



Following best practices followed by LTCE have contributed towards the achievement of the vision / mission and objectives as well as improvement of quality of under graduates of LTCE. These activities have also served the purpose of socio-economic development and inclusivity on a macro level, thus adding value to the student progress.

Best Practice 1:

Title of the Practice: Strengthening of Student Support and Welfare through Project Based Learning in the Hybrid mode of education. (PBL)

Objectives:

- To extract leadership qualities and technical outcomes of students through financial and nonfinancial assistance.
- To develop managerial capabilities through project management.
- To develop a holistic approach for engineering problems.
- To practice time management.
- To address the issues of socio-economic development inclusivity.
- To add value to the student performance.

The Context:

Engineers seem to thrive on competition at student level due to resonant energy present inside them. This is in reference to providing a platform for students to show their intellectual skills and talent in the events organized at National and International levels.

- To develop techno-commercial acumen in the learner.
- To develop inquisitiveness about how stuff works and develop a penchant for research.
- The students learn the whole range of designing, developing, fabricating the vehicle testing of integrity under static / dynamic conditions.

The SAE college level chapter is under establishment in the Mechanical Engineering Department and gets the grants from industries to participate in the SAE and other competitions. The students undertake BE projects under the SAE chapter and learn to apply the knowledge gained in the First, Second and Third year of Engineering. The students of FE, SE, TE also participate according to their convenience. The concept

of mini projects is introduced by the University of Mumbai in the curriculum of SE and TE in view of our concept of Project Based Learning (PBL). The most vibrant chapters are ISHRAE and ASHRAE in the Mechanical Engineering Department under the leadership of Dr. Kavita Dhanawade. The students apply for grants through their BE

projects under a competitive environment at national level (ISHRAE) and international level (ASHRAE).

ISPG UG is a grant of funds to a full-time graduate student of ISHRAE Student Chapters in HVAC&R related technologies. It is awarded once in each year for use in the academic year Project. Multiple awards (typically 10 to 12) are made each year in the amount of Rs 50,000 / award. The goal of the Grant-In-Aid program is to encourage outstanding graduate work viz. (1) Grant in Aid for the Final Year Students for Project Research in HVAC & R (2) Project Grant for the Innovative ideas in HVAC&R Systems, IAQ, Process cooling, Refrigerants, Cold Storage etc.

The Society of Automotive Engineers (SAE) and ROBOCON club is also established at institute level and students from different branches are participating enthusiastically. Institute provides in house resources financial support for participating in different events and competition. Students are passionate about these activities and participate whole heartedly. The activity consists of developing a CAD model prototype under the guidelines given by SAE. The students have to qualify the virtual design competition first, then they are allowed to make a prototype. On qualifying in virtual design, they are given an engine of 500 cc. The students have to develop / build an all-terrain vehicle which is tested in static / dynamic events. Similarly, ROBOCON gives a theme every year. Students have to design and develop the robot in line with the theme.

Evidence of Success:

The ISHRAE Student Chapter received a total of approximately 10,500 USD grant for implementing the project idea into a working model on 3rd March 2021. This was the first time where a college received four grants in India. This notable achievement of the student chapter was also published in print and digital media.

This milestone has been achieved due to tremendous hard work and guidance of Dr. Kavita Dhanawade, Associate HoD (Mechanical Engg Dept.). In addition, Dr. Vivek Sunnapwar (Principal), Prof. Shweta Matey and Prof. Manoj Dhawade have extended their support and guidance to the students for this project. The projects are as follows: (1) Design and development of Multiple Evaporator Refrigeration System for Food Storage using Solar Energy. (2) Design and fabrication of Eutectic Refrigerated Vehicle Integrated with Solar-Assisted Thermoelectric Cooling Device. (3) Hybrid refrigeration system. (4) Design and Fabrication of an Improved Indirect Evaporative Cooler.

From Lokmanya Tilak College of Engineering, students applied for ASHRAE scholarship in the year 2020 on 12th November 2020.

We have participating groups every year in SAE as well as ROBOCON. Due to Covid -19 pandemic situation it was not possible for students to participate in the activities. This tradition shows the passion for the activity. SAE members develop the car and compete in the events. i.e., Formula SAE (Team SCHNELL RACING), BAJA (Team TT), ROBOCON India and other super mileage competitions organised at National and International levels.

Problems Encountered and Resources Required:

(a) Unavailability of space for vehicle / robot testing, (b) Sponsorships for the events, (c) Last hour maintenance problems.

Best Practice 2:

Title of the Practice: Comprehensive Evaluation, emphasis on formative assessment, use of ICT tools in ONLINE/OFFLINE teaching-learning process.

Objectives:

- To improve attendance and attention in Hybrid education mode
- To give chance to student to improve performance
- To enable the students to optimize their performance through ICT tools.
- To facilitate easy learning in ONLINE mode

Context:

The Institute has taken the following steps to achieve the objectives.

Direct and indirect assessments are conducted as per COs. Various tools and performance indicators are used for assessing the level of understanding of the students. Typed manuals of the experiments (performance) are issued to students. Conducting remedial classes for slow learners and absentees. Maintenance of log book for conducting labs smoothly. Internal assessment answer scripts are shown to the students. Conducting GATE classes for students interested in pursuing higher education / Jobs. Provision of multimedia lab in library for access to publications and other study material. Around 650 computers in LAN have internet and bandwidth of 160 mbps. Campus Wi-Fi with 32 access points. Provision of downloadable Springer e-books. Introduction of google classrooms subject wise by teachers. NPTEL Chapter for certification courses.

Evidence of Success: Continuous improvement of grade by the end of the semester, which in turn helps students in tracking their own progress. Uniformity and clarity of the experiment during explanation of theory by the faculty during laboratory sessions. Enhancing the learning capability of slow learners and updating students with important topics/ revision of topics with respect to examination. Uniformity of experiments with respect to results achieved by a particular batch and cross verification with the previous batch. Also, to make faculty aware about the status of experiments performed. More and more students are registering for the GATE examination in the academic year. Students are getting jobs based on the certification courses completed.

Problems Encountered and Resources Required:

The teaching learning was ONLINE, so there were the problems of internet connectivity, financials etc. for the students.

Practicals could not be conducted in OFFLINE mode but demonstrations were planned in ONLINE mode.

a) Students get less time for extra co-curricular activities due to continuous evaluation.
b) Faculty are also busy and gets less time for doing research c) Adopting to newer teaching pedagogies is a challenge. The Year 2020-21 was fully eclipsed by Covid-19 pandemic; therefore, the planned activities could not be conducted. The management had sanctioned a budget of Rs 2 lakh for SAE car building competition. Even though the activities were planned in odd term of 2020-21 i.e., July to October 2020, the proposed competitions were in the even term i.e., January to April 2021. Therefore, the students could not participate.