

8. DRAMATIC RESULTS FOR IUCEE IN PRIVATE COLLEGES OF STATE OF MAHARASHTRA IN THE WESTERN REGION OF INDIA

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Abstract

The state of Maharashtra has shown that dramatic results can be achieved in their private engineering colleges. Maharashtra had most of its 185 participants from private engineering colleges. Faculty have shown their resourcefulness in following up with significant activities and results after 2008 Faculty Leadership Institutions (FLI).

BACKGROUND

The state of Maharashtra with population of over 100 million is a progressive state in the Western Region of India. It has a rich tradition of high quality education facilities and cultural heritage. College of Engineering, Pune, the third oldest engineering college in Asia was started in 1854 and V.J. Technical Institute, Mumbai (Formerly known as Victoria Jubilee Technical Institute) founded in 1887 have produced many legendary engineers. Other prominent Technical Institutes in the state include Indian Institute of Technology, Bombay and Mumbai University Institute of Chemical Technology, Mumbai.

Earlier, the professional courses such as Engineering, Medicine, Pharmacy, Architecture, Management, etc. were taught only in Government run institutes or State funded colleges with limited intake capacity. Considering the demand for such courses, the State Government allowed for starting of private professional colleges in 1983. Initially few educational trusts came forward and 20 engineering colleges were established with the

intake of around 6000 students. Subsequently, the number of institutes went on increasing and currently there are 13 Government aided and 240 unaided/ private engineering colleges in the State with intake capacity of over 80,000¹. Hence, today Maharashtra is one of the leading states in India in the context of spread of technical education. With the rapid increase in number of institutes, there is a lot of apprehension in the sphere of educationalists and industry, about the control mechanism for the quality of delivery of technical education. Their concern has several dimensions including the sinking competency levels of an engineering graduate, lag between the curricula of present programs and global requirements, unavailability of higher-end faculty, rigid and orthodox strategies of government machinery, insufficient training opportunities and lack of effective evaluation and follow-up mechanism, poor interaction of faculty across states leading to intellectual isolation and so on.

THE IUCEE IMITATIVE

With number of private institutes coming up in the state, there is shortage of good quality

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teachers with global perspective. In order to improve the quality of and global relevance of engineering education in India, the Indo-US Collaboration for Engineering Education (IUCEE) program was conceptualised². Activities of IUCEE in India have been planned to reach 80,000 faculties with "train the trainer approach" through the FLI08 and FLI 09. Now, the trainers have been trained and training kits (resource material) is also developed. The next step of identifying regional centres and setting up a network of Regional Centres in India was done by the Directors of IUCEE. In Maharashtra two Regional Centres have been identified based on the response and participation in FLI-08. Regional Centres identified are

1. **Pune Regional Center** - It includes colleges in the districts of Pune, Mumbai, Thane, Nashik, Nagpur, Nanded, Aurangabad, etc. Convenor of this Regional Centre is Dr.K.N. Nandurkar, Principal, K.K.Wagh Institute of Engineering Education & Research, Nashik.
2. **Islampur Regional Center** - It includes colleges in the districts of Kolhapur, Solapur, Satara and Sangli. Convenor is Dr. Mrs. Sushma Kulkarni, Principal, Rajarambapu Institute of Technology (RIT) Islampur.

This paper critically and objectively assesses the impact of IUCEE on various aspects like the level of awareness of education-providers, the changes in approach of faculty and administrators about teaching-learning process and benefits for the participants and students due to initiatives taken up. Some noteworthy experimentation from participants have also been cited along with some impressive feedbacks and evaluations of participants. As a result, some intangible benefits have also been noted and some suggestions are made for taking these benefits to a larger section of faculty and students, more effectively and speedily.

MAJOR PARTICIPATING INSTITUTES

Out of the 23 workshops conducted by US professors and industry experts in 2008 at Infosys Global Training Centre Mysore, 21 courses were attended by around 90 participants from Maharashtra. Some of them even attended two or three courses relevant to their field of interest. On returning back from the FLI08, most of them started implementing the concepts and techniques learned during the workshops in their own institutes. They also conducted workshops for the faculty members of other colleges in the region. The awareness created by such workshops resulted in larger response to the 2009 FLI again conducted at Mysore and all the 23 courses were attended by over 95 participants from 43 engineering colleges in Maharashtra. Thus indicating the confidence and belief in the positive effect of training programs and other activities conducted by IUCEE. The summary of major institutes which participated in the both the Faculty Leadership Institutes (FLI) Programs, (FLI 2008 and FLT 2009) is presented in Table 1.

It can be seen that the State funded as well as private colleges having a standing of at least 20 years, have supported the programme in a big way. Since these institutes are recognised as leaders in their own region, they were able to propagate the initiative in the nearby institutes. The participation of 15 Principals/ Directors who are heads of the institute and major decision makers gave a boost and support to the follow-up activities. The participation of three Vice Principals and 15 Deans/ Heads of the Department who also play major role in their respective organisations was important. There were 16 Professors (with PhD qualification) and around 60 Assistant Professors who are typically having a Masters qualification in their field and experience of about 10 years in teaching. The rest were in Lecturer category. The involvement of all the teachers in the follow-up activities has brought in a major change in the teaching learning process and achieving some dramatic results.

Table 1 Summary of major participating institutes

Sr. No.	Name of Institute	Category	Number of participants		Number of courses attended	
			FLI08	FLI09	FLI08	FLI09
1	Rajarambapu Institute of Technology Islampur	Private	13	9	11	7
2	Vishwakarma Institute of Technology Pune	Private & autonomous	18	1	14	1
3	Sinhagad Institute of Technology Lonavala	Private	10	3	8	4
4	Shri Guru Gobind Singhji Institute of Technology Nanded	State funded & autonomous	5	4	5	5
5	Yashvantrao Chavan College of Engineering Nagpur	Private	5	6	5	4
6	K. K. Wagh Institute of Engineering, Education & Research, Nashik	Private	3	5	2	5
7	Maharashtra Institute of Technology Pune	Private	8	4	7	4
8	Pune Vidyarthi Gruha's College of Engineering, Pune	Private	3	5	5	5
9	Vishvesvaraya National Institute of Technology Nagpur	Government funded & autonomous	1	6	1	6
10	College of Engineering, Pune	State funded & autonomous	6	-	6	-

Table 2 Follow up activities of Pune regional centre

Sr. No.	Name of the participant	Institute	Number impacted		Activities/ Achievements
			Faculty	Students	
1	A.D. Kale	VIT Pune	12	188	Use of effective learning techniques resulted in better feedback from Students
2	A.M. Kanetkar	PVG Pune	60	200	Resulted in increased Industry – Institute Interaction
3	Dr. K. N. Nandurkar	KKWIEE R Nashik	100	150	Gave lectures and conducted workshop for faculty members from various colleges
4	Prof. Bartakke	COE Pune	10	60	One minute-take away point was useful for the students
5	Dhananjay Dhakane	SCET, Amravati	77	225	Courses gave new line of action for research
6	Dr. B. B. Shrivastava	P.I.I.T Panvel	120	50	Briefed management and faculty and new learning techniques
7	Mrs. Swapnaja Hiray	SIT Pune	4	145	Developed her own assessment scheme for soft skills
8	Mrs. Kalyani Kulkarni	PVG Pune	60	100	Implemented service learning projects with final year students
9	Dr.S.B.Barve	SIT Lonavala	40	60	Student involvement in class increased and results improved

10	T.J. Parvat	SIT Lonavala	70	120	Prepared the lesson plans and changed style of lecture
11.	Prof.S. P. Mahajan	COE Pune	30	-	A group of teacher colleagues from across different institutes was formed for the study, deliberation and brain-storming
12.	Dr. R.D. Kharadkar	GHRIT, Pune	27	50	Introduced Freshmen Projects and changed the format for student feedback
13	Ashutosh Marathe	VIT Pune	-	60	Applied the techniques for critical skills courses and the students have wholeheartedly been appreciative of the same

Table 3 Activities follow up of Islampur Regional centre

Sr. No.	Name of participant	Course Attended	Activity Description
1.	Attar A. C.	Curriculum Innovation	Active learning through working in teams/ outcome based practicals /learning resources.
2.	Kavade M. V.	PLM using CAD	Workshop on CAD using CATIA V5
3.	Sawant P. R.	Academic Systems and Processes	Students feedback for teacher appraisal
4.	Gramopadhye S. S.	Effective teaching : A Workshop	To review teaching strategy/ to support learning with proper resources.
5.	Thombare D. G.	Curriculum Innovation and Quality Assurance : A Roadmap for Excellence	Implementation of outcome based course for Automobile Systems I.
6.	Jadhav P. M.	Project Based Learning, Sustainable Product Design	Project based practicals instead of small practicals.
7.	Hasabe R. P.	Principals of Effective Teaching & Learning	Arranged presentations and group discussions of final year students by giving then different topics in curriculum
8.	Dr. Mrs. Kulkarni S. S.	Curriculum Innovation and Quality Assurance : A Roadmap for Excellence	Organized two workshops in institute to propagate the message to newly joined faculty.
9.	Telsang M. T.	Curriculum Innovation and Quality Assurance : A Roadmap for Excellence	Developing outcome based course for the subject 'Total Quality Management'.
10.	Pawar P. N.	Engineering Design Projects in Service to Community	Organizing a community development based study activity resulting into a poster presentation for freshers.
11.	Patil R. T. / Dr. Chavan M. S.	Hands on Engineering Using Lab-View	Arranged one day workshop based on Lab-View in collaboration National Instruments, Bangalore.
12.	Mrs. Garud U. S.	Wireless Communication	Arranged presentation and group discussion of students on the journal papers in the area.
13.	Kodavade D. V.	Computer Network Course	TE Comp. – A new subject 'Wireless Teaching' added, network simulation software is distributed amongst faculty and student for conduction of network practical, lectures notes on server for student utilization.

FEEDBACK OF PARTICIPANTS

- IUCEE workshops have transformed me as a teacher after 22 years of working as teacher – Prof. M. T. Telsang , (RIT).
- I personally feel very confident and honest when I talk about the Computer Security in front of my Students-Dhananjay Dhakane (SCET)
- Active learning through working in team has brought a remarkable change in the class room teaching – Shri A. C. Attar, (RIT).
- I have found an effective method of supporting learning with teaching resources to make mathematics interesting to students in Class room – Prof. S. S. Gramopadhye.
- Workshop has inspired me to share the concepts in the nearby Industry and develop interaction with industries. Prof. M.M. Bhagwat, (RMCE, Devrukh).
- Concept like 'What is hot and what is not' helps to keep class room teaching live. Prof Prakash Jadhav, (RIT)

OTHER BENEFITS

- Study tour to US Universities organized through IUCEE in November, 2008, has given a deep insight into technical education in US. The same was shared with faculty across the state and also published in newspapers and a National level journal named 'Association of Indian Universities', New Delhi, India, in August, 2009 issue.
- Some of the institutes were able to sign MoUs with US universities for staff/ student exchange and joint research projects. RIT started two MS programs in collaboration with Lawrence Technological University as a result of US tour.
- One day workshop organized on 'Energy Management' with Dr. Venkat Mani from University of Washington, Seattle on 30-31st December, 2008, through which 25 faculty members were benefitted.
- The Association of Managements of

Unaided Engineering Colleges (Maharashtra) has come forward to support the IUCEE activities looking at the progress done so far

Future plans for Regional centers

The plan to make the Regional Centers of IUCEE self sustaining with resource generation through various workshops conducted in region using the resource material developed by IUCEE is as follows:

- Arranging awareness programmes for the staff members of various institutes
- Arranging presentation of the projects undertaken by the staff members who attended the IUCEE courses and publishing the outcome
- Identifying the institutes in the region for their expertise in particular subjects and helping them in development of course material as per the requirements
- Arranging workshops/ courses for training faculty members in the areas of Learning Factory, Curriculum innovation and technical subjects such as CAD/CAM, LABVIEW, Operating Systems, etc.
- Sharing of best practices among the institutes of the region

CONCLUSION

The private engineering colleges in the state of Maharashtra have been largely benefitted due to the IUCEE initiative. The exposure to world class education techniques and interaction with experts in various fields has widened the horizon for engineering teachers. They have started adopting new ways of teaching, offered new courses and started sharing information with peers. More emphasis is given on practical and real life examples resulting in more interaction with the industries. As per a conservative estimate, more than 10,000 engineering students must have been benefitted due to the initiatives taken by participants of IUCEE courses in the state. Attempts will be done to cover the entire student

community and transform them into high quality engineers who will be able to face the global challenges.

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