

Title of the Best Practice 2:

Implementation of Virtual Labs in Enhancing Practical Learning and Skill Development

Objectives of the Practice:

- To bridge the gap between theoretical knowledge and practical applications.
- To improve students' understanding of complex scientific concepts easily.
- To provide students' hands-on experience and exposure to ICT based teaching learning practices.
- To equip students with digital literacy skills essential for their successful career in future.

The Context:

Sangameshwar College in Solapur is dedicated to giving students a top-notch education with a focus on expanding their academic and practical knowledge. The COVID-19 epidemic and other recurring disturbances frequently limited the availability of traditional hands-on instruction in physical laboratories. Oral comprehension of certain theoretical concepts was extremely challenging. In order to overcome these obstacles, the college implemented IIT Bombay's Virtual Labs program, which has revolutionized the way students study by utilizing animated videos and simulation-based exercises found in virtual labs.

The Practice:

The following crucial elements have helped Sangameshwar College successfully implement the Virtual Lab Program:

- Orientations and seminars were employed by faculty members of different departments to introduce students to the idea of virtual laboratories.
- Our college is affiliated with IIT Bombay's Virtual Lab. The college has been using the Virtual Labs created by Amrita University, COEP, IIT Bombay, and other IITs.
- The curriculum incorporates virtual labs, particularly for certain practical's that were challenging to do because of resource limitations. Since the virtual lab platform featured educational resources like virtual equipment, experiment theory, self-assessment tools, web-based materials, video lectures, and animated demonstrations, students could test their knowledge of the experiment's subject matter and theory. Experiments could be repeated as often as necessary for students to learn.

Evidence of Success:

Better Learning Outcomes: Virtual labs are acknowledged by both teachers and students as a cutting-edge teaching-learning method. Students were pleased with their virtual lab

experience, stating that it allowed them to get past the constraints of traditional labs and gave them the freedom to experiment and study at their own speed. Additionally, they had a conceptual understanding of difficult ideas thanks to animated movies that were constantly accessible on the virtual lab platform.

Problems Encountered and Resources Required:

- Due to erratic or poor internet connectivity, students had trouble accessing virtual laboratories.
- Adapting the new technology by the students and the teachers

Resources Required:

- Sustained partnership with IIT Bombay for access to the virtual lab resources and updates to the platform
- Enhanced Internet Connectivity
- Training for faculty and Students
- Periodic workshops and training sessions

Impact of the Practice:

- Through interactive virtual experiments and, when needed, animated movies, students have improved their practical abilities and
- Gained a greater knowledge of scientific concepts and principles.
- Their analytical and problem-solving abilities were also refined by the encounter.
- Gained technical skills that are in demand in a variety of industries, business etc.

This Best Practice in Virtual Labs is a testament to Sangameshwar College's commitment to innovation, academic excellence, and student success.

- Out of 1,51,811 Nodal Centres nationally, we feel proud to declare that, our college holds 5th Rank [with 22,219 usages] declared by IIT Bombay in utilization of Virtual lab which was an initiative of Ministry of Education (MoE), Government of India under the aegis of National Mission on Education through Information and Communication Technology (NMEICT). This project is a consortium activity of twelve participating institutes and IIT Delhi is coordinating institute.