

Best Practice – 1

Title of the Practice: **Teaching and Learning Process**

Objectives of the Practice:

Narasaraopeta Engineering College (NEC) desires to impart appropriate knowledge, skill and training to enable the students become qualitative practitioners of their profession. Teaching and learning process is the focal point in the whole of educational activity. Changing face of education and rapid advancement of technology on one hand and changing perceptions among the millennial students as well as induction of new generation of teachers on the other hand challenge the whole gamut of teaching learning process. The crux of this practice is to train the facilitators in better teaching learning processes for enhanced deliverance of learning.

The Context:

In the past few decades, there has been a paradigm shift in teaching methodologies. It has moved from teacher centric approach where the learner is a passive participant to student centric approach where a teacher is just a facilitator to student's learning. In addition, the massive advancement of science and technology coupled with the expectation from native millennial student generation, has impacted and shaken the concept of teaching. Often, those joining the teaching community recently are also of millennial generation. In this context, it is imperative that the teachers are trained appropriately to carry forward the teaching learning process in an effective and smooth way. The shift in generational outlook, that is, the young tech savvy brigade joining the ranks of teaching and older generation teachers who need to become more versed with technology, can be achieved only through timely and interventional training.

The Practice:

Since its inception, Narasaraopeta Engineering College (NEC) has taken measures to ensure that teachers are adequately trained in the teaching methodologies. In this regard, faculty

development programmes for teacher training are continuously conducted; the resource persons for these programmes from reputed Educational Institutions or the senior faculty members within the campus. Sometimes, teachers are given an opportunity to attend such programmes outside the campus. At NEC, newly recruited faculty members having less than two years teaching experience are given orientation by the senior professors. During the orientation programme, the participants are given an opportunity to have practice teaching sessions along with teaching methodologies. All new members are encouraged to observe and be a part of classroom proceedings of senior faculty classes. In 2019, the institute has organised a teacher training programme on Effective Teaching along with the National Institute of Technical Teachers Training and Research (NITTTR) Kolkata. Fifty faculty members along with newly recruited, attended the programme. The feedback on the programme suggests that the training session was productive in terms of supporting teachers understanding their perceptions of class room teaching, methods of assessment and evaluation. Similar programmes are conducted through in house Teaching Learning Centre (TLC).

The institute became a consortium member of IUCEE (Indo Universal Collaboration for Engineering Education) in 2018. As a consortium member, the faculty got a chance to attend a series of webinars for self-awareness and up gradation in all disciplines.

Faculty has participated in a week long faculty development programme as a part of Teaching Learning centre initiative with IUCEE collaboration. Dr. Rao Vemuri, University of California, Davis was the resource person for the FDP on "Artificial Intelligence" held from 23rd September to 27th September 2019. In this FDP, the faculty were introduced to many concepts of AI courses in UG Level. Faculty are encouraging to do MOOCs courses like SWAYAM / NPTEL.

Evidences of Success:

The faculty with less than two years become more confident in handling the classes. The perspective shift from a student to a faculty is visible as most often, the newly joined faculty are also millennial. They are tech savvy but their outlook towards teaching is not a very informed one.

The lockdown during pandemic was a game changer. The above initiatives helped the faculty to adapt online teaching in no time during the pandemic. The faculty became versatile in implementing active teaching learning methodologies using the technology. The awareness ignited the adaptability and explorative nature of the faculty that was evident in the successful implementation of online teaching learning.

The reluctance to use technology or collaborative teaching methods among the seniors has slowly given way to a more positive acceptance. They are implementing quiz, peer teaching, group or team learning and flipped classroom methods. Blended classroom has been a boon in the post COVID situation. Classes were conducted in both online and off line format.

Problems encountered:

Many problems are encountered while implementing teaching learning development activities.

1. In flipped class room, students may not be given to advance preparation of the topic. They may skip the pre task assigned by the faculty thereby attending the class with zero prior knowledge that leads ineffectual learning.
2. Prior preparation by the students may create or promote unhealthy digital divide among the students.
3. Use of technology in blended learning can cause cognitive overload on the learners.
4. Also, IT literacy among the faculty is one of major disadvantages in adapting new technology in learning.
5. The faculty may not be able to keep pace with the student's learning who has advance knowledge of the topics.
6. All students may not have suitable access to technology or internet bandwidth. Despite adapting latest methods in teaching learning, we cannot ignore the fundamental chalk and talk method. NEC tries to maintain a fine balance between the old and new versions of teaching learning.

Best Practice II

Title of the Practice: Go Green Campus

Goal

Environmental issues bring about thoughtful questions on the roles of Institutes in society. Irrespective of whether they are contributing to a better environment or worsening it, Institutions have to acknowledge environmental or green issues through impact research and measurement. Based on the approach NEC has significant Green Initiatives to

1. Promote sustainability by creating awareness
2. Share knowledge & expertise - Expert talks about environmental problems and possible solutions

Deploy eco-friendly technologies for greening and cleaning our campuses

The context

The main contexts are (i) Water Management, (ii) Waste management, (iii) Energy (conservation and generation) and (iv) Landscaping and Trees. (v) Beyond the Campus Environmental promotional activities. (vi) Green, Environment and Energy Audits.

The Practice

Energy conservation

1. The Internal stakeholders take all measures to save the power.
2. More than 60% lighting requirements are met through LED sources and efforts are under progress to improve it further

Use of renewable energy

Interactive solar power generating system of 200 KWp is provided on the roof top of the academic buildings. With the installation of this system 45 to 50% of the total electricity requirement is met.

Water harvesting: Water conservation is the practice of using water efficiently to reduce unnecessary water usage. According to reports, water conservation is important because fresh clean water is a limited resource, as well as a costly one. Conservation of this natural resource is critical for the environment. The goals of water conservation efforts include: Ensuring availability of water for future generations where the withdrawal of fresh water from an

ecosystem does not exceed its natural replacement rate. Energy conservation as water pumping, delivery and wastewater treatment facilities consume a significant amount of energy. According to recent researches 15% of total electricity consumption is devoted to water management. Rainwater Harvesting Water is the most important yet neglected resource. The reason is being very low cost. But over period of years, water is gaining its importance. Entire country is facing a tremendous stress due to water scarcity. Irregular rainfall, depleting ground water table, inefficient usage and leakages etc are all forcing people to adopt water management activities. NEC has always paid special care and attention towards water consumption in their buildings. To tackle the issue at source, rain water harvesting systems have implemented across the campus to conserve, capture and aid effective aquifer recharge. To ensure effective capture and aquifer recharge, the rainwater harvesting pit in the campus at proper place. The water collected is used for plantation purposes at a later stage.

Efforts for carbon neutrality

By conserving and reusing energy the need for excessive use of oil fuels can greatly reduce, thus reducing carbon emissions. Installing solar panels helps in reducing carbon emissions. The installation of 200 KWp solar power system has saved the amount of carbon dioxide released into the air. Thus the emission of carbon dioxide is well controlled with these efforts in the institute to achieve carbon neutrality.

Plantation

Every year students along with the garden staff plant trees. Plantation Drives are organized by NSS. Due to this program over the years the campus has become lush and green.

E-waste management

E-waste generated is first reused in the campus itself and replaced with buy back policy. Apart from the above following activities are promoted to ensure green campus:

- Sensor based Environmental monitoring system prepared by students:
- Sensor based Automatic Street light
- Beyond the campus environmental promotional activities(NSS)
- Green, Environment and Energy Audits
- Wheeling to Grid

