



**A One-Week High-End Workshop
(KARYASHALA)**

On

**Digital Signal Processor and
FPGA Controllers for Power
Electronics and Drives
Applications**

Sponsored by

Science and Engineering Research Board
(SERB) - under the Accelerate Vigyan
Scheme

18th December 2023

TO

24th December 2023

Physical Mode

Course Coordinator

Dr. Suresh Lakhimsetty

Course Co-coordinator(s)

Dr. Mahesh Aeidapu

Dr. K. V. Praveen Kumar

Dr. J. Venkataramanaiah

Organised by

**Department of Electrical Engineering
Sardar Vallabhbhai National Institute
of Technology, Surat-395007, Gujarat,
India**

About the Institute

The institute was initially established as Sardar Vallabhbhai Regional College of Engineering & Technology in 1961 and was upgraded to a National Institute of Technology on 4th October 2002. SVNIT is one of the pioneering engineering institutions in the country, which has contributed to many outstanding engineers in India and abroad. It conducts six UG programs, seventeen PG programs (in addition to three integrated M.Sc. programs) and a PhD program in all engineering and applied sciences disciplines. Special attention is given to interdisciplinary research. The institute has an excellent placement record, with a number of top-ranking companies visiting the campus every year. For more details, please visit: <https://www.svnit.ac.in/>



About the Department

The department is one of the pioneering departments of the Institute. Over the years, the department has progressed rapidly with development in infrastructure facilities and academic programs. The department has highly qualified faculty members engaged in teaching and research to achieve excellence in Electrical Engineering. The department offers an undergraduate course in electrical

engineering and postgraduate programs in power electronics and electrical drives, power systems, and instruments and control. The department offers a Ph.D. program to promote basic research activities in the various areas of Electrical Engineering. The department also renders consultancy and testing services. For more details, please visit: <https://www.svnit.ac.in/web/department/Electrical/>



About the KARYASHALA

‘KARYASHALA’ aims to provide hands-on experience to students primarily from universities, colleges, private academic institutions, and newly established institutes in handling/troubleshooting high-end scientific instruments and such skill development on themes required for research work. Please visit website: <https://acceleratevigyan.gov.in/home>

About the Surat

Surat is a top-ranking industrial city in the country with clean, wide roads. It is well known worldwide for its textiles, Zari, and diamond industries. Several large-scale industries and establishments are located in the city. Surat is situated on the western railway route between Vadodara and Mumbai. The institute is located at

Ichchhanath on Surat-Dumas road, about 10 km from Surat railway station.

Registration Fee: NIL

Note: During registration, the candidate must upload their student ID card, NOC letter duly signed by the competent authority, and the latest CV.

Number of Seats: 15 only

Register online using the following link:

<https://shorturl.at/defgz>

The last date of registration: 6th December 2023

The candidates will be informed of their selection through E-mail by 8th December 2023

Venue:

DSP Lab/Seminar Hall, DoEE, SVNIT Surat.

Contact:

Dr. Suresh Lakhimsetty

E-mail: suresh@eed.svnit.ac.in

Mobile: 7702759430, 9034799994

Resource Persons

Speakers from reputed institutions such as NITs and industry will deliver expert lectures and hands-on training sessions.

General information:

- **Eligibility:** PG and PhD level students of Electrical Engineering.
- **Selection Criteria:** Selection of candidates based on the essential eligibility criteria laid out by SERB and as per formulated guidelines.

- **No Objection Certificate:** Applicants must submit a letter of authentication from their Supervisor / Head of the Department / Head of the Institute indicating their association with the institute and a “No Objection Certificate (NOC)” for allowing their student to undergo training in the workshop if selected.
- After the last date of registration, selected candidates will be intimated through email.
- Candidates will be selected based on merit only.
- Selected candidates must acknowledge participating in the workshop through a return email, failing which the waitlisted candidates may be called to attend the workshop.
- Daily necessary expenses such as Travel Allowance (TA), stationery, consumables, accommodation, food, etc., for the participating students only will be borne by the host institute through SERB funding support.
- TA reimbursement (Train 3rd AC / Sleeper class / Bus fare) for their journey to the host institute from their home institute, both ways, through the shortest route as per the SERB and GOI norms. (Ticket / Fare copy submission must)
- The train tickets must be booked through the IRCTC website only.

- Accommodation may be provided in the SVNIT guest house/hostels by the organizers on a room-sharing basis, if available.
- A certificate regarding the successful completion of the workshop will be issued to the participants.
- Participants not completing the requisite period will not be issued any certificate.

About Training Program

The training aims to develop the code for programming the peripherals of the TMS320F28379D and FPGA controllers for Power electronics and drive applications.

Topics to be covered:

- ✓ **Programming of TMS320F28379D:** Basic DSP concepts, architecture and features, initialisation and interfacing of peripherals like general purpose input-output (GPIO) pins, Analog to Digital Converter (ADC), Digital to Analog Converter (DAC), PWM generation for a single switch and complementary switches with dead band, SPWM, Space-Vector PWM.
- ✓ **Programming of FPGA:** Introduction to FPGA, 120⁰, 180⁰ conduction mode for 3-phase voltage source inverter (VSI), SPWM for 3-phase Voltage Source Inverter.