

Executive Summary of Department Review – Chemical Engineering

The departmental review was scheduled on January 30, 2014. The members of the committee constituted were Dr. BD Kulkarni from NCL, Pune (Chairman), Prof. MS Ananth (Department of Chemical Engineering, IISc and Ex-director of IIT Madras), Prof. Kumaran (Department of Chemical Engineering, IISc) and Dr. Ajith Sapre (Reliance Industry). The head presented the status of the department on various aspects such as faculty strength and their research areas, growth in student numbers and academic programmes. The department has on rolls 40 faculty, 7 post-doctoral candidates, 787 students of which 174 are PhD students, 25 institute staff and 152 project staff. The committee commended on the curriculum taught at both UG and PG levels. The high numbers of PhD students indicate the increased focus on research. Several new courses, numbering 15, have been introduced in emerging areas that have been taken by students outside the department as well. The courses are run in two batches to reduce student to faculty ratio. The teaching evaluations by students indicate that the courses have good acceptance. 57 continuing education program and 11 NTPEL courses have been taught in the review period. The department has several emeritus, adjunct and visiting faculty to enhance the academic ambiance of the department. The student placement records have been good with 75% of the students placed through the placement office of the institute. 50% of UG and PG students have been hired in core engineering jobs. The committee recommended that training mechanisms for M Tech and PhD students is necessary to excel as Teaching Assistants. Instituting performance based fellowships for Masters and PhD students will help in attracting good PhD students. Space for PhD students need to be addressed (as they are crowded now) for better working space for research.

The research activity in the department is grouped into 6 core research areas, namely, Biosystems engineering, soft matter engineering, Process Systems, Reaction engineering and catalysis, thermodynamics and molecular simulations, energy, environment and sustainability. Several faculty are working in emerging areas of chemical engineering. The department has a healthy publication record of 3.4 per year per faculty. Research infrastructure has been upgraded through funding from sponsored projects amounting to about Rs. 75 Lakhs/year/faculty. Faculty have won several accolades including Bhatnagar (1), Swjnaraayanthi fellowship (3) and Fellows of National Academies (12). The committee scored an average of 8 for research output of the department. The committee commended on the excellent research ambiance in the department. To take the research to the next level, the committee felt that the department should attract good PhD students. The quality of PhD graduates should be continually upgraded to be best globally. Department has high quality and volume of research with focus in Energy, Materials and Healthcare. High quality research performance is uniform across all 6 research groups. Given the diversity, the department should undertake large interdisciplinary projects of national importance. Permanent man-power to house sophisticated instruments is a bottleneck for growth in research. The committee also felt that the technical staff of the department should be more engaged in research for their career growth. Action plan has been worked out to address some of the comments suggested by the committee members.