Best Practices

The institute has adopted the following two best practices in AY 2020-21.

Best Practice 1: Project Based Learning (PBL) to practice participative pedagogical learning experience

1. Title of the Practice
Project Based Learning (PBL) to practice participative pedagogical learning experience.

2. Objectives of the Practice
The objectives of this activity can be listed as;

1. To engage students in constructive learning environment and develop self-learning abilities.
2. To develop critical thinking and solving engineering problems by exploring and proposing sustainable solutions.
3. To integrate knowledge and skills from various engineering areas.
4. To develop professional skills, team building and coordination skill.

After implementation of such kind of learning tools, students found able to identify the social needs and convert them as an idea for product development or service. Another advantage was observed that students could analyze and design the model. The model may be physical or mathematical, depending on the problem handled.

3. The Context
In the online teaching learning practice the major challenge for a subject teacher was to keep students on board, not physically but mentally. It was observed while conducting online sessions, that many students were in need of the participative study. A conventional practice like seminars, presentations, group discussions, etc. were found somehow less effective in such virtual teaching practices. To overcome this difficulty of students it was decided to plan activities which can demonstrate the important attributes like communication, presentation, organization, time management, research, inquiry, self-assessment, group participation, leadership and critical thinking. Project based learning well accepted by students.

4. The Practice
For effective Project based learning experience to students, the activity was planned as:
  i.   Formation of groups of 4 to 5 students and allocation of faculty mentor to each group.
 ii.   Assigning identified / global problem to work on PBL activity.
iii.   Arranging periodic reviews and assessment based on Idea Inception (5%), Solution provided / final product at end of course (50%), Documentation in the form of PBL report (typed, hard copy) (15%), Presentation/ Demonstration of model/ PPT/ poster

(10%), Participation/ involvement in group activity (10%), Publication / participation on technical platform (10%).

iv. Ranking of ideas.
v. Providing global platform to these ideas through institute website.

5. **Evidence of Success**:
As per planning around 765 students participated and worked on PBL activities. Total 195 groups enjoyed and learned through self-developed; software based / mathematical / laboratory scale physical models. The ranking approach motivated students for enthusiastic participation.

6. **Problems Encountered and Resources Required**
In this academic year major problem was lack of direct communication with students with mentor. Though virtual platform is more user friendly, considering internet connectivity issues in rural areas, inadequacy of necessary hardware and software support the PBL activity extended beyond planned duration on student demand.

Best Practice 2: Development of E-content for effective teaching and learning practice in virtual mode

1. **Title of the Practice**
Development of E-content for effective teaching and learning practice in virtual mode

2. **Objectives of the Practice**
The objectives of this activity can be listed as;

1. To develop infrastructural facility for e-content development.
2. To develop e-content for various subjects of different engineering programs.
3. To make available, the developed e-content on institute website for remotely located students.

In the COVID-19 pandemic, when it was found most difficult to maintain students in mainstream of teaching learning process; the e-content access made this affordable and available 24X7. More than 100 videos aligned to various courses are made available for students with no cost. All these videos are recorded in specially designed and developed recording rooms with all necessary hardware and software support.

3. **The Context**
When all the students were get academically affected due to COVID 19 pandemics and facing difficulties to get acquainted with routine lecture or practical sessions, the E- content provided them great support. Another challenge while developing the digital content was faculty trainings to use virtual platform. It took some time to develop the competent videos including quality recording with necessary editing.

4. **The Practice**
To develop the quality content in digital format, the activities were streamlined as:
  i.   Development of recording room with all necessary hardware and software facilities.
 ii.   Providing trainings regarding e-content development to teachers.
iii.   Recording of videos and quality checks from senior subject teachers.
iv.   Making available these videos through institute website to all students.

5. **Evidence of Success**:
As per planning around 197 videos of various courses were developed. Total 10 faculties were involved in this activity. The recorded video sessions were made available through YouTube channel and The Zeal Academy portal.

6. **Problems Encountered and Resources Required**
The challenges in e- content development were; to make teachers comfortable with such non-conventional approach of teaching and additional skill set development for effective delivery. The subject teachers were provided with sufficient time to compile quality study material to share in video lectures. The teachers were motivated to get necessary trainings for delivering

best video sessions using advanced editing tools, graphics, animation, etc. Few online courses through reputed platforms like coursera, NPTEL, etc. were recommended for teachers.

For developing good quality of e-content there is a need of original course content, good hardware support and expert technical manpower from the field of video editing.