Virtual Labs

An MHRD Govt of India Initiative

(A Remote Experimentation Platform for Science and Engineering)

Under the aegis of

National Mission on Education through ICT (NMEICT)

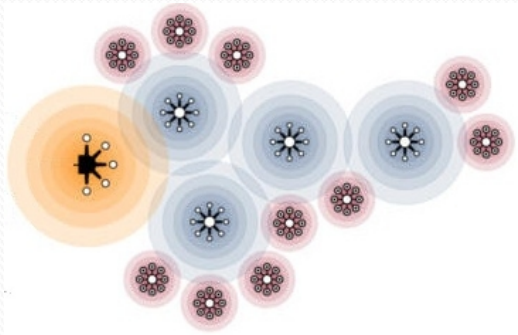
Introduction

- **Huge number of Technical Institutions**
  - **Huge production of engineers per year.**
- **Competence level of Engineers**
  - **Practical Knowledge.**
- **Collaboration with Industries / Research Institutions**
  - **Geographical location**
- **Quality education for all**
  - **Equal opportunity to all**

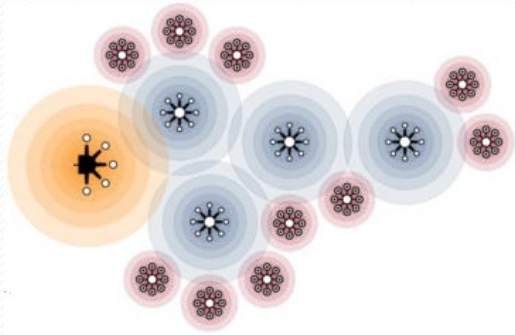
SALIENT FEATURES

- Anytime anywhere lab.
- Virtual Labs are free to use.
- Accessible through Internet on any PC/Laptop.
- Surprisingly even on your mobile phone.
- Developed in self learning mode.
- Innovative experimentations.
- Over 126 Virtual Labs have already been developed.

Motivation



Physical Distances Limit Doing Experiments



Sharing of Costly Equipment

Proliferation of Quality Labs

The Basic Idea

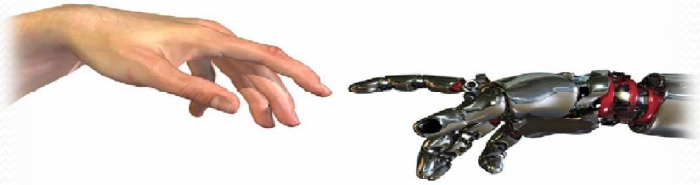
Physical Lab (located remotely)

Internet

Remote User 1

Remote User 2

Remote User *n*



Objectives of the Virtual Lab Project

- To provide **remote-access to labs** in various disciplines of Science and Engineering.

- To cater to **students** at the UG level, PG level as well as to research scholars.

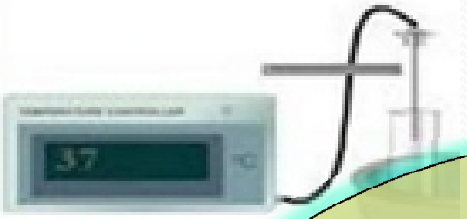
- To enable the students to learn at their **own pace**, and to arouse their **curiosity**.

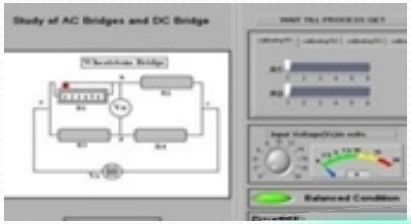
- To provide a complete **Learning Management System** that includes web-resources, video-lectures, animated demonstrations and self evaluation.

Physical Labs Vs Virtual Labs

Factors	Physical Labs	Virtual Labs
Cost	Typically in few Lakh Rupees	Almost Nil (only your existing PC with internet connection is needed)
Availability	Limited in time and space	Designed for 24x7 usage
Experimentations	Limited options for innovation	Provides wider & safer options for innovative experimentations e.g. High Voltage lab, Mechanical design lab, biomedical , civil Engg structures labs.
User Experience	Best	Second Best

Types of Virtual Labs





Remote Triggered

Measurement Based

Modeling / Simulation Based

Scalability

Closer to Reality

Intended Users

- ✓ **College students** who do not have access to good lab-facilities.
- ✓ **High-school students** whose inquisitiveness will be triggered, possibly motivating them to take up higher-studies.
- ✓ **Different engineering colleges** who can benefit from the content and related teaching resources.
- ✓ **Researchers in different institutes** who can share/ collaborate equipment and resources.

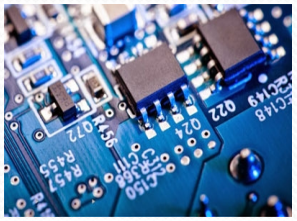
Participating Institutes

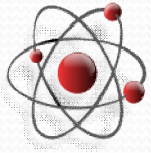
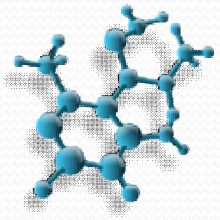
- IIT Delhi
- IIT Bombay
- IIT Kanpur
- IIT Kharagpur
- IIT Madras
- IIT Roorkee

- IIT Guwahati
- IIIT Hyderabad
- Amrita University
- Dayalbagh University
- NITK Surathkal
- COE Pune

Broad areas of Virtual Labs

- Electronics and Communication Engineering
- Computer Science and Engineering
- Electrical Engineering
- Mechanical Engineering
- Civil Engineering
- Chemical Engineering
- Biomedical and Biotechnology Engineering
- Chemical Sciences
- Physical Sciences



All areas of Science and Engineering are covered

Website: www.vlab.co.in

One common website to access all Virtual Labs

Value Add in a Nutshell

On-demand Labs

[*learn at own pace*]

Integrated Learning

[contents at one place]

Self - Evaluation

[*pre /post lab quiz*]

Virtual Labs

An MHRD Govt of India Initiative

Animation/Video Tut

[*better insight*]

Freedom to make mistakes

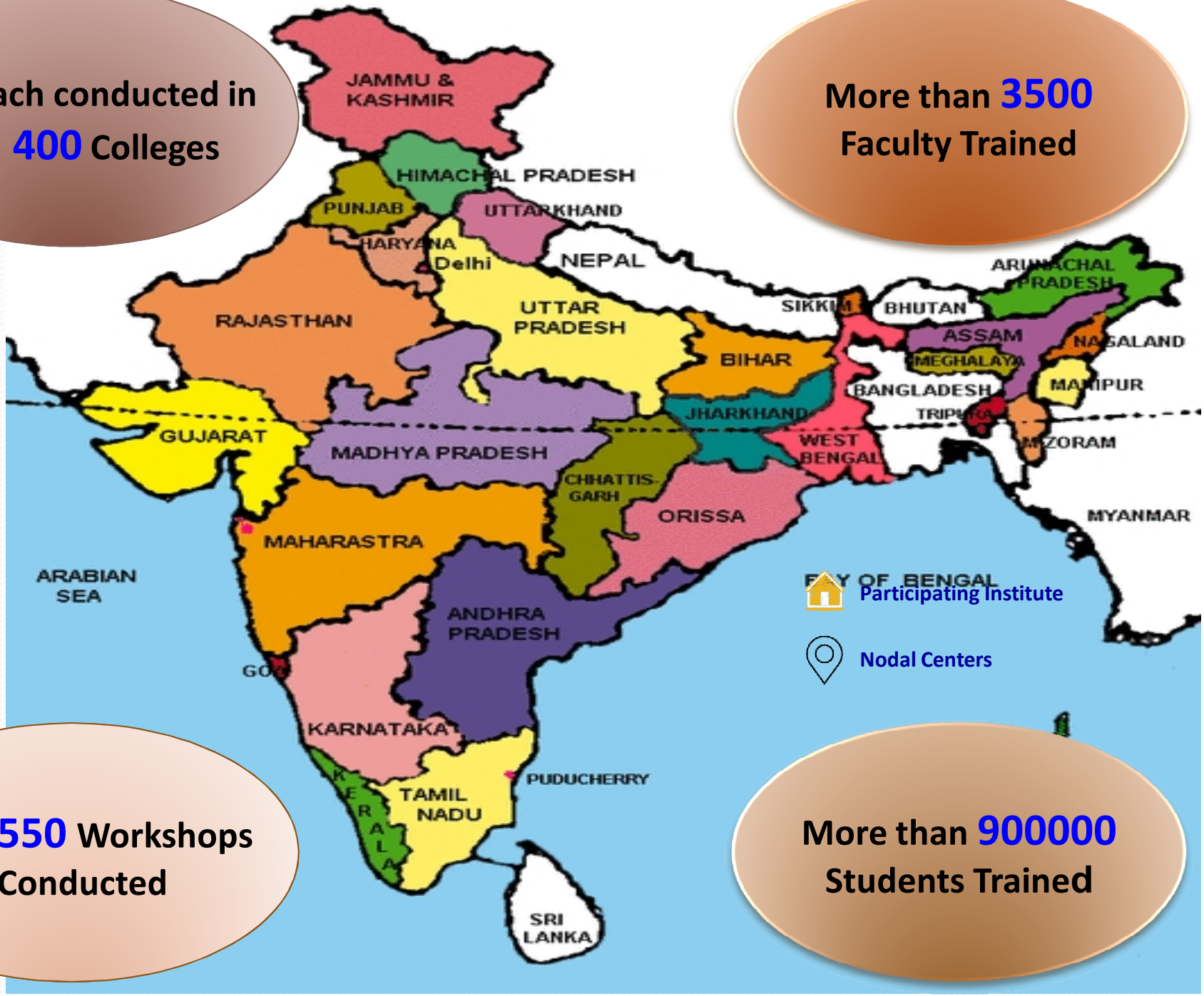
[*can experiment with experiments*]

Virtual Labs - A Complete Learning Management System

Impact of the Project

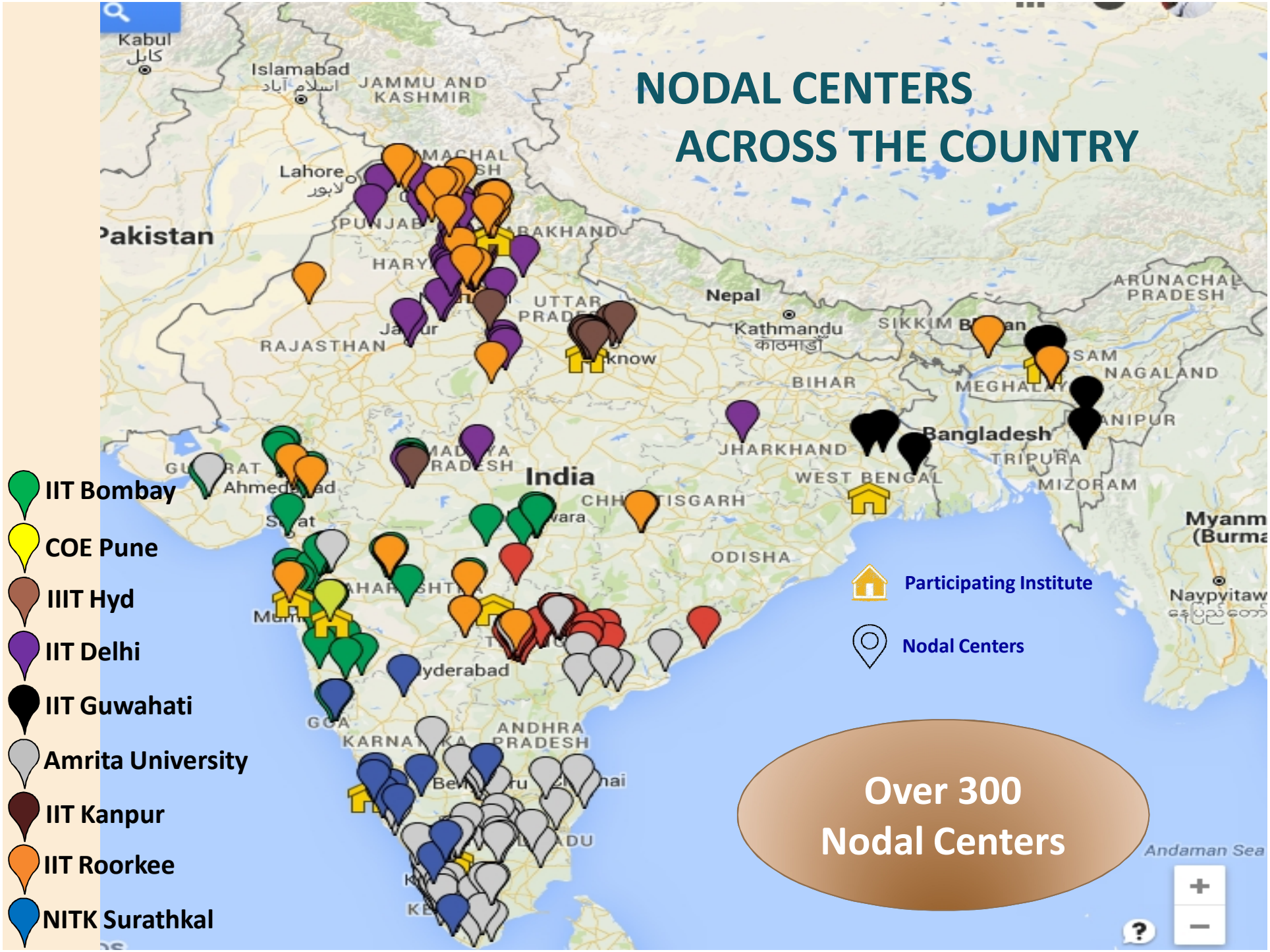
Outreach conducted in over 400 Colleges

More than 3500 Faculty Trained

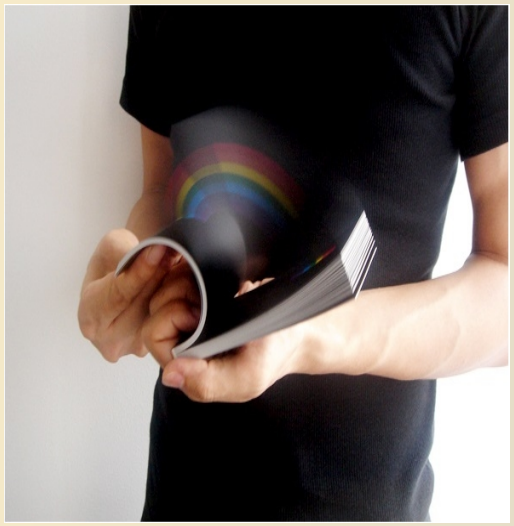


Over 550 Workshops Conducted

More than 900000 Students Trained


NODAL CENTERS
ACROSS THE COUNTRY
IIT Bombay
COE Pune
IIIT Hyd
IIT Delhi
IIT Guwahati
Amrita University
IIT Kanpur
IIT Roorkee
NITK Surathkal
Participating Institute
Nodal Centers
Over 300
Nodal Centers
India
Pakistan
Nepal
Bangladesh
Kabul
Islamabad
Lahore
Kathmandu
Andaman Sea

For Effectiveness



Flipping a book will not make you learn

reading it will !

Just clicking through Virtual lab experiments will not make you learn … Doing it will !

Virtual Lab Assessment Link

Who will participate in the filling of this form?

1) Nodal Coordinator
2) Faculty Members
3) Students

http://118.102.191.38/labassessment/assessmentform.html

Want Something to Share

Give your suggestions to

Email : **support@vlab.co.in**

Call : **+91-11-64674687**
: **+91-11-26597244**

Virtual Labs... A Journey from Concept to Reality

Thank You !