

One Week

## Advanced Entrepreneurship and Skill Development Programme (A-ESDP)

on

## “Recent Trends in VLSI Design, System on Chip, and Embedded Systems”

24<sup>th</sup>-28<sup>th</sup> February, 2025



**MSME**  
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Ministry of MSME, Govt. of India

Organized by

Department of Electronics and Communication Engineering

National Institute of Technology  
Sikkim

Ravangla, South Sikkim, India, -737139

Website: [www.nitsikkim.ac.in](http://www.nitsikkim.ac.in)

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## About NIT Sikkim

National Institute of Technology Sikkim, an institute of national importance is one among the ten newly sanctioned NIT(s) by the Government of India in 2009. The institute offers B. Tech programs in Computer Science and Engineering, Electronics and Communication Engineering, Electrical and Electronics Engineering, Mechanical Engineering, and Civil Engineering. Moreover, the institute offers M.Tech programs in VLSI and Embedded Systems, Communication and Signal Processing, Electrical and Electronics Engineering, and AI and ML. The Institute also offers M Sc. program in Chemistry and Ph. D programs in all Departments. Presently, NIT Sikkim is located in a temporary campus at Ravangla, in South Sikkim which is a tourist town and it is connected by highway to other major towns in the state and lies between Pelling and Gangtok. Ravangla is situated at an elevation of 2100 m surrounded by Himalayan terrain and famous for tourist spots such as Buddha Park, Temi tea garden, and Ralong Monastery.

## About the Dept. of ECE

The Dept. of ECE was established in 2010 with the laying of the foundation of National Institute of Technology Sikkim. The Department aims to provide an outstanding research environment complemented by excellence in teaching to produce engineering professionals leading a successful career in industry, academics, and entrepreneurial endeavors. The Department offers research in the areas of VLSI Design, ASIC/FPGA based Design, System on Chip, Embedded Systems, Modeling and Optimization of High-Performance Semiconductor Devices, Microwave Engineering & Antenna Design, Wireless Communication, and Speech Processing. The Dept. has a good laboratory facility with modern equipment to encourage the students to cope up with the latest technologies. The Department offers B. Tech in ECE with an intake of 30 students/ year, M. Tech with an intake of 22 students/year and Ph. D in Engineering.

## About workshop

The program focuses on advancing India's semiconductor ecosystem in alignment with the "Atmanirbhar Bharat" initiative through the following objectives:

- **Skill Development for MSMEs:** Training participants to develop and implement embedded systems tailored for small and medium-scale industries, enabling integration of semiconductor chips into products like electronic toys and household appliances.
- **SoC Design Training:** Educating participants on designing System-on-Chip (SoC) solutions by integrating processing units, memory, DSP, cryptography, and AI/ML interfaces to address modern VLSI requirements.
- **ASIC and FPGA Applications:** Guiding participants on designing and implementing Application-Specific Integrated Circuits (ASICs) and FPGA-based systems for applications in Digital Signal Processing (DSP), Artificial Intelligence (AI), and Machine Learning (ML). The program empowers entrepreneurs and professionals with skills to drive innovation and meet industry demands in VLSI design and semiconductor applications.

## Brief description of the topic

Advancements in VLSI Design focus on low-power, high-performance, and compact designs using technologies like FinFETs, Nanosheet FETs, and emerging devices such as TFETs and CNT FETs. Design automation, hardware security, and reliability are key areas of innovation. System on Chip (SoC) development integrates multiple functionalities, including processing units, memory, AI/ML accelerators, DSPs, and cryptography, on a single chip for diverse applications in IoT, automotive, and healthcare. SoC designs now emphasize edge computing and efficient interconnect architectures. Embedded Systems are evolving towards greater intelligence, energy efficiency, and real-time capabilities. Applications in robotics, smart devices, and autonomous systems leverage advancements in AI/ML,

FPGA-based prototyping, and domain-specific architectures.

These trends drive innovation for smarter, scalable, and application-specific solutions in modern technology landscapes.

## Resource Persons

Eminent experts from Industry and Academia (IITs, NITs, IIITs, etc.) will be delivering talks along with hands-on sessions.

## Organizing Committee

### Patron

**Prof. M. C. Govil**  
Director, NIT Sikkim

### Coordinators

**Dr. Jeetendra Singh**  
Assistant Professor, Dept. of ECE, NIT Sikkim

**Dr. Hemant Kumar Kathania**  
Assistant Professor, Dept. of ECE, NIT Sikkim

**Dr. Vishal Vishnoi**  
Assistant Professor, Dept. of ECE, NIT Sikkim



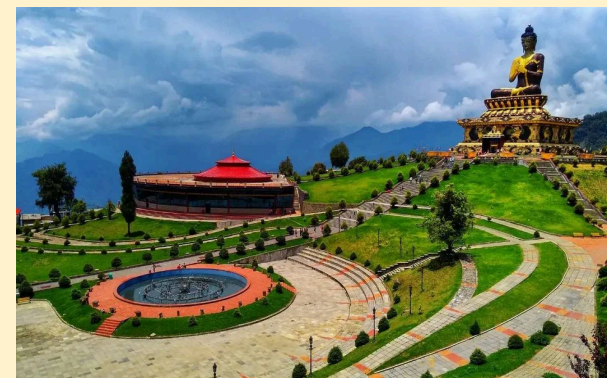
## Participants

Targeted participants are Entrepreneurs, Graduates, Post Graduates, who are looking for high end entrepreneurship in the sunrise sector. The workshop is also open for Faculty members of academic institutions and working professionals, scientists/ researchers from MSME and Industries. Other Important Information for Participants:

- The workshop will be conducted in physical mode.
- Seats are limited and the participants will be selected based on first come first serve.
- Post registration applications will be screened by the organizing committee at NIT Sikkim and later at ministry level (MSME). The confirmation mail containing all the details shall be sent to the shortlisted applicants
- The preference will be given to the participants from the category of SC, ST, OBC, Women, PH and Minority.
- **Shared accommodation and food for participants will be provided by NIT Sikkim.**
- NIT Sikkim, Ravangla is situated at an altitude of 2100 meter and the weather remains cold throughout the year. So, it is requested from participants to carry warm clothes along with them.

## Certificate

Certificates will be provided to the attendees after confirming the attendance criteria.



## Registration

- **There are no registration fees to attend the training program;** however, registration is compulsory for participation.
- Seats are limited to 20, shortlisted candidates will be called to attend the training program.
- **Last date of registration is extended to 07.02.2025.**
- Click the below link or scan QR for registration:

[Click Here](#)



## Contact Persons

**Dr. Jeetendra Singh** (voice: +91-9046227909,  
email: jeetendra@nitsikkim.ac.in )

**Dr. Hemant Kumar Kathania** (voice: +91-9732900589,  
email: hemant.ece@nitsikkim.ac.in)