

7.2 BEST PRACTICES - I

1. TITLE OF THE PRACTICE:

Industry oriented Curriculum Design and Teaching – Learning Process.

2. OBJECTIVES OF THE PRACTICE:

- To design Industry oriented curriculum to meet out the requirements and incorporate the recent technologies in the syllabus
- To promote direct industry linkages with the departments and enhance In-plant training, Industry visits, field/site visits, Industry projects and Internship's opportunities to the students and also to train the faculty in the recent advancements
- To involve students and faculty in testing and consultancy activities for governmental and nongovernmental organizations and provide solutions for industrial /societal problems
- To collaborate with industries for R&D activities and establish industry sponsored laboratories / Centre of Excellences (CoEs)

3. THE CONTEXT:

The Contextual features or challenging issues addressed are:

- Providing provision in curriculum to accommodate Employability Enhancement Courses (EC) and industry oriented advanced courses satisfying both statutory body requirements and Programme specific demands
- Scheduling more visits to industries for providing exposure to industrial practices in the academic calendar
- Establishing relationship with reputed industries required prolonged and consistent efforts and involvement of faculty
- Bringing experts from industry to teach a part of the syllabus
- Increasing the allowances / pay offered to the students during trainings/ internships
- Making travel arrangements to remote sites / far off places for industrial visits where industries / huge infrastructure projects are under progress
- Ensuring safety at work places during student's visit / training

4. THE PRACTICE:

- **98** MoUs are signed with reputed industries and Government organizations to enhance technical expertise of faculty and students.
- **55** Industry experts are nominated for Board of Studies and majority of the courses are introduced based on the industrial requirements and expectations. **47.79%** of syllabus content has been revised during the last 5 years.
- **47** value added courses are offered with the help of industrial experts in advanced topics / skill enhancement techniques.
- R2018 and R2020 curriculum include industrial training (2 credits) and internships (12 credits) as mandatory courses. Since 2015-2016, **607** industry student projects are carried out, **984** Internship projects are carried out, and **4764** students have undergone training in **1233** Industries.
- Number of Faculty and non-teaching staff trained since 2015-16 academic year is **161** in **85** industries. In addition, **7** training programs are offered to industrial experts through KEC faculty members and **105** trainees got benefitted.

- Industry attachment programmes (1 day theoretical inputs by industry experts and 1 day visit to industry) are introduced in Mechanical and Mechatronics departments **1129 students** got benefitted out of **16 programmes** organized along with by Roots Industries Ltd, Coimbatore.
- **125** field visits / site visits have been arranged in few programmes as a part of curriculum. **7161** students have got benefitted.
- Adjunct faculty scheme has been adopted to teach a full / part of course by industrial experts. Guest lectures, seminars, workshops and technical Symposiums are conducted with the help of **292** industry experts.
- **12** Industry sponsored labs and industry supported labs are established. For **7** early stage entrepreneurship, KEC is acting as knowledge partner under Innovation Voucher Programs (IVP). **3** number of Centre of Excellence (CoE) are established for Mechatronics, Electrical & Electronics Engineering and Mechanical Engineering in collaboration with industries.
- Joint research activities with industries are facilitated and **5** number of patents are granted and **86** ideas have been published in patent journal. Collaborated with **16** industries for joint R&D proposals.
- **700** Testing and consultancy activities carried out by the faculty to outside agencies with majority of student participation.
- **44** Alumni (who are entrepreneurs / occupying responsible position at industries) are called for interaction to enrich student's knowledge on field practices.
- Weightage is given for industry linked activities in performance appraisal of faculty and departments

5. EVIDENCE OF SUCCESS:

- In AICTE-CII survey for identifying the 'Best Industry linked Technical departments and Institute', KEC has been ranked under Platinum award Category every year.
- NIRF India Ranking 2020 ranked KEC 135th position in Engineering Category and ATAL Ranking of Institutions on Innovation Achievements (ARIIA)2020- Categorized KEC as band A institution (rank between (6-25) in category of Private or Self-financed College/Institute
- The Institute has also won "Outstanding Institute-Industry Partnership Award" – Sustainable Institute Industry Partnership (SIIP) from SEED, Chennai during 2015 and 2016.
- Various Magazines have ranked KEC in top positions: India Today (2020)- 77th Position; The Week (2020) - 56th Position; The Competition Success Review Survey (CSR)- 9th Position in Placements, USP, Social responsibility, Networking & Industry Interface Category in Top 25 Engineering College.
- Renowned industries have collaborated with KEC for Centre of Excellence (CoE) establishment: CoE in Robotics and Automation with Fanuc, Bengaluru, CoE in Energy and Building Automation with Schneider Electric India, Bengaluru, CoE in Product design and development for Automotive interior parts with Macbro, Erode, CoE in Data Sciences with Nvidia, Bengaluru and CoE in Energy Studies with Fluke India, Coimbatore.

6. PROBLEMS ENCOUNTERED AND RESOURCES REQUIRED:

Problems encountered:

- Establishing relationship and entering into MoU with reputed industries takes at least a year. Follow up activities to retain the partnership becomes a challenging one.
- Finding slots with industries for student /faculty training during summer and winter vacations and for field visits are becoming difficult.
- All industries are not ready to pay stipend during internship period for students
- Establishment of industry sponsored research laboratory is a constraint for a rural based institution.

Resources required:

- A full-fledged team to take care of industrial relations is required in each department in addition to central IIPC team.
- An yearly budget to visit the industries, to train the faculty in industries during vacations has to be provided
- To perform consultancy activities, required equipment have to be procured.

7. PLEASE ADD ANY OTHER INFORMATION THAT MAY BE RELEVANT FOR ADOPTING/ IMPLEMENTING THE BEST PRACTICE IN OTHER INSTITUTIONS

In order to implement and improve the practice, following measures may be adopted:

- “Best department in implementation of MoUs and industry linked activities” and “Best performing faculty in IIPC activities” awards are constituted and it acts as a driving force for enhancing the industry linked activities
- Field visits for each course or combining few courses help in learning new technologies and identifying local industries problems
- Adjunct faculty scheme and floating industry-oriented Value-added courses to students enhance their learning process
- Establishing good network with renowned industries will yield in industry sponsored labs or CoE

7.2 BEST PRACTICES - II

1. TITLE OF THE PRACTICE:

Clean and Green Practices for Sustainable Environment

2. OBJECTIVES OF THE PRACTICE:

Clean and Green Practices aim at achieving eco-friendly and sustainable environment within the College campus. The main objectives are listed below:

- Implementation of cleanliness agenda among stakeholders
- Initiating activities to protect the environment and to reduce carbon emission by using alternative energy resources
- Minimization of waste generation and safe disposal of the wastes
- Conserving water and recycling it
- Expanding the Greenery within the campus to ensure pollution-free air
- Re-modeling the campus into a smart campus

3. THE CONTEXT:

Environmental protection / Go Green / Swatch Bharat Mission are the concepts evolved after realizing the harmfulness of pollution which affects not only human health but also the ecological balance. Optimum use of natural resources and keeping our environment clean and green are necessary for healthy living and sustainable future. Converting the institute into clean and Smart Campus by engaging the stakeholders will facilitate dialogue and sharing of ideas amongst students, faculty and administrators towards Sustainable Development Goals. In this context, KEC has initiated various activities and awareness programmes to promote the mission of green campus.

4. THE PRACTICE:

- Policies related to green initiatives and waste management are established and implemented.
- Measurement and reduction of carbon foot prints by regulating the vehicle movement within the campus.
- Plantations in large numbers within the campus and their efficient maintenance through a separate team with a horticulturist to keep the campus green. 2,958 trees are planted in the campus. The total green area inside the campus is about 82 acres with a Green area per capita of 39.09 sq. meters.
- Recycling of waste water and using it for gardening helps to reduce consumption of water. Water conservation facilities are deployed across the campus to harvest rain water, monitor water levels in tanks and recycle the waste water. A 10-lakh capacity STP along with efficient water distribution system is functioning.
- Solar power plants with 680kWp capacity at a cost of Rs.3.55 crores have been installed in the campus during the last five years. Solar street lights and solar water heaters installed in hostels and staff quarters account to the usage of solar energy.

- Energy efficient equipment like LED bulbs, BLDC fans and Gresol pumps are in application to reduce the consumption of electric power. Sensor based energy conserving methods like water-level monitoring systems are installed to reduce the wastage of water and electric power.
- Hygiene in hostel and canteen kitchens is ensured through clean and sterilized utensils, mechanization of food preparation and frequent cleaning of dining tables and floors through dedicated team. 1,148 modern toilets are available inside campus, which are all cleaned twice a day by dedicated staff.
- Food wastes are crushed and sent to biomass gasifier plants for the production of biogas that is to be used as an alternate source for LPG.
- Safe disposal of all types of wastes from the campus is carried out through proper segregation technique.
- Through 17 clubs and cells, plantations and awareness programmes are being conducted every year to promote the importance of Go Green concept. Beyond campus activities are also undertaken by students and faculty regularly to promote the green practices in nearby communities also.
- Air quality is measured daily and recorded to identify the emission of harmful gases.
- Energy and environmental audits are conducted and possible issues are identified and rectified for establishing sustainable environment.

5. EVIDENCE OF SUCCESS:

- Green practice at KEC has been recognized at national level and the college has received several awards:
 1. AICTE Swachh Campus Ranking 2019 award for Cleanest Higher Educational Institutions in the Country
 2. AICTE National Level “Clean & Smart Campus Awards – 2019”
 3. AICTE certificate of appreciation for contribution to “Jal Shakti Abhiyan – 2019”
 4. AICTE certificate of appreciation for contribution to “One Tree One Student” initiative - 2019
 5. AICTE Clean Campus Award 2017
- Energy saving achieved in terms of percentage of contribution is shown below:

Year	Total Consumed Electricity (Units)	Electricity consumed from the Solar Energy (units)	% of Contribution
2015-16	4309511	194164	4.5
2016-17	4494826	524307	11.7
2017-18	4406441	565136	12.8
2018-19	4623108	714171	15.4
2019-20	4100285	571398	13.9
Average			11.7

- The reports of Green, Energy and Environmental audits portray the success of the green practices followed in the campus.

6. PROBLEMS ENCOUNTERED AND RESOURCES REQUIRED:

- A huge investment is required to build up an alternate energy source.
- Continuous efforts are required to create awareness and to sustain the GO GREEN policy. Organizing programmes related to this theme of practice amidst heavy academic schedule is necessary.
- More number of labours / workers are required for the establishment and maintenance and retaining labours / workers of this category is challenging.

7. PLEASE ADD ANY OTHER INFORMATION THAT MAY BE RELEVANT FOR ADOPTING/ IMPLEMENTING THE BEST PRACTICE IN OTHER INSTITUTIONS

- To keep our environment pollution-free and to make it to be a place for healthy living of all species is necessary and it is the responsibility of all concerned. Educational Institutions are responsible to develop this kind of culture among all their stakeholders.
- Celebrating all major days related Environment – Environmental day, water day and so on create awareness among the young minds about the need for sustainable environment.