

FACULTY DEVELOPMENT PROGRAM

on

## "Image Processing using VLSI Architectures"

Under the aegis of

Electronics & ICT Academy  
IIT Roorkee



26 March - 30 March, 2019

### Experts from Academia

Dr. B.K. Kaushik Associate Professor, ECE Dept. IIT Roorkee  
Dr. Balasubramanian Professor, CSE Dept. IIT Roorkee

Dr. P.P.Roy  
Assistant Professor  
CSE Dept, IIT Roorkee

Supported by

Ministry of Electronics & Information Technology  
Government of India



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

## Why Image Processing using VLSI Architectures?

The real-time image processing systems such as automatic video surveillance, robot vision, automatic driver assistance system, calls for faster computation than that possible using a traditional serial computer. The advent of VLSI has made feasible the consideration of more specialized processing architectures, designed to support these data rates, while keeping systems compact, relatively cheap and power efficient.

### Focus Areas

- Introduction to the image processing and role of VLSI in image processing.
- Various hardware implementation technologies for signal processing in VLSI e.g. ASIC, FPGA, DSP, RISC, MCU.
- Image sensors and memories.
- Design issues in the hardware implementation of image processing systems.
- Pipelining and parallel architecture of VLSI design and frequency and time domain analysis for image processing.
- Image processing accelerators, denoising filters, image segmentation and data compression techniques.

### Benefits and Outcomes of the Course

- Participants would be able to understand the current scenario and future outlook in image processing domain.
- Participants would learn to use VLSI architectures for image processing applications.
- Hands-on experience on FPGA and Matlab platforms for image processing which will enable the participants to implement image processing algorithms.

## Objective of the Course

- Introduction to Image Processing Techniques and applications.
- Introduction to the VLSI architectures and hardware implementation of image processing technologies.
- A discrete view of design operations and systems architectures using CAD tools.
- Discussion of recent research work in image processing.
- Introduction to the various transformation techniques of image processing.
- Hands-on demonstration of the model simulation of architectures using Xilinx FPGA.

### Program Features

- The program is split into lectures and labs sessions.
- Hands-on experience on basic & advanced-level topics.
- Certificates to the participants by E&ICT Academy IITR.



### Coordinators

- Dr. Sanjeev Manhas PI, E&ICT Academy, ECE Dept, IIT Roorkee
- Dr. Brajesh Kumar Kaushik, Local Coordinator, E&ICT Academy, ECE Dept, IIT Roorkee
- Dr. Balasubramanian, Local Coordinator, E&ICT Academy, CSE Dept, IIT Roorkee
- Dr. Partha Pratim Roy, Local Coordinator, E&ICT Academy, CSE Dept, 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: Rs. 1,500/-

## Payment Details

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: Make Payment

Step 2: Participants may fill registration form through Academy website (<http://eict.iitr.ac.in>).  
OR

Step 2: 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 :  
15 March 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 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.

## Faculty Development Program

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"Image Processing using VLSI Architectures"

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## 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

Electronics and ICT Academy, IIT Roorkee

Roorkee - 247667, (Uttarakhand) INDIA

Ph. +91-1332-28 6457, +91-7078627392

Email: [eict@iitr.ac.in](mailto:eict@iitr.ac.in), [eictiitr@gmail.com](mailto:eictiitr@gmail.com)

Website: <http://eict.iitr.ac.in>

