

# The Empire Strikes Back

*The thieves who had the whole of IITB terrorized for the past few months are finally behind the bars. A report by Prateek Singh*

he recent spate of thefts had left everyone shaken and stirred but essentially helpless. In fact, there is not much one can do if thieves break into ones locked room after cutting the window bars which had become the standard modus operandi of the thieves.

This had put IIT Security under tremendous pressure. The end of October brought the much needed respite to everyone. On and around 30th October, the gang of thieves carrying out the serial thefts was busted. They were then handed over to the police. Currently all the held persons have been sent to police remand. As on 6th November, the remand is likely to be extended by another 7 days.

The articles stolen, which include utensils worth 15 thousands each from both Hostel-1 and Hostel-5 were recovered. A few articles stolen from individuals were also recovered. Nexus with some hostel workers is still under investigation with some hard clues in this direction.

In a related incident, on 30th November, there was an attempted break-in in Hostel-9 which was thwarted, thanks to the alertness of the inmates. Some hostelites on hearing noises from outside their window raised the alarm. The watchman was also informed. They then approached the Boundary wall. The watchman stayed ahead and as soon as he looked over the wall, the thief hit him with a stone fired from a catapult. The watchman was fortunate that the stone missed his eyes. All the same, he suffered serious injuries on his forehead and had to be taken to the hospital for it. The security officer later informed that the thief was part of the same gang and was also rounded up later with tips from his own accomplices.

As further remedial action, installation of a fence extending from Hostel-9 to Hostel-6 has been approved and is likely to be completed by the end of November. Undergrowth behind Hostel-5 has also been cleared and floodlights will be put up over the hostels to light up the area.

A commendable job, indeed, by the security department. We hope the tempo generated does not die down.

# To fake or not to fake!!!

*The Merit cum means scholarship, a travesty of truth. -- the InsIghT team*

We live in a place which claims to be one of the most intellectually stimulating places. In fact, when we come here we are told that the people we are going to meet are a bunch of extremely motivated, fired up people with a vision for their lives.

Recently, it was announced that the authorities are planning a crackdown on all those people who have been fraudulently claiming the Merit-cum-Means scholarships. First thoughts that come to the mind, why does the institute have to play moral policeman for me and my friends? Are we not socially mature enough to be able to take such basic ethical decisions for our way of life?

Writing a hitting article, to appeal to the good senses of the non-deserving people was never going to be easy. For what does one explain: the profound implications of cheating or the fact that they are actually depriving a more deserving person? What does one say to people who wish to move around on bikes and flash cellphones, thereby ensuring that some of the parents are forced to compromise elsewhere for their child's education.

HOW can the supposed "cream of the country" indulge in such fraud of the worst kind is the question of the hour? That too, with respect to an element which is expected to help us differentiate RIGHT from WRONG - Education. In a place, which is supposed to not only make us good technocrats but good citizens.

Is this not cheating on the basic purpose of education? The problem seems to be a complete absence of conscience and morality, compounded with a lack of any respect for the people around us.

At different points of time we all decry the absolute lack of morality in the civic system of our country and the all-pervading corruption. Think about it, (un) knowingly it is the same class of people we so loathe, whose footsteps we are ending up following.

The attitude seems to be one of apathy towards everything we don't own. This institute isn't ours, the other students aren't our responsibility. So fooling the institute at the cost of some other students can't be wrong, can it? In turn the only thing we have ended up with is zot self respect, zot attitude and zot faith in ourselves.

The one and only solution is for each of us to individually understand our responsibility as a part of the system and press upon all those who wrong the system, whether they be our friends or our foes. For if we make the mistake of letting them exercise their free will, they are going to end up as losers tomorrow and we will be as much to blame. The choice is: either we can act as responsible caring friends or as accomplices who are as much a part of the problem if we are not a part of the solution

A thought to end, some of those very people who are so fooling us all and themselves, will cite corruption as their reason for not being able to live in India a few years hence.

# AN INNOVATIVE DESIGN FOR A CREATIVE LEARNING ENVIRONMENT

*Prof Uday V Shenoy contemplates on methods to create a learning environment that arms students to face the challenges of the highly dynamic and competitive world.*

Not so long ago, a four year degree equipped a person for a forty-year career. However, things have dramatically changed today. In a perpetually innovating world, education must equip a person with the ability to continuously learn throughout one's life and adapt to rapidly changing technologies. Education must provide the twin guarantees of security & mobility to smoothly move over to different career paths and different organizations.

What should the IIT curriculum aim at? Should it train a student “to create opportunities by seeking problems” or “to seek opportunities by creating problems”? Probably both. Creativity, problem solving and seeking opportunities are important attributes that every student must develop.

Any curriculum focuses or must focus on four broad aspects :

- 1) Knowledge or factual information
- 2) Problem solving or cognitive skills
- 3) Creative thinking or meta-cognitive skills
- 4) Attitudes

The design of the current curriculum focuses on the first two aspects and virtually ignores, intentionally and unintentionally, the other two. The defense is simple. Creative thinking cannot be easily taught. Development of right attitudes is the responsibility of schools, that handle it through a half hour period of moral science every week in the early years.

Today, knowledge or factual information is available in abundance through books, journals and, of course, through the all-pervasive Internet. However the ability to access the right information as quickly as possible assumes more importance than the information itself in many cases. The task has been reduced to familiarizing the student with a routine set of problems and then testing the student with very familiar problems. Most students do not like to be faced with challenging “unseen” problems because of their over concern with getting good grades. Isn't this a myopic vision ?

There is clearly a vital place for creative thinking and development of attitudes in a curriculum of the future. Some simple ways to promote creative thinking amongst students are to design problems with insufficient data and/or redundant information and problems that are not well defined. For example, students may be asked to come up with a design plot without specifying the variables on the two axes in the problem, rather than to derive a relation between two specified variables. From, school days we are accustomed to a model answer. This appears to continue in most students who wish to see a unique answer to each problem. Students must recognise that problems with several

possible solutions are very common in the real world. In this context it will be meaningful if the case-study approach, quite popular in several management programs, is integrated into the present theoretical framework.

The strongest candidate for development of creative thinking in the curriculum is the final year project. A fundamental change is desirable here. Creativity is called for in the very first step of defining the project. Rather than the current practice of faculty defining the projects, students must be encouraged to come up with their own project definitions. In fact, the “late night chat sessions” in the hostels could be fruitfully exploited by students to define topics of an interdisciplinary nature. Students from different departments should work on the same project, but different aspects of it. Emphasis should be placed on delivering something tangible (e.g, a device, a software, a new algorithm, a research publication or product in general) at the end of the project.

Attitudes Development of the right attitudes in students is a critical component, if not the most important component. Students should recognise the importance of honesty, professional ethics and a value system. An Honor Code needs to be established by which students are treated as honest, until proven otherwise. The Honour Code is an undertaking by the students, individually and collectively, that they will not use unfair means in academic matters. Penalties for violating the Honour Code should be stiff and strictly imposed. The academic honesty of the students should be tested by innovative means such as take home examinations. Take-home examinations add a new means to the evaluation process and can be offered in various formats (open-ended, fixed-time, open-textbook, open everything including consulting the library). Some of these formats stimulate the real world scenario where there is no obvious time limit in inventing something or making a discovery and the whole library is at one’s disposal. Solutions to examinations must be discussed by the instructor, and the students could be given the opportunity to grade the papers of their classmates. This saves the instructor some valuable time and, more importantly, makes the students aware of the subtleties and the probable mistakes they can commit in the examination questions. Some schools currently implement this correction methodology for children in lower grades. Is there a sharp degradation in our standards of honesty as we grow?

Students should learn elementary skills to make themselves effective members of an organization. Many today realize the importance of being able to effectively communicate ideas orally and in writing. Only a few have realized that it is important to “dare to learn, and learn to dare” and to have the ability to direct one’s own work, career and contribution to the society.

What is clearly needed is a design of an innovative curriculum that provides a creative learning environment rather than an unimaginative teaching system.

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*It is noteworthy that Prof. Shenoy has employed unique teaching techniques over the years for his courses. He has conducted open book exams, given take-home exams and assignments, given indefinite time to the students for exams in an effort to make them come up with final answers to the problems. At least one of his quizzes is evaluated on a no-partial marking basis to inculcate in the students the appreciation of the fact that in the real world one is finally expected to come up with solutions rather than present the method of solving the problem. His innovative teaching methodology and evaluation strategies have been very well received by his students who are very appreciative of the same.*

# First Year Blues

*First year courses mark a transition from school education to professional education and are expected to play an important role in setting up the intellectual foundations for all young minds that come to IIT. However, many students here feel that the design and conduction of these courses is not done to the best of their satisfaction. **Harsh Roy** takes a critical look.*

The transition from school to the Indian Institute of Technology can be difficult for many young adults. First year at IIT is usually intense, compared to prior college education and demands a quantum of adjustment, both academically and socially. It can be an exciting period, but overwhelming as well.

The first year curriculum has the potential of being the breeding or the burial ground for the aspirations of students. Unfortunately, when compared with the curricula at other top technical institutes at home and abroad our first year courses seem to be falling short in several ways. (It may sound relevant to mention here that we were rated somewhere near the bottom in curriculum standings vis-a-vis other apex technical institutes (mostly IITs), in an “India Today” survey). There seems to be a general perception among students that the first-year courses at IITB fail to inculcate the desired interest for engineering and science. This could even be the major reason why students are dis-inclined to increase their technical knowledge base beyond what is taught in the confines of a classroom. Contrast the huge participation and herculean efforts invested in PAF and socials, to the meagre turnout for a Tech. G.C. event. Talk to sophomores on their first year experience and 9 out of 10 will probably say that first year courses were too theoretical, too abstract and not inspiring enough. Significant parts of the theory courses were verbatim copies of the JEE syllabus, most would agree.

At the time of JEE counselling, there is a dizzying array of options available to students. Choosing among them can be frustrating. The fact that the rest of your career may depend on the choices you make then, does not help matters. Fresh from school education, one can hardly expect a student to be informed enough about the scope and prospects that various engineering branches provide. You are served with half-baked recipes like “chemical engg. is all about chemistry”, “Kanpur is for maggus”, “KGP is for bengalis”, the list goes on. The so-called “career counsellors” can be highly biased for a branch of engineering and can veer your decision, a decision that you might have to regret for the rest of your life. Compare this scenario with the curricula in universities in the US and you begin to understand where the difference lies. The first year curriculum in all US universities stands apart with a number of electives, academic flexibility and a high degree of intellectual freedom provided by the program

All top engineering colleges abroad have the provision of choosing the discipline only after the completion of first year. The first year is meant to be a period of exploring one’s interests and to serve as a preparatory platform for the following years. As a step in that direction, an introductory course in engineering, giving an overview of all the

departments is an integral part of the first year curriculum (See box). An English usage course is also a permanent feature with the aim of improving the general usage of English. Such a course will not be out of place in IITB as many students are not proficient in the language and this hampers their ability to actively participate in classroom discussions and present information and opinions effectively in an oral or written format.

The first year should be the time when one gets to “do” engineering, not just read about it. A glance at the first year hands-on courses abroad, drives home the fact that they are meant only to inculcate an interest in engineering. And are our weary workshops as interesting as we could hope them to be ? Most students express dissatisfaction and a strong dislike for the workshop activities and raise the question of having a workshop course in each of the first two semesters. It’s acceptable that a BTech. degree must equip one with the fundamental knowledge of engineering but won’t it be more desirable to have just one course which covers some basic workshop activities ?

Even the lab courses in the first 2 semesters leave much to desire. The laboratory courses ought to be designed to augment the theory taught in lectures, for a better understanding of the subject. A critical look at our first year labs will make it evident that they are in little consonance with the parallel theory classes. Particularly, the chemistry lab course, where you have to effectively mug a topic without feeling a need to go into its depths, just to fetch viva marks. Consider as an example, the TLC experiment, where students are enquired upon all types of chromatographies under the sun, reagents used in each etc. The poor student has to dig through the annals on the topic in the library, not knowing what questions might pop up. All calisthenics, just to forget the topic once the experiment and the viva since his theoretical understanding does not relate to what he does in the lab. Physics experiments lack sufficient backing of theory. The detailed instruction manual spoonfeeds the modus operandi of each experiment. One can mechanically do the experiment without feeling the need to understand the science behind it.

Also it would be a good idea for students to be given more freedom of choice and be allowed to choose an advanced course if they are equipped enough for the elementary courses. An experiment along these lines was conducted at the Ohio state university. Our CS101 course can take a cue from such successful experiments. The course, in its present form, provides an easy passage to students who have already done a programming course. A course in advanced computing may be devised for such students. The underlying principle should be that in class and outside, education should be designed to enhance your career prospects and give you a competitive advantage when you graduate. “Practical application of knowledge” holds the key.

Engineering is the link between the hidden power of scientific knowledge and the products which make modern life work. It supplies the “wow”, while science puts the “why”. The engineering courses of our first year in particular, and all years in general, should prepare students to lead our increasingly diverse society since human progress and our nation’s economic future depend on the wise development and application of technology. After all, well begun is half done!!



# Making Humans out of Technocrats?

*The humanities courses in the undergraduate curriculum have been subject to much criticism by the students despite the efforts to make them an effective means for personality development. Amrit Kallar attempts to find the reasons for this pervasive feeling in the student community.*

The humanities courses are essential to sensitize students to social and economic issues of relevance to everyday life. They are crucial for personality development and for preventing students from becoming lopsided technocrats.

The aforesaid are the institute's objectives for including humanities and social science courses in the curricula for under-graduates. Most of us would prefer to think otherwise. HS lectures are considered "lukkha" lectures where one can sit back and laugh gleefully at the (apparent) simplicity of things, or scorn at an (occasional) metaphysical comment. A few restless souls will chuck planes, scribble on desks, or initiate classroom conversations in the hope of intellectual stimulation. Of the 'large' number of 'presentees' (on paper, of course) there are a few who fervently take notes in the hope of AAs and ABs and fewer still who attend lectures out of interest for the course. Are HS courses about proxies, cramming from xerox notes and mindlessly writing foretold answers? Are they really being instrumental in achieving the all-round development of students, they are set to achieve ?

A major drawback of introductory HS courses and arguably of other technical courses as well, is that they are too theoretical in approach. The increased stress on theory and facts kills the essential creative aspect of these courses. In Sociology, for instance, there are some very obvious and obsolete theories of age-old sociologists (Karl Marx's labour theory is a classic example) given in bombastic language which are to be memorised clause by clause. What is so wonderfully enlightening about these theories, one often wonders. The ideas behind these theories are simple and become intuitively clear. There seems to be no benevolent purpose in testing whether students know (read learn) them well. A comparative study of capitalism and socialism with case studies of different universities (within and outside India) is perhaps more desirable.

In psychology, students have to memorise facts well for an objective examination with negative-marking. Such overbearing weightage to theory lowers the due weightage on applications. In contrast, IITK has a Psychology lab where cases are demonstrated and studied to complement the theory taught in classes.

Another case in point is the Philosophy course. A majority of students have little inclination to dabble in metaphysics and care little about the way life evolved and beings came to existence. More often than not, Philosophy courses are taken up due to a low CPI. It is not surprising then, that the efforts of disinterested students fall short of the levels an exacting course like Philosophy demands.

What we're trying to put forth here is the fact that HS courses are different from other technical subjects, and so must be carried out in a distinct and characteristic way. HS lectures are like any other lectures (without tutorials, assignments, formulae, derivations - more the reason why students find them 'cool') where students try to imbibe semi-clear concepts as the professor speaks. HS courses should aim at developing conversational qualities among students, apart from developing appreciation for the social sciences. Presentations and seminars can be a regular feature of HS lectures. The onus should lie on the HS department for developing the much-needed conversational abilities.

Another feature which contrasts IITB from foreign universities and other IITs is the non-existence of a foreign language or linguistic programme. Presently there is an English laboratory to help students weak in English. IITK and IITM have French and German electives. IITD floats courses in French, for which interested students can enroll on a CPI basis.

Largely, the HS courses are enjoyed by most students as they offer a refreshing break from the maddening workload of other technical courses. A few drawbacks need to be addressed for better achieving the purpose of HS courses and catering to a cross-section of interests.

# The Problem of Ragging

*The thieves who had the whole of IITB terrorized for the past few months are finally behind the bars. A report by Prateek Singh*

The opinions expressed by students in polls on the question of steps taken to prevent ragging, (Insight, Vol. IV, Issue II of 10th Sept. 2001) gives an indication of how little thought many of them have given to the problem including the past experience and its consequences. It is obvious that most of them have not experienced the serious consequences suffered by some of the freshers in the past, mainly because of the proactive role played by the Institute in eliminating/minimising this problem in the last few years.

In the past years there have been several instances of serious ragging resulting in physical or mental harm to the freshers. In a few cases, the freshers concerned had even left the Institute. The percentage of cases of serious ragging may be small. But for the affected students, statistics is of little relevance.

Furthermore, stripping and forcing freshers to utter obscenities has been widespread in the past. Many sensitive students were severely affected by exposure to such things.

Another form of harassment which has been widespread in the past was to get freshers to run errands for the seniors and even work for them for a period. This has often caused considerable resentment. At least in some cases, the academic performance of the freshers was quite seriously affected by these forms of ragging.

In fact, it is unfortunately true that the Hostel Councils are helpless in restraining the erring seniors. The number of such errant seniors is usually quite small but the majority of the students who are generally not involved in harassing the freshers, like the council members, feel helpless. They often consider reporting these cases as being akin to betrayal.

In the light of these circumstances, the Institute is left with no option but to be strict on violators of basic norms of behaviour. This has become even more crucial in view of the serious view of ragging, taken by the lawmakers and courts.

The word 'ragging' itself has a repulsive connotation. This is quite different from 'fooling' or other intelligent forms of interacting with freshers without causing insult, injury or pain – physical or mental.

I would request the seniors (and freshers, who will be tomorrow's seniors), to seriously think about the consequences of interaction through ragging. Being the cream of the country, do they need to really give expression to their ego in a manner which is indicative of the inability to command respect without flaunting seniority.

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# Scoring in GC

*by Zeeshan M. Hayath*

One of the most important aspect of the culture at IIT-B is the General Championship. The Inter-hostel GC is one thing that separates us from most of the routine colleges. The amount of effort that is put in by all hostels towards winning the GC is tremendous. No wonder, winning the GC is, a passion for most of us. With the passion arise questions about scoring systems, fairness of judging etc. in an attempt to make things closer to perfection. Here in my letter to you I would like to bring to notice the loop-holes in the Scoring pattern.

The first one is encountered when 2 or more events are clubbed into one. For example, English and Hindi Turncoat (2 events into 1) or the Classical Carnatic, Hindustani and Instrumental (3 events into 1) are considered a single event. The reason for the 2-3 events to be clubbed into one are that the events are that they are held on the same day and secondly the events themselves are relatively small.

Coming to the present system of scoring, the first 5 positions in any event are given points in the following order 20-14-9-5-2. The points scored by each hostel in separate events (eg. English and Hindi Shipwreck) are clubbed and an over-all position is given to the hostel with maximum points in that clubbed event (ie. Shipwreck) . This position gets points as 20-14-9-5-2 which is the contribution to the trophy points (ie. Lit.). The problem in this system is that lower position's points end up figuring nowhere in the over-all position list. They just get lost in the process of giving over-all position. (As it is, clubbing of events robs a hostel with a lower position of any points it manages to collect.)

Clearly, the hostels with higher positions ate into the points of hostels with lower positions. Moreover, you can't assure that the above system rewards hostel which got positions in both events. Take the example of H10 and H4 which got more points than it scored even though it got a position in only one of the events.

If we replace the smaller events by Cult Trophies and the combined event by Cult GC, the same argument can be seen to hold.

An alternative solution to this could be the following. Specify credits for a particular event. Give points in the same manner ie. 20-14-9-5-2 for the top 5 positions and add the earned points (Here, points = credit points x position points) directly to the Main Cult GC and not to individual trophies. I am not saying that the concept of trophies be completely removed. All I am suggesting is that the position in a particular trophy should not be criterion for or effect position in the main GC. The trophies can still be given to whoever scores the maximum points in a particular trophy. Just that a first place in the Lit Trophy should not mean 20 points in the Main GC.

Moreover, in this system of credits you can differentiate between an event that requires a lot of effort from an event that is smaller in comparison. For example, the effort put in Group dance is more and deserves more weightage than Solo dance. Or for that matter, winning IHPD is not just the same as winning JAM.

One crib against such a system could be that a particular hostel which is very good at, say, FineArts will bag all FineArts positions and have a huge tally in the Cult GC. Indeed, that is the whole point. Somebody wins FineArts GC very convincingly and gets 20 points and a distant 2nd gets 14 points. Whereas, in the Lit trophy a hostel coming first by a very small margin gets 20 and a very close second gets also 14 points. How do you recognise somebody who has done exceptionally well or console somebody who has come a very close second?

The second crib could be that the earlier system encouraged hostels which got positions in both events and trophies. But that's not really the case. A look at the above example will show that the same can't be assured. Compared to the above system there is not one advantage that I can see in the present scoring system or any reason why we should continue with it. I feel that the present scoring system in the GC is not fair as it helps only the best positions to get more points. The winners keep winning. If that is the motivation, why give 5 positions at all ?

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# On Life, but we'll skip the Universe and Everything for now !

*Mokshay Madiman graduated from IITB in 1999 with a B.Tech in EE, and is now pursuing a Ph.D in Applied Mathematics at Brown University, Providence. He discusses issues of interest to students applying for higher studies or planning to go to the US in the light of his own experiences.*

There is an old story that is told among the Hmong people of southeast Asia that I heard a few days ago from a real Hmong storyteller. He spoke (if one can call his performance that) in his native tongue, while his daughter, growing up in the United States, translated for the ignorant like me in the small audience. The story was about a lazy man (so lazy that he would open his mouth and wait for the apple to fall in it rather than bother to pick one) and his aspirations and how he became good. To me, the way the story was told was more fascinating than the story itself, but the story nonetheless had a message. That message is particularly relevant to us when we worry about life: agonize about uncertainty ahead and our helpless ignorance as to what we should do, about issues of purpose and practicality and ambition and money, about love, and about the future that seems to be walking away in the sunset as we stand confused .

All of us, every day of our lives, are faced with having to make decisions. At critical times, such as at the end of our college education, every path we can take seems to close many doors even as it opens another, and the pressure that we and others impose on ourselves to choose well can be disorienting. In this context, the Hmong message is useful: Do not agonize too much, for opportunity will come, and when it does, seize it and use your mind! A trite-sounding but true message, it was exemplified in the lazy man's case by a magical bird that happened to fly into his open mouth, which the lazy man proceeded to use to make his fortune. If you are wondering where you (I am talking to final-year students mainly here) fit into this picture, let me tell you: You are like the lazy man with the magical bird in his mouth. For among the many masses of people with hopes and dreams in our land, and among the many more masses of people who find it difficult to hope and dream, you are emerging from a dream-factory, one which has most probably endowed you with the courage to reach out for the sky and with the spirit (and the educational degree!) with which to reach it. And at the risk of moralizing, I will say this: Remember that your fortune in growing into a man or woman at IITB is a reason to be more humble, more sensitive and more grateful; not to be arrogant, self-centred or thankless. It is a reason to try somehow to help those less fortunate people who do not have the luxury of dreaming much to visualise dreams and achieve them. But I am jumping the gun, and making myself a target of cranky galls from passing out junta; so I will stop the sermonizing and get with the substance- which is a description of my personal experiences vis a vis career, serious decisions and all that blah, and of what you might learn from it. What follows will mostly be applicable to those interested in applying, and perhaps to those curious about student life in the US.

Let me briefly tell you what my decisions were post- 99, when I spent my last wonderful year in Powai. Equipped with a B.Tech in EE, I applied to various graduate schools in India and the US for Ph.D programs in either Physics or Applied Mathematics. Eventually, I got several offers to do physics in the US and in India, and an offer from Brown University (in the city of Providence in north-eastern USA) to do a Ph.D in Applied Mathematics. After a lot of thinking and a helpful exchange of e-mails with a student at Brown, I accepted the latter offer. So here I am now: studying mathematics and life as I inch towards a Ph.D and distribute sagacious advice to my juniors!

If you are considering applying to do higher studies, many questions pop up: How flexible is research as a career option? Will it lead to a satisfactory job in financial terms? How good is research as a career option if you plan to pursue it in India itself? What is life as a student in the US like? An issue that impacts these questions is how you measure personal value. You probably measure value in terms of some combination of monetary returns, gain in social respect and job prospects, the satisfaction of learning or creating, and quality of personal experience. So I will try to point out which of these criteria are applicable in the answers I give to the above questions.

There are several ways in which you might think of higher studies. (a) As a route to coming to the land of the free, US. In this case, you can stop reading this article; it is not for people who have made up their minds to be fascinated by chimeras. (b) As a step to a career in the technology industry (that is, joining a company as an engineer after MS or PhD). In this case, a background in research is certainly very valuable; so read on. (c) As a way to enter the managerial arena. If this is your interest, I can only offer the wisdom that several of my friends who came to the US for this reason bitterly gained: go to the IIMs or take up a job. (Doing something that does not interest you for some hoped for future advantage can be a dangerous calculation to make. Since my personal experience does not relate to this except through friends though, I will not talk further about this.) (d) As the only way you can quench your intellectual thirst. Fellow-drinker, read on! If after serious self-assessment, you have concluded that you want to take up research as a career, let me congratulate you! Research is a truly rewarding career for those who are fascinated by the beauty of ideas.

First I will outline how my career has been shaping up over the last few years. I moved from engineering into applied mathematics because of a love for the abstract, an aesthetic infatuation for the cold beauty of mathematics and physics. In my first year at Brown, taking courses in real analysis and nonlinear dynamics, the infatuation grew, but I also faced issues of self-doubt and the pulls of a more activist calling (inevitable in the wake of my active participation in IITBs co-curriculars perhaps). My first summer I did an internship at the research division of a fiber optics company, which was a disappointment of sorts as I ended up doing engineering again instead of mathematics, though it convinced me that academia would satisfy me far more than industrial research. In my second year, I took courses in probability theory and information theory, and my infatuation bloomed into a more mature and balanced love for a certain brand of mathematics. I am now in the process of starting research on certain statistical issues that arise in information theory, and of trying to borrow insights from differential geometry to



do this. By 2004, I hope that this research will have evolved into a satisfactory Ph.D thesis, after which I intend to enter academics.

On to more general insights about career planning. Pursuing higher education in India (say a Ph.D from IISc or the IITs) is a perfectly good option as far as learning goes. Like any Ph.D program (anywhere in the world), if you are committed, hard working and can find a good advisor, you will do well and be on your way to a cushy academic career. But there are several reasons (MAJOR WARNING: these reasons apply only to the top universities in the US; most of the middle-level or worse American universities are far worse than the good Indian research institutes even if they are better funded) why I would recommend some experience abroad:

a) **professional density** : There are simply so many researchers in so many fields all over the US. The opportunity to get inspired by interactions with fabulous minds exists as much in India as in the US. Yet the density here is so high, thanks to people converging here from all over the world, that it is qualitatively different, and to simply learn from all the seminars, informal lunches, lecture series (often involving visitors from outside your university) and the incredibly wide variety of courses offered, is great! Related to this is the fact of research here being very well-funded, which drives this people density. The professional density is a strong argument for at least some experience in the US. This experience of course, can also be in post-doc stage or after you become a prof, but may be more helpful in these formative times.

b) **breadth** : Such a wide variety of subjects pursued in the same university means a lot more scope for interdisciplinary research. Eg: applied mathematicians in my dept interested in computer vision try to reconstruct pottery from shards obtained in archeological excavations (a very non-trivial problem, by the way! One can use advanced techniques from differential geometry, but also has to do efficient numerics, so it is a problem with many facets.) Also, the flexibility of American universities is truly amazing: last year, I did a group study with a couple of others on the history of a particular community in western India, as part of a personal effort to understand the sociohistorical patterns that influence the status quo in Indian society. And an extremely knowledgeable and smart Indian historian guided us in this study. (I am sure that over the next couple of years, I will do more such things to broaden my horizons. For instance, among the courses offered at Brown University are courses on the Gamelan music of Indonesia, on Sanskrit and Urdu, and on the history of Indian mathematics.)

c) **connections** : Making connections with researchers on the international scene can be a great help to your future career. However narrow-minded that sounds, it is true. It is not always easy to get academic jobs, even in India, and having connections can help. Plus connections will help you have greater academic freedom later in life- you will find it easier to travel around the world as part of your work, to collaborate with contacts you have made in distant places on all sorts of interesting things etc.

You might also wonder what social life as a grad student in the US is like. Will you have regular, close friends you can hang out with (of the kind you had in IIT)? Well, it is very

difficult to describe these things, not least because it differs so much from person to person. You will have a social life, but being a grad student (even in India) is very different from being an undergrad. You will feel perceptibly older after you pass out, I am not kidding. But life in the US can certainly be very alienating and lonely, and different people cope with this alienation in different and differently successful ways.

One thing I should say is that the sheer richness of life in India is unparalleled. I find that many of my close friends here share this feeling with me- there is a vibrancy to life that I unconsciously delighted in back home that I miss here (of course, I realized this only after coming here). Perhaps it is just the feeling of family and community, but again, perhaps not just that. On the other hand, living in the US will expose you to ideas, experiences and attitudes that you would never otherwise experience, and these can be a significant stimulus to personal growth (even if they can be depressing at times).

There is certainly plenty of life outside the laboratory or library, especially if you are willing to experiment with things that may not come natural to you as one brought up in an Indian culture. There are a lot of opportunities for recreational activities (sports facilities are great, for instance). And if they matter enough to you, you will maintain old relationships and hobbies. I have a lot of non-Indian friends, and that aspect of my being here has been very enriching. There is a lot of cultural diversity in India, but the magnitude of diversity here is several orders higher. It is a shocking realization when you discover that principles and ideas that you treated as absolutely fundamental to your world-view (and which were not seriously contradicted by the phenomena you observed in India), can be completely bent out of shape by what you observe here. You realize that certain things you had assumed to be essential ingredients in human beings may not really be universal, and may be the product of your subjective upbringing and ambient culture. You also realize (if you are not brainwashed by westernizing influences, that is) that this subjectivity applies to all cultures, and that you have to develop a personal philosophy that allows you sufficient space to breathe in multiple cultures while celebrating your own. Remember that aiming for a Ph.D gives you a lot of flexibility in your future career. It is very easy these days to move from academic to industrial research, and the reverse is also often true. Besides, as Prof. Gaitonde pointed out in the last issue of *InsIghT*, a profs life is really quite comfortable, whether in India or the US; so if you think you might want to return to India some day (as I hope you do!- I would love to have company), then it is a smart decision from the practical point of view to do a Ph.D. At the same time, since going for a PhD involves being in one place for a span of 4-5 years, it is important that you make a well-informed decision about where and in what field you pursue it. (Here I feel compelled to advertise the Applied Mathematics program at Brown: if you have been captivated by any kind of abstract reasoning while in IITB, whether the application area is mechanics or physics or communication theory or theoretical computer science or oceanography or neuroscience, consider applying here, it is a simply fabulous interdisciplinary program and they want bright, interested students like you. Oh, and get in touch for more personal advice as well.)

At this point, I will refrain from giving any gratuitous advice ( ha ha!, you probably think, what does he think he has been doing in all his rambling anyway?). Instead, I will

merely express the fond hope that you will be able to unite heart and mind and vocation, and that in the spirit of the Gayatri Mantra, the Divine Light will inspire all our Intellects (decision-making aspect of the mind) in the right direction.

# Rumblings of an ex-IITian.

*Amit Kumar Sinha , Mechanical Engineering BTech. 1999, IIT Bombay, and now a divisional manager with one of India's leading manufacturing company, ITC, writes about his experiences with industry and the need for IITians to prepare themselves better for the outer world.*

The season of job treats and kicks in the rear may not have happened with the usual festivity this time around. Chakra, Sandeep and Taj (for the guys who really made it big during our times!) may still be wondering if IITians got recruited at all. I hope and wish they did get recruited for going by the talent and well-rounded people IIT Bombay generates they deserve the very best of jobs available anywhere in the world.

It was a great joy for me to have come back to campus to recruit for ITC. We had a fabulous PPT to kickstart everything. But unfortunately by the time we came to IIT Bombay we had run out of requirements. IITB was the last of the institutes we came to (after IITD, K, KGP, even M and some of the RECs). I am sure the placement committee has taken a lot of pains and certainly it wouldn't be wrong to say that our recruitment was late as far as we were concerned.

ITC is a growing company, especially since it started synergising its credentials in brands, vast supply-chain experience and domain knowledge in key services like hospitality and paper. Its the best "truly Indian" company to work for. Responsibility, freedom of work and decision making, trust and innovation is what awaits any fresh guy here.

Take my case. I am heading a part of manufacturing operations with about 20 managers and 1000 employees reporting to me, and we have to satisfy a supply chain that's the fastest moving, discerning and demanding in extent (virtually the whole of the country!). Couple that with the division-wide ERP implementation, add a mix of employee and union relations, the cost and innovative atmosphere, and you get exactly what makes me look forward to another day at work. A company growing at the rate of 30% every year is bound to double itself in 3 years' time and hence the requirement to fuel these changes rests on young people like you at campuses.

The job at ITC beings as an Assitant Under Trainee (AUt Or fondly referred here as pupils). The technical AUTs go through a 10-month crash course on the complete business process of ITC and its group companies, across functions and divisions, with a first-hand view from operating managers to CEOs. The learning accrued in this "touch and feel" the pulse process can be called a working MBA. What I liked best was the number of book readings given during the time, It developed in me a habit of business reading.

Nothing like being in ITC and knowing about atleast 10 different businesses at the same time. I began my career in Munger, a sleepy town 500 kms away from Patna, in ITC's

oldest factory as a Maintenance Engineer. So it was gears, drives, compressors and pumps, but it was also people and the joy of implementing cost saving initiatives, training skills identification and working towards improving the downtime of equipments. It was an achievement to actually have brought down the downtime to less than 2 hours. I got unlimited freedom to run the department the way I would want it to run, to spend the budgets (which stood at close to 2 crores) the way I would want them to be spent. The only thing that was asked for in return for that was continuous learning and performance.

In the middle of all this, I was given an important assignment - that of SAP implementation, This was to be a validation of the systems we had built in ITC. The concept of linked processes across functions and that of the “mouse” in all the clericals and operations staff proved to be big roadblocks since most people out there had not worked beyond a VAX terminal. The joy, at the end of the day, was not the implementation, but the people and the knowledge we were able to build in a short period of time. They were the common people who began their day with a glass of sattu in the morning. I soon realized that those very people had the capacity to outwit the best SAP pros in the country.

Later, I was promoted within Munger to head our Manufacturing Operations after leaf processing. It was like new robes, heading 10 managers and 600 people was a task I had not mentally prepared myself for. Six months into that role and we changed the floor into the best workforce in the country. That was the kind of freedom, love and respect one can command in that place. A yearful of innovations followed. Winning the inter-factory market complaints competition (we had the least !), cost savings, sweeping changes in the restructuring of the shopfloor into self-sustaining modules, efficient union management, development of secondary tier of leadership on the floor, building positivity into the system in tough times, exciting competitions on the floor... it was all so much fun ! Couple that with the excellent time spent in the community of 80 families outside work, life seemed a set of endless parties and genuine feeling of being a big family.

It was just six months later, that I was moved to Bangalore to head the same portfolio, just that this place is the state of the art plant, with the most accomplished equipments, huge programming complexity of servicing virtually every type of demand from all over the country across 100 brands. Its a sea of activities, there is a definite organization into these processes and the challenge is to keep it together and moving in the right direction. You have to see this unit to believe it, its set 35 kms away from Bangalore over 120 acres of land. Life is really fast. Just now I am on my way to Italy to inspect and negotiate on the state of the art machines we are purchasing from there.

It took me quite some time to get accustomed to the speed here. I just wish sometimes that a day is too less to finish everything, but I guess that's the joy of management, working in complex people systems, juggling with priorities, continuously setting lofty targets and meeting them.

Its been a ride on the fast forward roller coaster for me. Four assignments in just over two years. One thing that is the single most important reason for success for anybody in IIT is

“attitude”. The attitude to learn, to say when you have erred, to go and get the moon, and to believe what is meant to be believed.

The guy who fits the bill at ITC is the one with the right attitude, we believe that we can train people for skills. Hence, most of the questions you would find at an ITC interview would revolve around team skills, leadership, communication and integrity. To check the basic academic intellect we try to check with basic fundamentals of engineering. My fundamental belief is that the probability of finding such a guy in IITB is certainly higher than all other IITs put together.

So what went wrong in the recruitment process this year ?

1) On ITC's part it was a conscious decision to go to RECs starting from this year, due to the high attrition rate in the recent years. Most people in ITC have quit for higher studies, very few for other jobs in India. Infact, we are planning to lay the net wider, say recruit a mix of people - 30% IITian, 30% RECs and 40 % people with prior job experience. This, in turn, would demand a lot of change in the culture and fabric of ITC, which I think will be a huge challenge for us, in ITC, and I feel would be a welcome one too.

2) Late dates at IIT Bombay - The recruiters who went to other campuses had returned with numbers which were higher than planned. We picked 4 from Kgp, 4 from Kanpur, 4 from Delhi and 8 from Chennai.

3) IITBites' preparation for GDs and Interviews: The quality of students in our GD and interviews were of a good standard, though I would like to make a comment here that there is not a stark difference in quality of students from most campuses, including RECs. These are alarm bells for you. Times ahead are going to be much tougher - you need to brush up your acads before an interview, structure your answers and develop the unique competitive advantage of knowledge bandwidth (which I think has been the USP of IITB) further. Feel comfortable, say “no” if you do not know, be consistent and let your true self emerge out of the interview. Your answer choices should lead the interviewer into knowing about yourself to check for the match. Interviewers are trained to look for cues on personalities and traits across questions. A question related to leadership may have cues on communication and teamskills (say sharing the booty of a victory), rather than initiative or personal victories. It's always worthwhile to gauge oneself up, write down about oneself, before taking an interview.

4) How much do the students know about the companies and their performances? I guess, this area is grossly overlooked by most of us at IITB. SOM has a good rating system in place from which we could learn and put a more stable system in place. Is salary everything? How does the company develop a person like you? Is your long term goal in synergy with this company? Are you OK with work pressure? How much should you travel? Do you really like to code? Does this company value talent and hard work, or everyone grows at the same pace? I can take a bet that nobody in IITB has ever thought about such questions in depth. It reflects when we talk to students. This is, again, in sharp

contrast to most of the business schools where knowledge about these are of a much high order.

It won't be difficult if we master these to improve the placement chances of most IITians. I am talking with a limited experience of just being with ITC which is looking for select skills in its recruits, but I guess the same may be true for most companies. Academic knowledge is taken for granted (but I do see a scope of improving this, it looks particularly embarrassing when certain basic definitions are not answered) and people check for attitude and general soft skills. All the best and let's keep the flag of IITB high!

# Mood Indigo 2001: A Curtain Raiser

Come September... oops, wrong movie, wrong month! Come December, and you can paint the town of Mumbai a delicate shade of ... Indigo! Mood Indigo, IIT Bombay's annual cultural event is back and this year it promises to be hotter and more hep than ever!

Yup. You heard us alright. Mood-I happens - Dec 26-29, 2001 - with the usual plethora of intensely competitive events, informative workshops, the wacky informals stage, professional nights you'd give your right hand for, the rock show you'd give your left hand for - all blended together with oodles of fun! Oops, did I forget the fashion show??

Heres the latest update on whats planned for Mood Indigo 2001. And do book your tickets before YOU are too late!!

## **Competitions**

At Competitions, the MI battleground, the action gets hotter than ever. Digging for cover is NOT an option!! What with quiz masters setting booby traps, JAM masters encircling you with verbal barbs, dance judges expecting moves with more precision than cruise missiles, T-Shirts to be painted better than camouflage kits; there is no cover!!!

This year Competitions will feature story-telling and Hindi elocution as new debating events. Scrabble, which is fast gaining popularity in the institute makes its debut as a lit. event. Also being introduced in the dramatics scene is an event modeled after the sophies socials. Fine arts events include Face Painting, Rangoli, Relief Sculpting and T-shirt painting. A pulsating set of Music and Dance events rounds off the Competitions.

If your histrionics make everyone go ga-ga, or you have this genius to make crowds sway at your voice, or you fancy giving colour to your imagination, or you simply like shooting your mouth off, then Competitions at Mood Indigo is just the thing for you!!!

## **Informals and Aquagames**

The most happening place to be, Informals is the world of wild, funny and absolutely crazy games. As if that's not all, you get prizes to do all those crazy things. Absolutely no talent required. Just be there and you can win a Blind Date or be Mr/Ms MI. Informals this year will be reviving Blind Date and the Rain Dance. New features include Musical Housie, Mock Rock and Filmi Chakkar - an impromptu kind of event based on hindi movies. Informals will extend late into the evening with a Dance Floor. Now that surely is something to look forward to.

A part of Informals, Aquagames is a type of entertainment unique to Mood Indigo. What do you think about fun games in the water and sliding down slides with the likes of Mehr Jessia and Javed Jafferri? Aquagames returns this year after a hiatus with bigger and better



competitions. The Chivalry Race and Pirates & Vikings are amongst those events which will take participants down slides, up ropes and across floats. Be there for some of the craziest moments of your life.

### **Fashion Competition**

The Fashion Competition at Mood Indigo returns with a bang. A ton of Oomph. A spot of pizzazz. Loads of attitude. Drop-dead gorgeous looks. Sizzling attire. Dangerous curves. Impeccable choreography.

That is VOGUE - Mood Indigo's high profile Fashion Competition. Also in the works is an exhibit of a professional designer's fall collection for the Finals.

Fashcomp at Mood Indigo 2001 has undergone an enhancement with the elims and finals spread over the second and third days. Did we say anything about the gorgeous Ms. Hrishita Bhatt being there to judge the finals?

### **Horizons**

Horizons this year is back with a load of new and exciting events. Please see the article below "Horizons 2001"

### **Pro Nites**

Did you think evenings were a time for R&R? Recreation will be provided at the Mood Indigo Pro-Nite and the Rest is upto you!

### **Classical Nite:**

The young and the old get together to create magic at the Classical Nite with Ustad Amzad Ali Khan on the sarod and Shri Vijay Ghate accompanying him. This will be followed by Pt. Romu Majumdar, the flute virtuoso, along with a host of other artistes including Pt. Bhavani Shankar and Shri Yogesh Samsi. The magic is sure to continue late into the night.

### **Fusion Nite**

Messers. Shankar Mahadevan, Sivamani, Louis Banks and Carl Peters, each of them a widely respected artiste in many diverse fields. They and their friends come together on the Fusion Nite to treat layman and connoisseur alike to a mind-blowing performance.

### **Popular Nite**

The Popular Nite brings Euphoria for a live act for the very first time in Mumbai. Also planned is a cover band. Dhoom!!

Save the best for last?! This is how we do it. Ladies and Gentlemen, we present before you.. Livewire 2001!!!

## **Livewire**

Livewire India's biggest rock show and India's biggest amateur rock competition. Livewire has been the launchpad for bands like Pentagram and Moksha! Add to that 12,000 screaming people, 50,000 watts of raw pulsating power and the 50 Grand that the bands play for and you have one BIG party. Couple that with an astounding professional rock show complete with lasers and pyrotechnics. Parikrama calls its performance at Livewire '99 itz best show ever. Cant we go one up?

For formality's sake: this festival is for you, by you and of ..blah..blah. You are needed to make this world a better place and ...blah blah.

All we have to say is that we look forward to your participation in both MI the event and MI the organisation. So make sure you are part of this phenomenon called Mood Indigo!! Be There!! For further details please visit: [www.iitb.ac.in/~moodindigo](http://www.iitb.ac.in/~moodindigo)

# Horizons 2001

*by Vikram Rentala, Co-ordinator, Horizons 2001.*

Horizons is the set of cultural performances, shows and workshops at MoodI. This is the space at MoodI where experimentation is the norm. It is one department where the team can ensure that every visitor to MoodI finds something to suit his/her interests, in the wide variety of events that Horizons has to offer. Horizons aims at providing a “hands-on”, “in-your-face” snapshot of art and culture. Here is a brief look at what is planned for Horizons at Mood Indigo 2001 -

## **Pro-Shows:**

Amongst the shows, efforts are on to arrange for a contemporary dance show, by an Indian dance company. Currently talks are in progress with two troupes that can put up such a show. Both of them have performed in various countries around the world, as well as in India. They have also expressed their eagerness to be a part of MoodI. This show promises to be the centerpiece of the spread of events at Horizons and would allow people to experience the magic of a dance performance at Mood Indigo.

Another form of art that many people feel has been lacking at MoodI, is theater. To fill in this void, it is planned to have a play on one of the evenings. Out of the many options available, plays that are running to house-full capacity in Mumbai are amongst the front-runners.

The organizers hope to make use of the Informals stage and have a live music performance on one of the evenings of MoodI. Such a show would be an exclusive one, and due to its convenient timing and location, should be fairly popular. Many local bands have expressed an interest in performing in this slot.

Also planned is a Film Festival, in which we will be screening a few, select, short films (fiction or non-fiction) that have been made by local film makers. Many of these films have been screened at various festivals, and a few of them have even won some awards. The films would be art films, and each one would last for about 20-30 minutes. Some of the directors of these films will also be coming to talk about their films and their inspiration behind making them

Another event at Horizons 2001 is a “Dog Show”. There are many kennel clubs in India, and they have dog shows on a regular basis. The dogs are not professional dogs, but rather domestic pets, and their owners bring them to such shows, with the intention of having fun, and keeping their dogs active. About 10-15 dogs of various breeds will be coming over, and they will participate in a series of agility tests, which involve obstacle courses, jumping through hoops, climbing up ladders, etc. This show will be held in the SAC fields and would take place on the first two days of our event

## **Workshops:**

This year, a Magic workshop is to be conducted by Ms. Kruti Parekh, India's youngest magicienne (and also the first test tube baby !). She has performed all over the world, and is only 17 years old! She plans to cover the various forms of magic and will also teach a few tricks. She will also explain how some mind-boggling tricks that we find impossible to believe, are actually carried out. Magic kits, containing a few interesting tricks, will also be made available for the participants to take back home.

There will also be a Star-Gazing session and Workshop. This workshop is being conducted in association with Nehru Planetarium and IUCAA. Telescopes will be set-up and there will also be some slides displayed. This will be followed by an Astrology and Myth Quiz.

Among the villages in the Thane district, there is a characteristic form of painting practiced, involving white paint, on a mud background, using geometrical shapes to depict the lives of these villagers. This is known as Warli painting, and is extremely beautiful and simple to learn. Some of these artists from the Thane district will be invited to conduct a workshop on this form of painting. At the end of the workshop, people are free to take their painting back home. The best paintings will be awarded suitable prizes. This workshop will be extremely informal, and is meant to encourage people to try their hand at something they would never have tried otherwise.

One of the most popular workshops over the past few years has been the Ballroom Dance Workshop, by Mr. Anand Majumdar. By popular demand, this workshop will be there at Horizons, once again, with even more sessions, ensuring that everyone gets a chance to shake a leg or two !

A Poetry Writing workshop will also be organized at Horizons 2001. This will be conducted by Mrs. Arundhati Subramaniam, from the NCPA, who has been writing poetry for the last 10 years. She has recently released a collection of her poems in a book, which has been highly appreciated in the literary circles.

IIT Bombay is considered to be the mecca of literary events like Scrabble and Word Games, by people from most other colleges. (Just talk to anyone of them about IITB and Lit, and you'll know what is meant!!) Hence, a workshop based on Scrabble and Cryptic Crosswords would have a sizable market at MoodI. this workshop will cover all the fundaes required to pick up these events, and have been conducted within our insti, with great success.

That basically wraps up the events and workshops for Horizons @ Mood Indigo 2001. With less than 2 months left for MoodI, implementation is going ahead full steam. Looking forward to a fun and happening Horizons at Mood Indigo 2001.

# Techfest 2002- a prelude

by- Subramaniam V.

*“There is a theory which states that if ever anybody discovers exactly what the Universe is for and why it is here, it will instantly disappear and be replaced by something even more bizarre and inexplicable. There is another theory which states that this has already happened.” — Douglas Adams*

So Techfest found itself a couple of fancy quotes and borrowed a little more from the Matrix. So what's new?? Are we going to have a rehashed version of the previous few years, albeit with a lot less funds?? Believe me you couldn't be more wrong!!!

The 2002 edition of the festival promises to be the biggest ever. This year, Techfest, Yantriki, Last Straw and Chemsplash have all been integrated to give you a bigger, better event with a much larger spectrum than ever before.

The primary aim of Yantriki is to provide amateur talent a stage with the guiding principle “Let us create everything out of nothing”. This year Yantriki is back with two new challenges: XTerra for the first two levels and Space Docking for the autonomous level. Yantriki will also feature a CAD/CAM Workshop which would include lectures by eminent scholars supported by practical demonstration of the various software tools being used in the field.

## **Chemsplash 2002**

leads you to the fascinating world of chemical technology. It features Heat Exchange, the Chem Engg quiz and of course, Chemisoft, the open software contest and Technum Opus, the Paper Presentation Competition.

Last Straw is designed to test your powers of innovation and imagination. Can you use drinking straws, known for their flimsiness and lack of strength to build a heavy duty structure which can carry 40 times it's weight? It's not as impossible as it sounds. All it requires is a little creativity and ingenuity to come up with an optimum solution.

Competitions at Techfest include the ever popular Open Hardware and Open Software contests. The wacky Contraption Contest requires no introduction – if you have had your share of cartoons as a kid, now is the time to make some of those wacky mechanisms come to life. Blue Planet asks you to develop a blueprint of appropriate technologies relating to Environment- hazardous waste disposal, curbing industrial and water pollution etc.

All these competitions together offer a total of 4 lakhs in prize money! Wanna get rich quick? This is your chance!

This year Techfest features a host of Brand New events.

Panorama aims to bring to us the research going in IIT Bombay. Few are aware that IIT Bombay played a major role in the development of the LCA and continues to contribute to the national space program. Panorama will be an exhibition of cool stuff and HOT stuff being done in the environs of IIT Bombay. It will showcase all the cutting edge technologies being developed and the research that the students and professors here are involved in.

Futureal will focus on topics like Bio-informatics, DNA Computing, Nanotechnology, AI and Internet Robotics which are likely to drive the economy of the new millennium. If Test tube computers and Nano-sized engines amaze you then Futureal is the event that you cannot miss.

The next Pearl Harbour will not announce itself with a blinding flash of nuclear light and mind blowing thunder. It could just be a sharp crack in the distance. Fluorescent lights and television sets will glow eerily bright, despite being turned off. The smell of smouldering plastic will seep as electric wires, telephone wires melt. Your computer and every bit of data on it, will be toast. Welcome to the World of Electronic Warfare!! A special guest from the Indian Air Force will present a talk and a small demonstration on Electronic Warfare. Also on display will be cockpit simulators and flight trainers used by the Indian Air Force for training India's finest pilots.

Online Competitions have been introduced for the first time in Techfest and have received a very encouraging response. In the run-up to the event, there will be a competition every fortnight all through till January end. Lots of prizes up for grabs and the person who makes the maximum points through the series wins a bumper prize!

Workshops, the prime attraction at Techfest continue to dazzle with Techfest 2002 featuring workshops on AI, Forensics, Robotics and HAM. Registrations for workshops have already started at [www.techfest.org](http://www.techfest.org)

The SciTech Olympiad will return with questions from all fields of everyday sciences and trivia, followed by a practical round to judge the experimental aptitude of the selected teams, followed by a final between 6 teams. Saving the best for the last: Technoholix will feature a Crystal Maze game, a 3D movie and real time displays of techniques used to create stunning special effects in movies. Plus of course, the coolest movies in town. For more details, please visit: [www.techfest.org](http://www.techfest.org)

# QUESTECH

## Results

Exposition contest

1) Parag Agarwal H-4

Topic: Game theory

2) Kuldeep Dixit H-9

Topic: EPR Paradox and Bell's Theorem

3) Amol Gogate H-9

Topic: Fluidics

Other finalists were Kshitiz Gupta (H3), Anshu Pandey (H8) and Surhud More (H3).

Scitech Olympiad

1) Arunodaya(H6) and Karthik Ramkumar(H3)

2) Bhushan (H9) and Sameer Shivadhokar (H4)

3) Vinod(H7) and Nandan (H7)

Rejoice all you freshies, for if you have surely proved this month that you are as good, if not better, at science and technology than any senior at IIT. Ample proof in the form of freshers winning both last month's Questech and the Exposition winner as well.

Last month's winner of Questech was Aditya Mittal from H-3.

It was good to see enthusiastic participation in all the events thus far. Exposition was definitely the most celebrated event this month. Students came up with some truly fascinating presentations. Vikram Rentala's(H3) equipment included a bucket, a few models of arbit geometrical shapes, and lots of soap water! Guess why? Just to illustrate how weird a soap bubble can behave at times in order to acquire a minimal surface area!

And this was just a glimpse of how enthusiastic the participants were for the Exposition. You've got to be there at such events to realize IITians are good not only at Cult and Sports but at TECH too!!

PragmaTech was an experiment to see how people use their innovative ideas to tackle problems of practical importance. This time we invited entries for "An alternative structure of WTC". Though number of entries received was small, people have given a few interesting solutions. Results will be out soon on nbds

Journalism Contest has got some terrific articles this time. You may see some of them soon in leading newspapers/science magazines. Results will be declared shortly.

Meanwhile, we bet you can spend a few minutes to crack a logic quiz and mail us the answers especially when there's a T-Shirt and Hostel Points at stake (look at the tally aside to see where your hostel stands currently in Tech GC). Happy Puzzling!!!

(1) The puzzle of obtaining the number 100 by inserting + and - signs into the sequence 123456789 has 12 solutions; e.g.  $100 = 1 + 23 - 4 + 5 + 6 + 78 - 9 = 123 - 45 - 67 + 89$ . Write any 5 more obtained by inserting + and - signs into the sequence 123456789?

b) What is the smallest positive integer that cannot be obtained by inserting + and - signs into the 10-digit sequence 9876543210?

c) What is the smallest positive integer that cannot be obtained by inserting + and - signs into the sequence 12345678987654321?

(All you freshies who want some coding practice for CS-101, rejoice. We'd prefer mathematical techniques though.)

(2) On a black board are written ten 1's, twenty 2's and twenty five 3's. A student comes to the board and starts erasing the board in any of the following ways.

i) Erase a 1 and a 2 and write a 3.

ii) Erase a 1 and a 3 and write a 2.

iii) Erase a 2 and a 3 and write a 1.

She finds that she is left with only one number. What are the possible values for that number?

And here's a sitter for all those who crib that the questions are too tough.

3) If you visited this place and liked it, you would sooner stay for a day than a year. If you hated it, you would sooner stay for a year than a day. Why?

PS: Did any of you take note of the fact that Mukul Sharma (Mindsport) has been geezing stuff from Questech miserably!! The week after the Crossfigure in Questech was followed by a similar number crossword in Times of India. And lo! last time's poem puzzle was flicked entirely from this article!!! Hope to see this trend continue :)

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# A tryst with two sticks

by Ritesh Jhaveri and Nikhil Nigam

I was really excited. Slightly nervous. Actually...a bit scared and quite jittery and... I guess you get the picture. After all, it was my first time (!) I had been waiting for this moment for very long. Took a “clean” bath, drenched myself with deoderant and put on sparkling new clothes. “To do or not to do ?” the question still lingered at the back of my mind. But perhaps it was too late to back out. Tonite had to be “the night”. I was already sweating, so i summoned all courage, picked up my sticks and ventured into unknown territory - “DANDIA 2001” was waiting for me.

I sat on my scooty , put the keys into ignition, twisted the right “ear” to the maximum and zoomed off at 15 kmph (not that i am a very cautious driver but the damned machine wouldn’t go any faster !). I reached my destination and was entering the gate when I saw a couple o’gals going in at the same time. They looked familiar ... OH MY GOD!!! they were my batchmates. They were looking real good tonite (or was I hallucinating?). The moment I entered, sound waves hit me like a two-ton cannon ball. The dazzling lights blinded me and the scene reminded me of the war from MAHABHARATA !

I huddled up in a corner anmd surveyed the scene. A few fortunate guys were dancing with the girls and the majority were trying to “maaro geez”. I don’t want to offend anyone but what I saw wasn’t even remotely related to dancing. Jesus ! It was violence at its best and to top it all, tothe beat of music. I mean - never trust an IITian with a stick in hishand. My dormant chivalry was awakened at the sight of poor (and beautiful .. Ahem !) girls defending themselves against the onslaught. Where was DOSA when you needed him the most ? Wait a minute..they weren’t scared ... they were actually enjoying every moment of it ! God must love crazy people - He makes so many of them.

Finally I thought, “What the hell ! Let’s give it a try.” My whole lifeflashed before my eyes - my board exams, my JEE, my midsems, my MA quizzes (that sums up my life !!) before I plunged into the WAR ZONE.

STEP 1 : Look for a girl

STEP 2 : keep looking ...

.....

.....

STEP 522 : still looking .....

Aha ! Finally found a girl who’s alone (GROWWFF!!!). I approached her and in that ten meter sojourn that I undertook, was beaten, bruised and battered at every imaginable part of the body. And then I saw I wasn’t the only one fighting for the golden chance. Before I could reach any closer - Bam ! She was gone. If I thought the worst was over I was thoroughly mistaken. A group of guyscame towards me and snatched away my sole possession - my sticks!

Consequently I was depressed. Dejected. And doomed. Everyone around was dancing with great vigour - an earthquake of richter scale 7.6 was registered in California - but that has got nothing to do with this.

Just when I thought of giving up all materialistic possessions and retiring to the Himalayas, there approached my knight in shining armour or rather “knighty” in shining armour. A stunningly beautiful girl came upto me and asked, “Do you know where the bathroom is ??” That was the last straw to break the camel’s back. But suddenly she said , “Just kidding !! Would You like to dance?” and believe me she wiped the blinking floor beneath my eyes! Yippee! Now it was my turn to snatch somebody’s sticks.

Luckily I found one on the ground. She taught me a few moves and boy, learning was never so much fun! Suddenly I had become the “King of Ddandia” . Everyone around was looking in amazement and slowly the winds of heaven swept them away from us. There was only the two of us swaying to the Music in each others arms. She came closer to me and then she whispered in my ear “99001009”.

WHAT the hell happened to her voice? She sounded like my professor. And then I heard my roll number again 99001009 - louder this time and a nudge from my friend woke me up.

Oh god! I had been dreaming again. Luckily I escaped my professor’s wrath for sleeping in yet another of his lectures. The actual dandia was still a few hours away. But this time I wasn’t scared or nervous or jittery. In fact I was looking forward to it because deep down in my heart I felt, “Someone out there is waiting for m ”.

# Behind every successful dandiya, there is more than just women

by Harsh Roy

*All of us here were witness to the nine-match Dandiya tournament held last month among all the hostels. Every hostel fought tooth and nail to have an upper hand in every way (Rumours were floated that a particular hostel had bagged more money than MI or Tech Fest this year !). Our hostel joined the bandwagon, and decided to go all out to rope in the big bucks. Taking cue from an old jungle saying “Learn from elders and experienced.” (Applies very well to apna IITB - where else would you find panthers khullam khulla !?!) fundae sessions with the ex-marketing managers of E-cell and Tech-Fest were held. A list of potential baits was compiled which included names no less than The Royal Le meridien, The Great Maratha Sheraton, The Indian Airlines etc. The responsibility of belling the cat fell on me - the task of sealing a sponsorship deal with the “le meridien”.*

*A wise guy (villain of the story, as it unveils) suggested that I should have a lunch at the place before talking business. Good marketing strategy, I thought. What happened at the hotel would be the storyline of a tragic (or comic) T.V episode someday. After a hard-fought battle with forks and knives I could manage to swallow only half of what I had ordered. As feared, the bill did not do much for my digestion. I took a deep breath and arranged myself before the mirror. Damn! how are you supposed to create an impression at a place where the waiter speaks and dresses better than you ?! I had barely mentioned the purpose of my visit to the manager when he punched some keys on his laptop, shook his head and said that they were already booked by a music company to sponsor the music release of a multi crore movie on that day. I had a good mind to go back and slip in some of the silver cutlery into my empty pockets. With a heavy heart and a very light purse I left the place, vowing not to visit the hotel again even in the worst of my nightmares.*

*Wiser at my expense, the council agreed not to aim for the big fish and be content with the small fries close at hand. The same wise guy (remember the villain ?), had a brainwave suggesting that a publicity letter be drafted to add an official and formal touch to dealings. Armed with the letter, I marched into one of the shops in Hiranandani. Catching hold of the first person in sight, I started blabbing the well-rehearsed lines and handed him the letter. He grew visibly uncomfortable with every passing second. After I had switched off my tape, his confused face suddenly brightened, as though an idea had struck him. He gave a wide toothy grin and asked, “Baboo, kya bechne aaye ho?”. If looks could kill, he would have been dead then and there. I walked out, smoke bellowing from my ears, had an ice cream to cool myself before walking into other shops. An insurance firm took me as one of their clients and almost talked me into getting the dandiya insured ! (“What of the expenses, if it rained ?”, they reasoned). At other places I had a tough time convincing people that we do not need loans to finance the event, that*

*a video shooting is not necessary and that we will manage to escort the girls without hiring taxis! Undeterred and steadfast, after “maroing great fight” i did manage to get a couple of thousand bucks.*

*Back in the hostel, I was congratulated (lifted above the ground and kicked,that is). The GSec. also gave a senti hug. I thought that the worst of the ordeal was over when the same wise guy (Grrrr..) intervened and said that all the “ghodagiri” would go “Poof!” like a wet cracker if girls did not turn up. Boys fighting with their sticks in hands wouldn’t make a pretty sight! Heads were put together and strategies discussed to ensure a fair fair sex participation. Someone suggested making an invitation card complete with a senti poem, lots of hearts and enclosed in a rose-scented envelope. It was unanimously decided not to waste the cards over other hostels’ boys. After all, the opportunity to dance with “girls” comes, but once a year. Over that, if we allow other hostel guys to “maro geeze” then it does not speak volumes of our gray cells. At max, a poster mentioning the date and time would be put up (let the find the venue!!). With some reluctance a printout of two dancing figures and some stars was added. For the ladies’ hostels though, the fine arts studs were summoned.*

*Finally, after being on tenterhooks for a week, the wait was over. Arrived “nite-de-finale”. You could sense the brewing tension all around, faces taut with worry, the air was heavy with anticipation. “Will they come, or won’t they?”, was the question which bore heavy on everyone’s mind. The hostel knights were summoned by the emperor and ordered to escort their ladies from H-10. After a short prayer for success the machines zoomed on the highway to H-10. The wait began....*

*Seconds ticked away...minutes swept by...as the hands of the mess clock closed in to 9:30, my upbeat mood started giving way to melancholy. My heart sank deeper into the sea of misery. Call of the duty beckoned. Being the fine arts secy of the hostel, I was dutibound to be the lone flag bearer for the hostel in an inter-hostel fine arts event. When I returned the party was over.*

*So much for my week’s workout (sigh !). However, the story had a “sweet” end when a notice was put up the next day, awarding 5 milkshakes for my services.*