

# VIRTUAL LAB WORKSHOP

## EVENT OBJECTIVE:

COEP is proud to be a part of National Mission of Education through ICT Program supported by MHRD, Govt. of India, along with IITs and other leading technical institutes in India.

The aim of this program is to create a virtual experimentation environment to cater to the needs of engineering and science aspirants.

The link for Virtual Labs initiative developed by COEP is:

<http://coep.vlab.co.in/>

## STRUCTURE:

Virtual Lab workshop will be conducted in following categories:

### Instrumentation & Control Department

- Biomedical and Signal Processing Lab
- Industrial Automation Lab
- FPGA and Embedded System Lab
- Hybrid Electronics Lab
- Programmable Logic Controller Lab
- Sensors Modeling & Simulation Lab

### Mechanical Department

- Micro machining Lab
- Vibration and Acoustic Lab

### Production Department

- Fab Lab

### Electrical Department

- Electrical Machine Lab

## STRUCTURE:

Sr. No.	Session	Day	Time
1	Introduction to Virtual Lab	Day 1	4 hours

2	Simulation on Sakshat VirtualLab	Day 1	4 hours
3	Hands on experience	Day 2	4 hours
4	Feedback	Day 2	2 hours

### **TEAM AND FEE STRUCTURE:**

Team size : Individual Event (Workshop)

Registration fee : Rs. 300/- per individual.

### **FAQs :**

**Q.**What are the objectives of Virtual Labs program?

**A.** The primary objectives of Virtual Labs program are:

1. To provide remote-access to Labs in various disciplines of Science and Engineering. These Virtual Labs would cater to students at the undergraduate level, post graduate level as well as to research scholars.
2. To promote students to conduct experiments by arousing their curiosity. This would help them in learning basic and advanced concepts through remote experimentation.
3. To provide a complete Learning- Management System through the Virtual Labs where the students can avail the various tools for learning like video-lectures, additional web-resources, animated demonstrations and through self-evaluation.
4. To share the expensive and sparsely distributed equipment and resources, amongst all interested users.

**Q.**What is the philosophy of Virtual Lab?

**A.** Today, the primary barriers to effective learning through experimentation are the lack of sophisticated instruments, their sparse distribution, their cost and the unavailability of reliable, knowledgeable and skillful teaching staff.

Virtual Labs program aims to remove these barriers through remote access to the data collected from the highly sophisticated instruments & equipments. It also allows users to conduct virtual experiments that generate results identical to those obtained in actual practice. This is beneficial to students and researchers as well as their faculty. Lectures of

some of the best teachers on the concerned topics provide an additional benefit. This has been made possible through the digitization and data storage facilities available in the modern instruments. This approach to experimentation will surely help to develop curiosity and the desire to learn more in all.

**FEATURES:**

1. Virtual Labs will provide the students, the observed result of an experiment through one of the following methods or through their combination.
2. Modeling the physical phenomenon, by a set of equations and carrying out simulations to yield the result of the particular experiment. This can provide a quite accurate version of the 'real-world experiment'.
3. Providing measured data for a large number of virtual lab experiments corresponding to that obtained by measurements on an actual system.
4. Remotely triggering an experiment in an actual lab and providing the student the result of the experiment through the computer interface. This would be equivalent to carrying out the actual lab experiment remotely.
5. Virtual Labs will make the experience more effective and realistic by providing additional inputs to the students through simultaneous audio and video streaming of an actual lab experiment and equipment.