

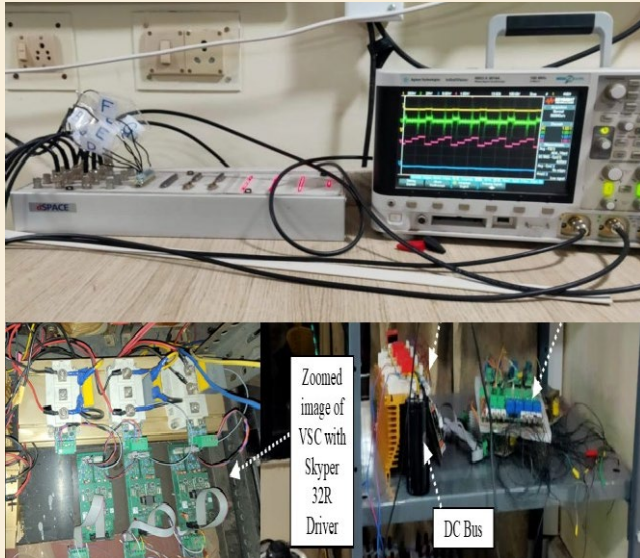
## A Value-Added Programme

On

## dSpace1104 Based Hardware in Loop (HIL) for Power Electronic Converter

### Important Dates:

- 03-04-2026
- 04-04-2026
- 05-04-2026
- 12-04-2026



### Organized by

School of Electrical Engineering  
Vellore Institute of Technology,  
Vellore-632014.

## ABOUT THE VAP

This value-added programme focuses on modelling, control and real-time validation of power electronic converters using the dSPACE 1104 platform in a Hardware-in-the-Loop (HIL) environment. Participants will learn how to interface MATLAB/Simulink models with dSPACE, tune real-time sensors, perform real-time control supervision using ControlDesk software, and test converter control algorithms on a hardware prototype. This VAP emphasizes design parameter estimation, sensor tuning for accurately capturing real-world scenarios, utilization of sensor data in MATLAB, control parameter tuning and estimation, and accurate switching sequence generation for desirable operation of a single-phase voltage source converter (VSC). The VSC will be tested under various dynamic conditions (load changes, voltage disturbances and harmonic-rich scenarios) to demonstrate its capability for power quality improvement, including voltage regulation, harmonic mitigation and reactive power compensation. Participants will gain practical understanding of PWM generation, gate signal interfacing, measurement channels, and closed-loop control implementation for DC-DC and DC-AC converter topologies.

The sessions are designed for students and young researchers who wish to strengthen their skills in rapid control prototyping and HIL testing for modern power electronics applications such as renewable energy systems, motor drives and power quality conditioners. Through guided lab exercises on dSPACE 1104 and ControlDesk, participants will gain hands-on experience in building real-time HIL set-ups, tuning controller parameters, analysing converter performance and verifying dynamic response under various operating conditions and disturbances. By the

end of the programme, learners will be able to design, implement and experimentally validate converter control strategies for power electronic converters using industry-standard HIL tools, thereby enhancing their readiness for R&D and industrial roles in power electronics, power quality and allied domains

## TECHNICAL SESSIONS

- ✓ Introduction to dSpace1104 and control desk
- ✓ PWM generation for DC-to-DC boost converter and control of duty cycle using control desk for HIL application
- ✓ PWM generation for Single phase Voltage source inverter for HIL
- ✓ ADC, DAC and digital I/O and Closed loop converters for HIL Applications
- ✓ Power Quality improvement by VSC during dynamic scenarios.
- ✓ Active and Reactive power regulation at PCC.

## ABOUT VIT

VIT was established with the aim of providing quality higher education on par with international standards. It persistently seeks and adopts innovative methods to improve the quality of higher education on a consistent basis. The campus has a cosmopolitan atmosphere with students from all corners of the globe. Experienced and learned teachers are strongly encouraged to nurture the students. The global standards set at VIT in the field of teaching and research spurs us on in our relentless pursuit of excellence. In fact, it has become a way of life for us. The highly motivated youngsters on the

campus are a constant source of pride. Our Memoranda of Understanding with various international universities are our major strength. They provide for an exchange of students and faculty and encourage joint research projects for the mutual benefit of these universities. Many of our students, who pursue their research projects in foreign universities, bring high quality to their work and esteem to India and have done us proud. With steady steps, we continue our march forward.

### **ABOUT THE SCHOOL OF ELECTRICAL ENGINEERING**

The School of Electrical Engineering (SELECT) has over 98 faculty members who pursued their UG, PG and Doctoral degrees from top-notch universities. The school offers B.Tech. (Electrical and Electronics Engineering), B.Tech. (Electronics and Instrumentation Engineering), B.Tech. (Electrical and Computer Engineering), M.Tech. (Power Electronics and Drives), M. Tech. (Control and Automation), Ph.D and Integrated Ph.D in Engineering. Both B.Tech. and M.Tech. programmes attract the Intelligent students from the country and abroad. The B.Tech. (Electrical and Electronics Engineering) and B.Tech. (Electronics and Instrumentation Engineering) Programmes are accredited by the Engineering Accreditation Commission of ABET. All UG & PG programmes of the school are accredited by the Institution of Engineering and Technology (IET), U.K. The placement record of the school has always been impressive. Almost 100% of the students secure job from the campus placement and many of them are recruited in core companies. Danfoss Advance Drives Lab, Schneider Electric Smart Energy Monitoring Lab, Fluke Testing and Calibration Lab, Q-Max Automated Test Engineering Lab (Alumni Sponsored Lab) and NxP Semiconductors have

established Centre of Excellence for students R&D activities under the guidance of faculty members and industry experts.

### **Resource Persons**

- Dr. Washima Tasnin  
SELECT, VIT
- Dr. Mrutunjaya Panda  
SELECT, VIT
- Dr. Mukul Chankaya  
SELECT, VIT

### **REGISTRATION**

Registration fee : Rs.100/-

\* Registration fee excludes 18% GST.  
Prospective participants are requested to register for the VAP through the following web link  
<https://events.vit.ac.in/>

### **IMPORTANT DATES**

Last date for registration: 03-04-2026

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- 05-04-2026
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### **Co-ordinators**

Dr. Washima Tasnin  
Mobile No. : 9706473044  
Dr. Mrutunjaya Panda  
Mobile No. : 8102997313  
Dr. Mukul Chankaya  
Mobile No. : 9468027290

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