hands-on experience on basic and advanced-level topics.
- Interaction & learning with experts from academia & industry.
- Certificates to participants by E&ICT Academy IIT Roorkee.

## Focus Areas

- Introduction to VLSI design flow and testing philosophy.
- Silicon defects in commercial integrated circuits.
- Translating silicon physical defects into fault models.
- Design-for-test pattern generation and verification.
- Small delay defects and timing critical paths.
- Static timing analysis and its fundamentals.
- Pits and falls in state-of-art STA techniques and proposed solution.
- Digital design-for-test (DFT) and Scan design.
- Basic of memory testing.
- Save energy by allow errors in computing.

## Benefits and Outcomes of the Course

- The course will help students to get acquaint to industry's state-of-the-art VLSI design flow, help researchers to foresee various research problems that can be pursued to fix practical testing problems and help faculty to adopt new techniques that must be included in their respective courses of basic electronics, VLSI design, CAD tools and digital integrated circuit design.



## Coordinator

- Dr. Sanjeev Manhas, Principal Investigator  
E&ICT Academy IIT Roorkee
- Dr. Anand Bulusu, Co-PI, Local  
Coordinator, E&ICT Academy IIT Roorkee

## Who Can Attend ?

Program is open to faculty members/research scholars/PG students from colleges/universities, and industry personnel working in the concerned/allied discipline.

## Registration Fee

Faculty members: ₹ 1,000/-

Research scholars: ₹ 1,000/-

Persons from Industry: ₹ 1,500/-

## How to make payment

Offline: DD in favor of "Dean SRIC IIT Roorkee" payable at Roorkee  
"OR"

Online: ( <https://www.onlinesbi.com/prelogin/icollecthome.htm?corpID=365641> )

Read the instruction for payment before filling the online registration form.

## How to Apply

Step 1: Participants may fill the registration form available on the link "Register Online" for the relevant course on [eict.iitr.ac.in](http://eict.iitr.ac.in)

Step 2: Make Payment

OR

Step 3: Send a duly filled-in registration form along with Demand Draft to Academy address.

Mr. Prateek Sharma, EICT Academy, ECE Department, IIT Roorkee-247667

## Important Dates

**Last Date For Online  
Registration :  
April 15, 2019**

## EICT Academy IITR

Electronics and ICT Academy (E&ICT) at IIT Roorkee (funded by Ministry of Electronics and Information Technology) aims to enrich and upgrade teaching and research competences of engineering faculties of institutes/colleges by conducting courses and workshops in fundamentals as well as emerging areas of E&ICT and enabled areas. The programs are conducted by well-known industry partners, resource persons from leading academia and experts from renowned R&D organizations.



## Activities of the Academy

- Specialized training on basic and advanced level topics with hands-on experience in the emerging areas of Electronics & ICT.
- Setup the activity centers to conduct short courses/FDPs locally at institutes/colleges.
- Curriculum development for the industry.
- Continuing Education Programme for students/working professionals.
- Design, develop and delivery of specialized modules for specific research areas in industry.

## Short Course/FDP

## on VLSI Testing



## REGISTRATION FORM

Applicant Name \_\_\_\_\_

Gender: \_\_\_\_\_

Category (GEN/OBC/SC/ST): \_\_\_\_\_

Designation: \_\_\_\_\_

Name and Address of the  
Organizatio/Institute: \_\_\_\_\_

City/Town: \_\_\_\_\_

Email: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Do you need Accommodation?  
(Yes/No): \_\_\_\_\_

DD Number: \_\_\_\_\_

Date: \_\_\_\_\_

Issuing Bank: \_\_\_\_\_

Payable at: \_\_\_\_\_

Signature of the Applicant

## Contact Us

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