SCMS SCHOOL OF ENGINEERING & TECHNOLOGY, KARUKUTTY

2016-17

BEST PRACTICE 1

INDUSTRY - ACADEMIA LINKAGES

1. Title of the Practice: Industry - Academia Linkages

2. Goal

- To create avenues for close academia and industry interaction and foster a culture that strongly promotes research and innovation
- To leverage academic research to strengthen industry linkages
- To initiate collaborations with industry to pursue research applicable to real world situations.
- To collaborate with Institutions of higher learning.

3. The Context

A strong Industry–Academia relationship is of key importance not only for producing technical graduates suited for industry needs but also for creating an ecosystem of innovation and entrepreneurship. The need to have strong academia industry linkage is felt more than ever. Technology driven entrepreneurship has necessitated effective interaction and communication between academia and industry for mutual benefits. The students are the biggest beneficiary of academia-industry collaboration as they gain employment ready skills and an expedited growth path when they join the industry. While promoting industry-academia linkages to enhance the quality of learning experience as well as to improve the learning outcome of students, the goals could be varied. One end of the spectrum would be to enhance the employable skills of graduates, whereas, at the other end, it would be to promote research & development, innovation and entrepreneurship.

4. The Practice

In addition to the conventional methods of developing corporate interface such as the public relations work, organizing guest lectures and seminars, industrial visits, etc, leading to the placement of students, the institute strongly believes in establishing a

firm foundation for corporate interface through innovative practices. Some of these practices include joint research projects taken up with industry, field studies undertaken by our faculty and students, involvement of students in associating themselves with the industry on some live projects and consultancy projects taken up by our faculty.

5. Evidence of Success

- To create a pool of strong industry ready talent from the Engineering Students and to bridge the gap between industry requirements and skill taught in academic course, we have been able to enter into MoU's with
    - TVS-Haritha Techserv
    - Wipro Technologies
    - Infosys Campus Connect Program
    - Trident Tech Labs
    - IBM Power Academy
    - Red Hat India Pvt. Ltd.
    - University of Applied Sciences, Ravens burg-Weingarten, Germany.
    - UST Global
    - University of Applied Sciences, Furtwangen, Germany
    - Limco GmbH, Konstanz, Germany
    - Nivus GmbH, Eppingen, Germany
    - Sewerin GmbH, Germany
    - Central Institute of Brackish Water Aquaculture (CIBA), Chennai
    - Eduvance

  All of these MoU's have contributed in one way or other to establishment / creation/up-gradation of academic facilities, student and staff support, enhancement of laboratories /new technology /placement services etc.

- The Memorandum of Understanding with University of Applied Sciences, Ravensburg-Weingarten will develop SCMS Water Institute into a 'Centre for Excellence in water' within the coming few years. A project named "Establishment of a Centre of Competence on Water and Waste Water" has been sanctioned by Württemberg-Stiftung, Stuttgart, Germany for this purpose.
- Several projects have been undertaken since 2010 to address water related environmental problems affecting the society.
- Research projects which received wide media attention have been carried out by several of our undergraduate students, MoU with Trident Tech labs and Wipro Mission 10X Technology Learning Centre contributed in a large way.

6. Problems Encountered and Resources Required

To incorporate the activities into the flow of academics is challenging due to time constraints.

BEST PRACTICE 2

TECHNOLOGY TRANSFER FOR SOCIETAL IMPROVEMENT

1. Title of the Practice: Technology Transfer for Societal Improvement

2. Goal

- To inspire the faculty and students to implement the technological knowledge created at the institute to improve the life and environment of the society.
- To create opportunities for the students and staff to interact with the members of society and learn how the technology as they understand can intervene to solve a societal challenge.

3. The Context

SSET has identified three official mandates – research, education and interaction with society. The third assignment calls for collaboration of the institution with the surrounding society, to inform people about the research activities and ensure that the research works undertaken are of use to society.

4. The Practice

Though 3000 mm rain is received annually by Kerala, most of the communities are facing acute shortage of drinking quality water due to watershed modification, improper sanitation, overuse and misuse. Kerala has highest well density in the world. However, wells get dried up soon in the summer leaving the members of communities to struggle for meeting their basic needs. SCMS School of Engineering and Technology and SCMS Water Institute have been working closely with the Panchayaths and cities near the institute to address this issue. Several initiatives have been taken in this direction and includes:

- **Point Recharging of wells as climate change adaptation strategy**

  SSET has been collaborating with the Koratty Panchayat with an emphasis on water quantity and quality in the area. For increasing the quantity of water, a novel approach of roof top rain water recharging in to open wells was developed as a climate change adaptation strategy. SSET is monitoring how effectively the aquifer in the area, which is under the threat of drying up because of the ever increasing temperature in Kerala in between December to May, could be replenished through the point well recharge in the span of a next few years. Now, more than 400 households have come forward for installing roof top rain water harvesting structures for point recharging of their own wells by taking advice from the work of SSET in the Panchayath. SSET gave both theoretical and hands-on training on point recharging of wells to 30 participants of Koratty Panchayath.

- **Development of Water Quality GIS for Koratty Panchayat in Thrissur District**
  SSET students in association with Koratty Panchayath has collected water from 190 drinking water sources like domestic and public wells and analyzed for various water quality parameters as per Bureau of Indian Standards. All the water sources were later documented using geographic Information system (GIS) to prepare a water quality atlas. It was found from the results of analysis that 90% of the drinking water sources were contaminated by Coliform bacteria. Another significant observation was the presence of high acidity, Iron and Fluoride in certain wells. Remedial measures were advised and the Panchayath has adopted necessary measures promptly.
  This water quality atlas will be extremely useful for the water related planning process in view of decentralized planning process of Koratty Panchayath. The atlas is prepared such that it can be updated every six months.

- **Water Audit at City Scale for Kochi Corporation**

  Water audit helps in the estimation of overuse and misuse of water. SSET faculty and students conducted water audit at the city scale to allow Corporation to understand the potential sources, the ward wise and sector wise demand for water and the spatial variation of scarcity in the corporation area. SSET analyzed the secondary and primary data collected in this study to develop the water balance for the city and using GIS platform mapped the water stress in the area for the present conditions and for various scenarios in future. Students of SSET worked along with the women self-help groups to collect the primary data from the city.

5. Evidence of Success

All the above mentioned activities allowed the students to implement their knowledge at the grassroots level which is unique in the Indian higher education. Following outcomes of these activities give evidence to its success.

- Koratty Grama panchayath grouped women from the locality into a “Water Brigade” and gave training at SSET. These trainees are now capable of disseminating the idea of roof top rainwater harvesting to the interested persons in the Panchayath, and also carry out water quality monitoring periodically in the locality to ensure the availability of quality and quantity of the drinking water.
- Koratty Grama panchayath realized the importance of conserving wells and ponds in the area and created funds for the protection of the same in the locality.
- Kochi Municipal Corporation formulated the first ever local water policy to deal with the water issues in the city based on the background studies conducted by SSET faculty and students as part of academy societal interaction.
- Our NSS unit works in close coordination with SCMS Water Institute and activities that cut across teaching, research, and service is regularly undertaken. Drinking

water quality analysis of wells in nearby Panchayath; holistic survey of water, waste and energy in Koratty Gramapanchayath; total social health survey, as the initial phase of the solid waste disposal, water resource conservation and energy management in the Panchayath etc. are some examples.

- NSS unit also conducts computer literacy and e- literacy programs for housewives in nearby Panchayaths as part of women empowerment initiative.

6. Problems Encountered and Resources Required

Apart from the financial and human resources, implementing the practice required developing interaction skills in students and faculty of the institute. There is a need to translate and communicate technological knowledge to the level at which common people can understand. Our higher education system never teaches students on how to communicate the concepts they learn to an uninitiated person and this was a challenge faced during the implementation of this practice.

Time is another important factor as most of the time solutions can evolve only after educating the society. Finding enough time for implementing this practice from the regular academics is also a problem that needs to be addressed.