

Chronicle October 2008 issue
Suggestions for improvement of our institute-Full article
(Article by Himanshu Rai, Mechanical 2008)

As per my observation and after talking to different people, I present my view about needs to improve our institute and steps needed to achieve it.

IIT Step:

One clear message emerged: IT Administration must make a sincere and serious effort to gain IIT status. This sentiment is echoed by other Alumni and students and there is activity to support this cause. We felt, however, that the leadership for this effort *must* come from the Institute. If IT Administration can articulate a vision and clear plan to make conversion to IIT viable, all IT Alumni and students will join forces to make this vision a reality.

We hope our endeavors will scale out to alumni from all batches, multiplying our collective efforts to help IT Administration, Faculty, Students and Alumni to execute a shared, heretofore handicapped, vision of our alma mater as a world-class institute for learning, growing intellectual equity, excelling in academics and imparting key life-skills to the next generation of India's brightest.

Look Beyond IIT:

Lack of funds and geographical position hurts chance of growth of ITBHU.

It is evident in conversion of ITBHU to IITV in few days. What is next your goal? Think ahead of IIT. What IITs do today, other engineering colleges will follow tomorrow.

The ambition of all of us is faulty. We wish to be in TOP 10, hence we revolve (+3 to -3) around this rank. We should aim to become No.1 institute of technology in India. If we cannot dream a dream, we cannot achieve the dream itself. We must take inspiration from ISB, Hyderabad. The IITs are not learning from their own errors nor are they willing to learn from those that are more successful. They are islands of excellence in India. But they lack behind in the world rankings.

What can be done?

A lot, Believe me, we can bring the change.

First of all, there should be common platform where representatives of administration, alumni and students can come together and discuss different things. The administration should give an ear to the things being discussed. So, please register @ <http://www.itbhuglobal.org/>

Students should come up and speak out if they are facing any difficulty. It can be about lack of funds or lack of any facility or anything. They can directly mail to

alumni council about their problems or form a student council with C.R. from each branch selected like T.P.R.

Take the example of ISB, Hyderabad. It has reserved a place among the top B schools in India in no time. It has made so much progress that people have started to prefer ISB to IIM A. The reason behind this trend is that ISB have done so much to maintain the aura of exclusivity of the Institute. If we can do something similar ISB has done, then there is no doubt that we shall be one of the best engineering colleges in India and who knows JEE toppers might want to join IT BHU instead of joining any other IIT. Our alums are at very prestigious positions and we can come together to make our Institute the best in terms of facilities; in terms of benefits; in terms of academics; in terms of anything that comes to the mind of the students when they opt for a college during the JEE counseling.

Goals:

Stress on How to think than What to think.

Each institution should set its future goals and document its success/ failures. Individual departments/ groups also need to be reviewed. The mechanism /process of review need to be discussed with the major stakeholders –faculty, administrators, industry, government, students and alumni. Industry/ professional bodies should be involved in the review process.

I do not have any idea of the existing quality improvement programs (QIP) implied in the institution. During the summer and winter vacation, focused two week modules covering the providing recent advances in the field should be provided by each department. Apart from this, discussions on methods of teaching the subject, course material etc. in a workshop mode would help. The new QIP modules should include post-course evaluation and follow-up. *Cash incentives, salary increments and links to promotions will help in inducing faculty to participate actively in these programs.*

The good majority of students are content with a good job and not many aims to establish higher benchmarks in their life. This rather unfortunate mindset, apart from mirroring the booming economy and the concomitant surfeit of jobs, is also a reflection of the '*chalta hai*' attitude of a rustic IT-BHU which is all pervading. Starting from the students to the teachers, lab assistants and the people in administration to the students, everyone gets bitten by this mediocrity bug. There are always exceptions but they only serve to emphasize the general rule. Considering that every one guy/gal out of 10 who steps onto the portals of this institution is a school topper/ NTSE scholar/ national quiz winner etc, it is rather surprising that the same commitment to excellence takes a nose dive two years into their graduation.

Join ITBHU, Why?

To make matters worse, India Today doesn't rank your college in the top 7 (We know that these rankings don't matter but to many confused teenagers, they do seem like the Gospel truth)

- The IT BHU section in the JEE brochure talks more about the trivial details than giving information about the IT BHU's vantage points over the other Institutes that participate in the admission process.

- I don't know anything about IT BHU that makes it different from other institutes that admit students through JEE.

- It doesn't answer all the questions that come to mind of the students when they opt for a college during the JEE counseling.

- It doesn't talk about IT BHU alumni who have made a difference.

- It doesn't talk about the opportunities a student will get if he opts for IT BHU.

- It doesn't talk about the state of the art facilities, a student will get if he/she joins IT. Actually, we have none so the purpose of mentioning this point is self defeated.

- It doesn't talk about how joining IT would give its students a head start in their career.

-We have always been the perennial underdogs, bereft of media spotlight and press coverage. Outside North and West India, it is a non-entity

Fresher Year:

Much of first year then, is spent trying to beat the hangover that refuses to relent. Academics suffer and so does your self-belief .This is immense loss of Enthusiasm for academics and frustration over system irregularities appears in all students. First Year is spent around Discussions centre—did we make the right decision? — Question and heated discussions ensue late into the night about how we would have been far better off had we been at an IIT. . Most first year students lack the ability to look at the bigger picture and would incessantly gloat over the placement statistics of the institute - even not fearing to pose questions regarding the same to seniors — just so that they could find a perspective on their institute that they have worked so hard to get into but which they find erroneously and to their dismay, lacking in stature to give them the recognition and acceptance that

they had considered a natural byproduct of being successfully tested by one of the toughest examinations in the country.

Collaborations:

Collaborative projects are successful when done through professional networks, not with the state as an intermediary to substitute for poor quality. The only meaningful way would be to develop better research universities whose faculty and facilities are good enough to attract collaborators from around the world. Memoranda of Understanding (MoU) of institute with industries in R&D sector must be signed. The real advantage of collaboration directly goes to researchers and PhD students. Undergraduate students will be benefitted in long term.

- We can collaborate with research labs, universities (if not foreign then at least with Indian big shots such as IITs, IISc, TIFR, CSIR, DST, TIFAC and ISI).

-To create a database of the existing collaborations IT-BHU (not BHU) has with universities/organizations in India and Abroad.

-There are only 7 MoU (Memoranda of Understanding) with other foreign technical college in the history of IT BHU. Our website gives no knowledge of any type of national/international collaborations..

-A formal tie must be made in various Inter-disciplinary Courses with BHU even after acquisition to IIT status. Programs of collaborations of BHU with foreign universities must be pursued and reviewed under the label of ITBHU (IIT Varanasi) separately. Deal of BHU with these universities must be extended for future networking with these technical institutes.

-A challenge facing engineering education in India is getting students excited and enthused in engineering. The focus of the curriculum / education system is on analysis and mathematical formulations. Students often do not appreciate the hands-on component of engineering components / systems. There have been initiatives by individual faculty to bring in these linkages through special classes, laboratory sessions and technical competitions. One of the initiatives that have been successful at IIT Bombay is Techfest in Technical Competitions. Encourage communities like TAC and technical festival like Technex.

-Alumni can sponsor students for filing patents or publishing papers and can donate different software, which students can't afford on their own, to the different department labs.

-One year exchange program of faculty of ITBHU with other premier colleges of India. There should be establishment of Chair in a department and fund should be shared by both alumni and institute. It allows a representative from department to work abroad in creative exchange of faculty.

-The linkage and commitment of engineering institutions to the nation's development is essential before the engineering colleges can aspire to make a global impact. The history of development of most leading global institutions shows strong links to regional and national development. For ex: Centre for technology entrepreneurship promotional program to fund project up to 10 lakhs in Eastern UP. Technology Business Incubator (TBI) at IT-BHU focuses in the field of Information and Communication Technology (ICT) and Bio Technology. We have received approval letter from DST (Department of Science & Technology) regarding TBI. Two thrust areas e.g. ICT (Information and Communication Technology) & BT (Bio-Technology), Food Sector & Agricultural & Allied sector are key features of his development.

-There are several immediate challenges facing India – power shortages, flooding, and water shortages. In many cases there is a need for development for cost effective technologies based on India's resources for example in the energy sector technologies for gasification of high ash, low sulphur coal (that occurs in India) and nuclear power cycles based on Thorium are India specific needs that are not technologies required for other countries.

The top 10 Indian firms, put together, invested 477 million euro last year for R&D, less than one-tenth of the world's biggest R&D investor Pfizer. The more bucks for more bang argument is true to a certain degree, and modern research requires high upfront investment. Yet the question that needs to be asked is not whether the government can allocate more funds for R&D (it probably can't), but rather what is it doing to incent the private sector to invest in R&D work? The world over, basic science is strongly dependent on government funding, and if anything, this dependence is getting stronger. The quality of education in the university largely depends on the quality of research being carried out in it. The research priorities have already been identified and R & D projects are being submitted accordingly to

different funding agencies. Collaboration with industries, universities from developed countries and other premier institutions are being encouraged.

Industry linkages:

A key factor in improving the engineering education in the country has to be a new model for industry – academia partnerships. The following specific suggestions can help:

- Industry's recognition of the need for skilled post-graduates (M. Techs /PhDs) for research, development and design.
- Industry role in defining key research areas, potential research problems.
- Academia to be responsive to industry's future manpower and special training needs.
- Sponsorships of M. Techs and PhDs with attractive fellowships.
- Establishment of research consortiums in different areas (e.g. automobile design, VLSI) of interest to industry groups to provide the long-range research thrust that would provide Indian industry a future competitive advantage.
- Encourage experienced industry engineers / managers to associate with engineering colleges as adjunct faculty / or as advisors and encourage experienced faculty to associate with industry in advisory / visiting. Though the interactions between academia and industry have improved in the last decade, there is significant scope for further improvement.
- Institute Industry meets – Discipline specific open days (consisting of exhibitions, lectures, discussions) can be organized where industry professionals get an idea of the current courses offered, ongoing research and technology development and future plans. These exchanges can also provide useful feedback to the engineering departments.
- Projects in industries like DLW, BHEL must be encouraged and taken by professors assisted by the students.

ITBHU website:

ITBHU official website is a virtual face of Institute to the outside world. Reviewing the website and providing inputs to the team must be made after each semester. Be it the updates on research, course content, placement statistics or even the last date of GATE interview it is invariably the Institute's website that is referred to for such information.

-Mostly Hard copy is sent to computer center for uploading by administration. A soft copy of each notice must be available on the website.

-Web Management Group (WMG) must be given professional assistance by a web consultant.

-To top it all, the website is a significant input for college rankings done by many organizations.

Name, AIR (Gate score or percentile) and roll no. of all students must be made available at their respective departmental website. All B. Tech., M. Tech. and PhD students are included in this.

-Gymkhana web page is not updated from years.

-Make a list of eminent alumni and ex-professors and put it in each respective departmental website.

The profiles of teachers are not updated regularly. A request from alumni association must be sent to update their profiles at ITBHU website.

-Ban on social networking site must be lifted. They are regularly used medium of students to connect to alumni and various interactive fields.

-All academic and extra curricular Achievements of current students must be mentioned in departmental website.

-Student's teams contact TPO and the current batch of 4th Yearites and compile a list of reputed research organizations where the students have gone for their summer trainings/internships.

-Lack of Self Evaluation. To put a case in point; take the case of— Satyendra Dubey and Sandeep Pandey. There is no mention of people like Satyendra Dubey in institute official web site. Without trivializing the issues that his tragic death—

How many of us were even aware that after completing his bachelors from IITK, he went on to do his masters from IT-BHU? He was an IITian who had to pay for towing the thread of morality with his death but did a single newspaper mention, even offhandedly, that he was also an ITian? No one had a clue of the fact that Dr. Sandeep Pandey, a scientist-turned social activist and a 2002 Magsaysay award recipient, had done his bachelors from IT-BHU before proceeding to earn masters from IITK and a doctorate from UCB.

Steps:

-Results are delayed inordinately and getting even the simplest of things done entails a lot of running around. Examination Results available online and results should be declared within 15 days of examination.

-Supplementary examination must be taken semester wise not on yearly version as prevailed due to BHU association.

- There is lack of facilities and funds for the labs. Several institutions are planning financial rewards for performance (e.g. cash incentives for international journal publications, payments for course loads above the average

-IE, IEEE or ASME chapters must be given financial support by each department.

-A 3 year program for tenure of new director must be made. Progress must be reviewed by alumni, administration and student representatives in each semester.

-Submission of fees via SBI ATMs not with drafts only.

-Local computer network at a department level which could then become the nerve center for the department and share documents, notes, assignments etc online must be formed. Formation of knowledge bank o summit BTP, internship and PhD thesis report in soft copy form accessed only at intranet in library. The management of knowledge therefore must move out of the realm of the individual and shift into the realm of the networked groups. The students must learn how to manage knowledge collectively. When the information is networked the power and utility of the information grows as square as stated by Metcalfe's law. Information that is static does not grow.

-Lift the ban on 3rd and 2nd year student's foreign training. Stipend training must be promoted. Research oriented students prefer training at foreign universities than any training at industries.

-Collaboration with Design colleges () and sent top 10 students resume to these college for internship.

-Lectures and Notes online like IITM (Take support from NKC; National Knowledge Commission)

-Book Fairs (fiction as well as non fiction) and technology exhibition.

-A library that remained open till late in to the night. Not open at academic hours. Ban the issue of books from library. Reading culture must be adopted. Photocopy of lectures or books must be done at library.

-Photocopy machine at each hostel of ITBHU must be made available.

-New hostels are must necessary for accommodation of new students as no. of seat is increased excessively in few years.

-Internet must be available 24 hours a day. Sensor on timing of internet surfing is wrong. Everyone surf internet according to his own convenience.

-List of consultancy patent and international journal published in each department must e made public.

-The use of yearly funds or financial records should be made public to students, alumni and teachers.

-Tender processes should be made more transparent and online. RTI act must be enacted properly.

Curriculum:

Academics at ITBHU were not designed to encourage creativity and self-expression, but more to ensure that students learnt the stuff that was taught almost by rote. People did just the minimum required to get a 1st class and focused time on extra-curricular. 90% were there to clock the attendance!

IT-BHU needs to constantly upgrade its curriculum to adapt to the needs of the industry and emerging technology trends. Apart from technical skills students need to develop the ability to Innovate and work as a team in an increasingly

multicultural workplace. These are areas where the Institute can help mold the students.

-Invite alumnus like Prof. Pankaj Chandra and Prof. T. A. Abinandanan in alumni panel, mostly all alumni are in industries, The point of view of teachers must be well voiced.

-Education in science and engineering relies heavily on hands-on experimentation using expensive equipment in laboratory courses; research in these subjects also requires similarly expensive equipment. On the other hand, departments in social sciences and liberal arts are not so burdened.

-Macro and micro economics, Design and creative arts, Industrial management, humanities and social sciences should be incorporated as a credit courses in each semester. Zero credit courses have been given no value by students. They devote less than 10% of time to study. Increasing no. of subject do not burden them with load of study. It's the maintenance of no. of classes and min. attendance which takes energy out of student.

- New Courses of Study at IT-BHU like Aerospace Engineering, Petroleum Engineering, Bio-Informatics, etc. must be introduced. Diverse branch like Biotech, Energy (Non conventional), Environmental, Nuclear engineering must be opened as early as possible. The growth in new technology has established them as future fields of high growth.

- The curriculum is not interesting. The curriculum should be redesigned to introduce more electives so that students have more choices. Also there should be more opportunities of carrying out research projects. It's a lot theoretical, with very little scope of doing simultaneous practical projects. That is the reason why many ITians go to the IITs for summer internship projects.

-Undergraduate education, which should provide the broad base, has increasingly become single-field oriented, neglecting vital support subjects. Three IITB, IIT Delhi and IITR have reduced the minimum number of credits that a student needs to graduate, while at least two other IITKGP and IITM are considering offering their students the same flexibility. The overhaul at most of the premier government-run institutes reflects a significant change: to break out of the rigidity of courses and curriculum, to ensure graduates are prepared for the demands of a new global economy.

- Shortage of Faculty and Lab technician must be filled.
- Students neglect study after joining engineering colleges. Undergraduate education, which should provide the broad base, has increasingly become single-field oriented, neglecting vital support subjects.
- Both Tutorials and lectures must be taken. Currently, no tutorials are held by most of teachers.
- Arrange such that of the 40 courses during the undergraduate program, at least 5 be in humanities and social sciences, 5 in physical/natural sciences.
- All the obsolete courses should be removed from the curriculum. Are workshops essential for all the streams of engineering? As of speaking of Computer Science, it seems completely irrelevant to learn about carpentry skills. Carpentry skills are useful in daily life, but definitely not necessary for learning concepts of computer science. Similar are other workshops. Cutting long story short, it is necessary for us to modify our curriculum, so that students do not spend their time in doing things, which they will not need after getting grades.
- Language classes diploma 2 year (limited seats) after regular classes. Diploma of language classes must be affiliated from the institute.
- Lectures from IIM professors, entrepreneurs, CSIR scientists and CEO of top industries must be invited for guest lectures. Atleast 5 in the semester must be done .All the travelling and lodging charges must be taken by institute.
- Communication skills are weak point of most of ITBHU students. G.D. and presentation are in 4th year. Student loses interest in them after getting job. They must be moved to 3rd year syllabus as a step to polish communication and presentation skills.
- Books like Vision 2020 must be incorporated in first year syllabus.

PhD:

The seven IITs in year 2006 awarded about 6000 engineering degrees. On an average each IIT awards 330 B. Techs, 490 M. Techs and 40 engineering PhDs annually. This implies an average total engineering output of 860 per IIT. The outputs of the existing IITs should be increased to about 2000 per IIT in 2017.

If, Both M Tech and PhD of a student are done at same institute, they cannot teach in that institute for time span of 1-3 years. They should prove their potential in other premier institutes first. They end in getting jobs as a lecture in same institute by previous arrangements.

This needs a three-pronged strategy:

(A) Attract good students to the PhD program. How can this be achieved?

- i) Increase the PhD fellowship amount
- ii) Involve industry to sponsor special doctoral fellowships.
- iii) Special outreach / publicity to potential students.

(B) Improve / Enrich the PhD experience.

- i) Treat PhD students as special. Provide them modern offices with access to good research facilities.
- ii) Provide funding to attend international conferences
- iii) Increase the rigor of the Ph.D. Provide special PhD level coursework.
- iv) Facilitate the exchanges between PhD students, faculty and industry through annual national workshops.

(C) Facilitate challenging jobs/careers after Ph.D.

i) Special efforts are required to ensure that industry provides challenging careers and attractive salaries to fresh PhDs. A recent initiative by the Confederation of Indian Industry (CII) Western Region focused on circulating the database of graduating IIT Bombay PhDs and their thesis topics to the CII members to encourage the companies to offer them rewarding jobs.

ii) Seed grants / Loans and access to venture capital could be provided for

PhD students who wish to commercialize their research results into technology products.

It will discourage poor teachers from brilliant one.

Role Models:

Having role models and mentors at a very early age does help. Academic performance matter at the beginning of the career, as premier companies prefers to select candidates with a certain minimum performance. Alumni advice to you is to develop deep specialization earlier in your career, innovation is essential to success in today's world and this cannot happen without specialization.

No one knows Sandeep Pandey and Sathyu Sarangi as their alumnus and technocrats like P. Ajayan, T. A. Abinandanan or writer like Vikram Karve.

ITBHU Chronicle is putting such things together and it must receive a vast applaud from all of us.

Branding the name:

The cardinal yardstick for appraising the true merit of an educational institution is the value-addition it instills in its students and not talking of utility value alone; but more importantly the inculcation and enhancement of intrinsic values. The student should feel he or she has changed for the better, professionally and personally; and so should other stakeholders observing the student from the outside be able to discern the value enhancement.

The fact is that in India, second-rung is not good enough. We are a cut below the IITs but it is also true that we are a cut above the rest. This view, however, would never find a place in the mainstream consciousness of the people. To most of us, there are the IITs, the IIMs and then there are the also-rans. Make the profane mistake of talking about FMS, or SP Jain in the same breadth as the other institutions and you are most likely to run into derision, ignorance and what have you.

In reality we don't have much to talk about except the placements. Students are not motivated; they keep cribbing; they are in low spirits. The only reason for the good placements has been that ITBHU's linkage with JEE. With the coming of the 6 new IITs, only the low rank holders will join ITBHU. (I assume ITBHU will now open around rank 3500) This change is surely going to affect the reputation of our Institute. It may happen that no big shot companies will come to the college campus for recruiting.

Internet connection in hostels, Wi-Fi Project, Availability of E-Journals, Activation of institute email id's, library computerization and several other things gives the positive input for institute and students. We hope to make these achievements in the habit not few milestones. END