KOLHAPUR INSTITUTE OF TECHNOLOGY'S COLLEGE OF ENGINEERING (AUTONOMOUS), KOLHAPUR

NAAC AQAR 2020-2021

Best Practice_1

1. **Title of the Practice: The KITCoEK Virtual Lab**

2. **Objectives of the Practice**

   - To provide remote-access to simulation-based labs in various disciplines of Science and Engineering.
   - To enthuse students to conduct experiments by arousing their curiosity. This would help them in learning basic and advanced concepts through remote experimentation.
   - To provide a complete Learning Management System around the Virtual Labs where the students/ teachers can avail the various tools for learning, including additional web-resources, video-lectures, animated demonstrations and self-evaluation.
   - To give solutions for enabling remote distance online practical practices, especially when students would like to access practical experiments for exploring more or physical distance is a barrier.

3. **The Context**

   Nowadays online courses solve the issue of theory teaching but regarding practical they need an approach one step ahead of it. So, performing experiments online and whenever required creates excitement and urge to learn. Virtual Lab is the solution for today's need for practical performance. Experiments that can be used via internet further allow use of software programs, resources, knowledge, and information available on the websites. Virtual lab gives feel to the students of actually performing experiments.

   Developing simulation of engineering experiments with advanced technologies and deploying it as live project is challenging task and in industry its expensive also. So, we have selected and trained our students from all disciplines for this project as developer, tester and as business analyst under VLAB start-up registered under KITE, our own Incubation Centre. Students have developed and executed simulation free of cost.

4. **The Practice**

   The KITCoEK Virtual Lab is very big project with inclusion of students from all disciplines. For this project VLAB core team members and Virtual lab Clubs are created including 190 students. Different groups depending on disciplines and subjects are formed. We have use GitHub to create project to keep track of all technical progress and mentoring activities while creating simulations. Students have learned new technologies, how to work in team and how to actually deploy software in real. As a result, almost all branch practicals have been prepared and made available on the VLAB website.

5. Evidence of Success

Virtual Lab is hosted on Online Server and available on following IP Address
http://210.212.172.182/index.html

6. Problems Encountered and Resources Required

- It needs 24 by 7 server facilities to be switched on.
- Students need to put extra time for developing simulations specifically while exam time we need to pause the work.
- Keeping students motivated without any monetary rewards is challenging.