

ATAL Sponsored

**Two Weeks
Faculty Development Program (FDP)
ON
Current Avenues in Communication and
VLSI Design)
(February 13- 24, 2023)**

**ONLINE MODE: – 1st week
(February 13-18, 2023)**

**PHYSICAL/OFFLINE MODE: – 2nd week
(February 20-24, 2023)**



ORGANIZED BY

**Department of Electronics & Communication
Engineering**

**Sant Longowal Institute of Engineering &
Technology (SLIET)**

(Deemed to be University under MoE, Govt. of India)

**Longowal, Distt. Sangrur-148106
Punjab (India).**

Website: www.sliet.ac.in

Patron : Prof. Shailendra Jain, Director

**Co-Patron : Prof. J. S. Dhillon
Dean (Academics)**

Chairperson : Prof. Surinder Singh

Coordinator : Prof. Jagpal Singh Ubhi

Co-coordinator: Er. Pankaj Kumar Das

INSTITUTE

Sant Longowal Institute of Engineering & Technology (SLIET), Deemed to be University, has been established and funded by MoE (formerly MHRD), Government of India in 1991, to provide technical education in emerging areas of Engineering and Technology. The institute caters to the technical manpower requirements at various levels by adopting a concept of a modular system in imparting professional education with an emphasis on practical training in the industry. The study programmes include various courses at Integrated Certificate and Diploma, Degree, M.Tech & Ph.D levels in 11 departments of Engineering, Science and Technology. The Institute has come up beautifully in a sprawling green area of 451 acres, with many topographically featured picturesque landscape and presents spectacle of harmony and natural beauty, embedded with all the amenities required for a complete township.

LOCATION AND WEATHER

The Institute is located at Longowal village and is connected by road with Sangrur (18 km), Sunam (18 km), Barnala (30 km), Patiala (80 km), Ludhiana (110 km) and Chandigarh (150 km). The nearest railway stations are Sangrur (18 km), Sunam (18 km), Barnala (30 km) and Dhuri (35 km). The nearest airport is at Chandigarh. The month of February generally has high temperatures with maximum daytime temperatures around 22°C, minimum night time temperatures around 10°C and moderate monthly rainfall.

DEPARTMENT OF ECE

The department aims to provide quality education to the youngsters so that they can contribute to the development of the nation. The courses being run by the department include:

- Integrated Certificate-Diploma Program
- B.E. (Electronics and Communication Engineering)
- M.Tech. (Electronics and Communication Engineering)
- Ph.D. Programme

ABOUT THE PROGRAM

This FDP aims to provide a platform where researchers, professionals, key academic and industrial practitioners, engineers, and students involved in the broad field of Electronics and Communication Engineering can discuss on various recent aspects of Communication Engineering and VLSI Design. The program will also inspire the faculty members and research scholars to generate new ideas in their research area.

THEME AND OBJECTIVES

The faculty development programme aims to include the themes with particular emphasis to digital/analog VLSI design and nanoelectronics, 5G communication techniques, signal processing. VLSI circuit is a leading field to design of modern electronic and communication systems. The main objective of this course is to provide the theoretical and practical knowledge of the current avenues of research in Electronics and Communication Engineering.

<p>This course also gives an opportunity for hands-on experience on the various tools. This FDP programme aims at knowledge dissemination to the academicians, R&D professionals, and research students through experienced faculty from Industries as well as academia with emphasis on the recent issues in the field of Electronics & Communication Engineering.</p> <p>RESOURCE PERSONS</p> <p>Faculty Members of the reputed institutions like IITs, IIMs, NITs, Central & State Universities/Institutions and the Professionals/Experts of Research Labs (CSIO/ISRO)/Industries etc. will share their expertise in the programme in addition to our own Faculty from SLIET.</p> <p>ELIGIBILITY:</p> <p>The faculty members of the AICTE approved institutions, Research Scholars/ Postgraduate scholars working in the Universities/ Institutes/Colleges/Polytechnic and persons from industry/ R&D organizations are eligible to apply. There is no registration fee; however, the registration is mandatory for all the participants.</p> <p>HOW TO APPLY</p> <p>Interested participants should compulsorily register for the FDP through following link on or before the last date: https://atalacademy.aicte-india.org/login</p> <p>After registration on the above link share your profile and email id to pankajkdas@sliet.ac.in</p>	<p>GENERAL INFORMATION</p> <ul style="list-style-type: none"> • No Registration Fee, however, Online Registration is Mandatory. • Lunch and Refreshment are complementary during the programme. • Free shared accommodation available on prior request. • Participants shall bear the cost of travelling. • An assessment test and MCQ will be conducted for all participants. <p>COURSE CONTENTS</p> <ul style="list-style-type: none"> • Introduction to Spintronics and Spintronics-Challenges and Perspectives • CMOS Analog Design • VLSI Interconnect Design • Interfacing circuits for sensors with digital output: prospects and challenges. • Signal Processing Applications in Remote Sensing. • IC Design for IoT applications • Need of Sensor Networks in real time Applications • Neuromorphic Computing • Machine Learning techniques in Communication System • Design of high gain dielectric resonator Antenna • Hands on practice on Cadence Tools/ CST/IE3D/MATLAB 	<p>MODE OF CONDUCTION</p> <p>The training program will be conducted in blended/hybrid mode.</p> <p>ONLINE MODE: – 1st week (February 13-18, 2023, Monday to Saturday 7.00pm to 9.30pm)</p> <p>PHYSICAL/OFFLINE MODE: – 2nd week (February 20-24, 2023, Monday to Friday, 33 Hours for practical/labs/experimental learning/ industrial visit/post FDP assessment/ Demo teaching sessions.</p> <p>IMPORTANT DATES</p> <p>Last date for registration: February 1, 2023 Notification of selection: February 3, 2023</p> <p>ADDRESS FOR CORRESPONDENCE</p> <p>Coordinator: Dr. Jagpal Singh Ubhi, Professor (ECE) E-mail: js_ubhi@yahoo.com Ph. No. 9463068009</p> <p>Co-coordinator: Er. Pankaj Kumar Das, AP (ECE) E-mail: pankajkdas@sliet.ac.in Ph. No. 9478214936</p> <p>Sant Longowal Institute of Engineering & Technology (SLIET), Longowal, District Sangrur, Punjab- Pin-148106</p>
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Tentative Programme Schedule (First Week)
AICTE ATAL FDP Week 1 – Online (7:00 pm – 9:30 pm)

Day 1	Day 2	Day 3	Day 4	Day 5	Day 6
7.00-7.50 PM	7.00-7.50 PM	7.00-7.50 PM	7.00-7.50 PM	7.00-7.50 PM	7.00-7.50 PM
Power Management IC Design	Neuromorphic Computing	Introduction to Spintronics	Smart/Intelligent Analog/Mixed Signal ICs	Development of sensing technology for agriculture applications	National Education Policy 2020: An Overview
8.00-8.50 PM	8.00-8.50 PM	8.00-8.50 PM	8.00-8.50 PM	8.00-8.50 PM	8.00-8.50 PM
IC Design for IoT applications	Mapping of Neural Networks to Hardware with Neuromorphic Computing	Spintronics-Challenges and Perspectives	Role of AI/ML in AMS systems	Interfacing circuits for sensors with digital output: prospects and challenges	Major Reforms in Higher Education
9.00-9.30 PM	9.00-9.30 PM	9.00-9.30 PM	9.00-9.30 PM	9.00-9.30 PM	9.00-9.30 PM
Interaction / QA Session / Peer learning	Interaction / QA Session / Peer learning	Interaction / QA Session / Peer learning	Interaction / QA Session / Peer learning	Interaction / QA Session / Peer learning	Interaction / QA Session / Peer learning

Tentative Programme Schedule (Second Week)
AICTE ATAL FDP Week 2 – Offline (9:30 am – 4:30 pm)

Day 1	Day 2	Day 3	Day 4	Day 5
9.00-9.30 AM	9.30 AM-12.00 NOON	9.30 AM-12.00 NOON	9.30 AM-12.00 NOON	9.30 AM-12.00 NOON
Inauguration Programme Briefing and Introduction	Session 8 Machine Learning Techniques in Communication System	Session 10 Analog VLSI Design	Session 12 Design of Compact Dual band and triple band Circularly polarized Dielectric resonator antenna	Session 14 Wireless Communication System Using MATLAB
9.30 AM-12.00 NOON	12.00-1.00 PM	12.00-1.00 PM	12.00-1.00 PM	12.00-1.00 PM
Session 7 CMOS Analog Design	Discussion on Research Paper 2	Discussion on Research Paper 1	MCQ	Visit Report (Team)
12.00-1.00 PM	1.00-2.00 PM	1.00-2.00 PM	1.00-2.00 PM	1.00-2.00 PM
LUNCH BREAK	LUNCH BREAK	LUNCH BREAK	LUNCH BREAK	LUNCH BREAK
1.00-2.00 PM	2.00-4.00 PM	2.00-4.00 PM	2.00-4.00 PM	2.00-3.00 PM
Travel for Visit	Session 9 Hands on: Google Colab for Communication Applications	Session 11 Live – Lab : VLSI design Flow using Cadence EDA tool	Session 13 Live – Lab: CST Microwave Studio	Discussion on Research / reflection Paper 3
2.00-4.00 PM	4.00-5.15 PM	4.00-5.15 PM	4.00-5.15 PM	3.00-4.00 PM
Industrial Visit	Research Methodology	Activity on Teaching Pedagogy for Technical Education/Smart Classrooms	Time/Stress Management Teaching Practice	Feedback/discussion
4.00-5.00 PM				4.00-5.00 PM
Travel Back				Valedictory

Resource Persons:

Sr. No.	Name	Designation	Specialization	Organisation/Institution Name
1	Dr. B K Kaushik	Professor	Carbon nanotube-based designs, Spintronics-based devices, circuits and computing.	Indian Institute of Technology (IIT), Roorkee
2	Dr. Alpana Agarwal	Professor	VLSI Design, Microelectronics	Thapar Institute of Engineering & Technology, Patiala
3	Dr. Sreehari Rao Patri	Professor	Analog/Mixed Signal IC Design, Power Management IC Design, RF IC Design,	National Institute of Technology (NIT), Warangal
4	Er. H S Jatana	Former Scientist 'G' Semiconductor Complex Laboratory, ISRO, Mohali	VLSI Design, process Design & integration, CMOS manufacturing Technology	Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh
5	Dr. B N Chaudhari	Professor	Electrical Systems Design	College of Engineering, Wellesley Road, Shivajinagar, Pune
6	Dr. Ashwani Kumar Aggarwal	Associate Professor	Computer Vision, Artificial Intelligence, Neuroscience	SLIET, Longowal
7	Dr. Tarikul Islam	Professor	Interfacing circuits for the sensors, Signal conditioning circuits (analog/digital)	Jamia Millia Islamia (Central University), New Delhi
8	Dr. Pravin R. Prajapati	Associate Professor	RF & Microwave Engg.	A. D. Patel Institute of Technology, Gujarat
9	Er. Aushutosh Yadav	Scientist E	IR Imaging with CMOS, Pipelined ADC, OP-AMPs	Semiconductor Complex Laboratory (SCL), ISRO, Mohali
10	Dr. Shubham Sahay	Assistant Professor	Solid state logic and memory devices, Neuromorphic computing and Hardware security	Indian Institute of Technology (IIT), Kanpur