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insight
the third eye

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Students' Gymkhana IIT Bombay

Tum-Tum Tamasha

Vikranth Audi and Rohit Vadera analyse the pitfalls of the institute's internal transport system.

"It is 8:25 A.M. You are already late for class and the professor takes attendance right at the beginning of the period. Stuffing the last crumb of bread into your mouth, you rush out of the mess, hoping to catch the tum-tum. Alas! It is packed already. Cursing the ban on bikes, you squeeze in to find just that one inch of extra space and hang on for dear life, till you reach the Main Building."

This is something all of us have invariably experienced sometime or the other. IIT Bombay is one of the finest technological institutes in the world. But, its internal transport system leaves a lot to be desired.

A li'l history

After the ban on the possession of any motorised vehicles by students and project staff (unmarried) was imposed in 2002-03, there were widespread protests by the student community. Following this, the Director Prof. Ashok Misra appointed the Shevgaonkar Committee (March 2003) to look into the issue. This committee, while ratifying the ban, made the following recommendations (Dated 31st March 2003):

1. Due to the large distance from the hostels to the academic area and main gate, the internal transportation facility should be significantly enhanced.
2. Small shopping facility with items of day-to-day need should be created in the student hostel area.
3. Parking shed with proper security should be provided at the main gate/market gate for parking powered vehicles of students who drive them outside the campus.

More than 3 years have passed, but none of the above 3 recommendations have been implemented. The transport situation, if anything, has worsened. A large number of the present generation of students has no clue as to why this ban came into being in the first place. Theories like, 'IIT suddenly became environmentally conscious' aren't uncommon! When asked, the Dean of Student Affairs, Prof. Prakash Gopalan said, "When Prof. Amarnath took over as the Dean in June 2002, he was alarmed at the number of mishaps involving motor vehicles. There were weekly accidents and the rate of admission into hospitals was very high. The estimated number of motor bikes in campus at that time was around 600-650. Keeping the well-being of students in mind, Prof. Amarnath decided to impose the ban."

The current scenario

The institute is presently served by 3 battery powered Electravans, fondly known as 'tum-tums'. Each tum-tum has a seating capacity of 16. Out of these three, only two cover the H-12/13 to SOM route. This is grossly inadequate, for the nearly 2000 students living in the far lying hostels: H-6, 7, 9, 12, 13. This mismatch in demand and supply results in the vehicles being overloaded – one can find nearly 35-40 students squeezed into a tum-tum during peak hours. In order to make more trips (and hence make more money), the driver ends up speeding and driving rashly. A few weeks ago, a student fell down from a running tum-tum and was seriously injured.

We see tum-tums plying during the peak hours only, viz. 8:30 A.M., 12:30 P.M. and 2 P.M. At all other times, one can seldom find a tum-tum. Also, the tum-tum does not run all the way till H-12, 13 during non-peak hours. The pricing of the ticket, at Rs.3 is another cause for dissatisfaction expressed by many students.

Situation in the other IITs

- Possession of bikes and other motor vehicles is banned in all IITs. IIT Madras was the first to introduce this rule, about 5 years ago.
- In IIT Roorkee and IIT Kanpur, the academic area is within walking distance of the hostels, and students prefer to walk/cycle to class.
- The internal transportation facility in IIT Madras is quite commendable. The campus is vast. The entire campus is divided into 4 zones. There are 4 regular sized buses and 10 battery operated vans which ply between different zones every 15-20 minutes. The cost of the ticket, from one end to another (nearly 3 km) is Rs.2. (Contrast this with the Rs.3 we need to cough up for our 'tum-tum', for a ride from H-13 to SOM.) And what's more? One can find these buses running even at 10:30 P.M.!

Remedial measures

To look into this problem, the Traffic & Transportation Planning & Monitoring Committee (TTPMC) was set-up, headed by Prof. S. L. Dhingra of the Department of Civil Engineering. In a TTPMC meeting held on 28th October 2005, a need for boosting the number of vehicles for internal transport was discussed. With the objective of increasing the number and frequency of vehicles operating for internal transportation in the institute, a number of alternatives were studied.

Some of the issues considered were – whether to purchase vehicles immediately or take them on rent, whether to use diesel operated vehicles or battery operated vehicles, cost to IIT, cost to the students etc. The proposal recommended by the committee is shown in the box. The committee backed this proposal since this particular option satisfies the high frequency demand in the IIT campus. Also, the battery operated vehicles are more environment-friendly. In phase II of the scheme, there are plans to make the service an Intelligent Transportation System (ITS) using GPS-GIS. This proposal was approved by the Director.

The General Secretary, Hostel Affairs Vinay Sharma, who is also a member of the committee, is of the opinion that it would be difficult to collect Rs. 50-60 per month from all students, as a large number would be unwilling. At the moment, student representatives are looking at the option of obtaining some kind of sponsorship for the same. With the present operator expressing an unwillingness to continue the service (September 2006), this proposal is set to be implemented immediately (i.e. within the next three months; the present operator has to continue for the mandatory period of three months, as per the agreement).

Once the new proposal is implemented, there will be an increase of tum-tums from 3 to 8. However, our analysis (see Box for graphs) shows that there will be no actual betterment of transportation facilities for the students. We also collected data on the number of students using different modes of transportation. The tum-tums form a tiny fraction of this. It was also seen that students do not favour the only other alternative means of transport - cycles.

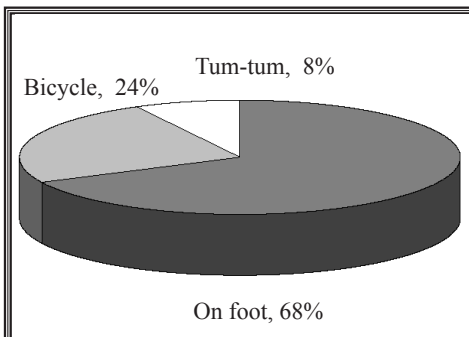


Figure 1: No of students using various modes of transportation at present

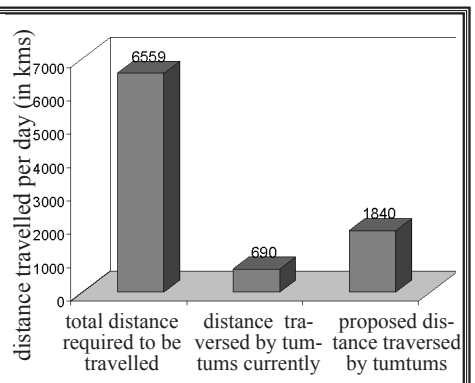


Figure 2: Demand vs Supply

We collected data on the number of students using different modes of transportation currently in the institute. Our data clearly shows that tumtums only provide transportation for a minority. In the absence of a good internal transport system, walking is the most preferred option. Though cycling could potentially save a lot of time, it is evidently not a popular choice.

We decided to analyse the total distance that has to be travelled by all the students in the institute per day, assuming a minimum of one trip has to be made to the academic area (demand). We then calculated the fraction of this distance traversed by tumtums in the current as well as future scenarios (supply). The graph clearly shows a huge mismatch between the demand and supply.

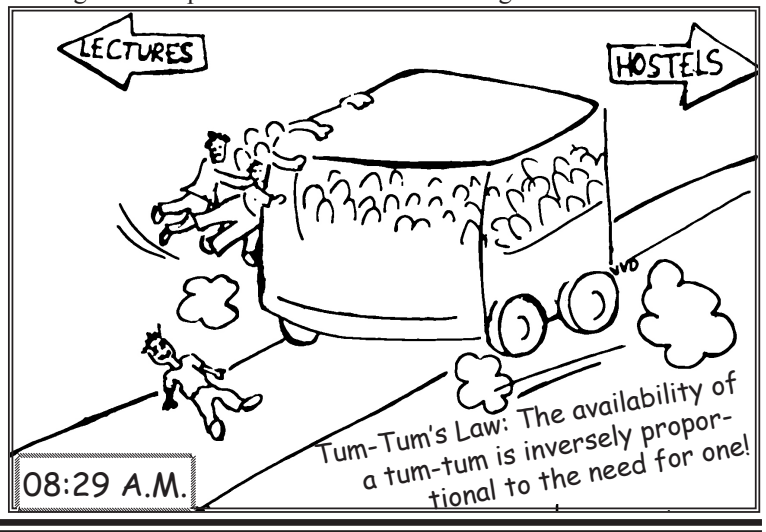
(All data with assumptions and calculations are shown on the InsIghT website.)

Conclusion

It has been more than 3 years since motor-vehicles were banned in the institute, and the authorities have still not been able to provide an effective substitute means of transport. A whopping 1353 student-hours are spent per day in transit (refer website for calculations). Buying 30-40 tum-tums is neither economically nor spatially viable. Considering all these factors, it is perhaps time to reconsider the old system. The reason for imposing the ban - accidents can potentially be brought down by the imposition of strict road traffic rules by the authorities and greater vigilance on the part of the students. From a demand-supply point of view, it is probably best, if motor-vehicles were given a second chance.

Recommendations of the Traffic & Transportation Planning & Monitoring Committee (TTPMC)

- IIT purchases battery operated vehicles (straight away or through sponsorship for initial purchase)
- No. of vehicles to be bought : 8
- Cost to IIT : Rs.30,30,000 (one time) + Rs.3,46,750 (annual) to be contributed by the service-provider towards replacement of a vehicle every 2 years
- Cost to the users : Rs. 57.3 per month per student
  + Rs. 100 per family from the staff and faculty



An August Beginning

Arunabh Sinha & Ankoor Das take a look back at last month's Theatre Festival.

August marked a new high in the cultural scene of IIT Bombay. For what is possibly the first time in its cultural history, IIT Bombay played host to a theatre fest spread over a period of six days from 22nd - 27th August. And the debut of sorts was a huge success story. Plays of the highest caliber, boasting some renowned thespians who have graced Indian theatre, were staged. Giants like Nagesh Bhonsle, Joy Fernandes and Kumud Mishra who have become synonymous with contemporary Indian theatre gave the audience inside IIT a feel of the art which they have mastered. An art that is still going strong, even in this era of satellite television and multiplexes.

As far as the plays go, they were of the highest order and had been showered with numerous accolades during their previous performances. The reading of *Ghalib's poems* on the first day did not go down particularly well with the audience. But that is more attributable to the fact that this was pure Urdu at its best and the audience had never been exposed to such generous doses of pure Urdu before. The following day, *Chhotu Speaking* paved the way for the success that the entire initiative eventually was. With Joy Fernandes of "Jajantaram Mamantaram" fame enacting Chhotu, the response *had* to be really good. The play had delightful smatterings of humour, nostalgia, memories and monologue. And then there was simply no looking back.

Shakkar ke Paanch Daane – a monologue with stage veteran Kumud Mishra, left the audience spellbound. In particular, the dialogues and the awesome mix of humour with shades of tragedy ensured that the play emerged on top of the audience's listing. If *Shakkar ke Paanch Daane* triggered the audience's infatuation with theatre, *Garam Kamra* left the audience craving for more. Adapted from a Hungarian play, this was absurd theatre at its best. A quiet afternoon in the sauna becomes a fierce, farcical battle for supremacy. There is no winner. This idea left the audience mesmerized. The play that provided the icing on the cake was *Cotton 56 Polyester 84*. A gritty, true-to-life saga centred around Girangaon, Mumbai's historical textile mill district. A hard hitting, funny, and poignant play which came with the tagline - "It will change the way you see Mumbai forever." Rounding off the six day extravaganza was *Hum Dono*. Featuring an old lady recouping from an illness inside a sanatorium and the chief medical officer there, the story revolved around the old lady's enthusiasm for life and how it eventually rubs off on the doctor leading to a new-found friendship. The play managed to touch the innermost cords of the hearts of the audience and left the audience craving for more such performances.

Most importantly, the sense of crowd involvement had to be seen to be believed. This was something which far exceeded even the expectations of the performers and the people behind this novel initiative. This being the first of its kind inside IIT, a sense of skepticism was understandable. The organisers believed that in a place like IIT, where almost everything is really fast and technology driven, something like theatre would not make such a big impact. On the contrary, the response came as a pleasant surprise for everyone involved. Barring the first day, when a few seats did go empty. But the superlative performances from then on ensured that the word of mouth spread really fast. From the second day onwards, the numbers swelled drastically and some unfortunate ones had to be turned away owing to space constraints. The audience lapped up every small detail – the humour and the sarcasm involved with equal relish. To the full credit of the performers, they kept the audience mesmerised and totally engrossed in the proceedings of the plays. While Chhotu got the entire house nostalgic and sentimental with him, *Shakkar ke Paanch Daane*'s Rajkumar left the audience pondering. Applauding generously, the IIT audience egged on the performers. What also deserves a mention here is that the crowd was not an entirely IIT crowd. This being the first initiative of its kind in any college in Mumbai, people from as far as Kalyan flocked in large numbers to IIT to watch the actors in action. And they weren't disappointed.

A lot of effort was put into creating the ambience and the atmosphere that generally marks a stage performance. In this context, the efforts of the organizing team needs to be appreciated. Utmost attention was paid to the minutest of details and the results were there for everyone to see. Novel and traditional concepts, borrowed straight from the Shakespearean era, like ringing of the bells thrice ensured that the audience remained inquizitive and glued to their seats. To further the cause of theatre, a unique concept of a collection box was introduced. The audience was free to donate any sum of money of their free will once the play was over. The funds collected here will be used in furthering the cause of theatre in the country. Even here, the IIT audience did not lag behind. Generous contributions flowed in.

In the end everyone had just one wish "Hope for more theatre!"

We still reminisce the not-so-past when movies screened by the movie society formed a staple diet of the IIT culture. The crowd that turned up for most of the plays wants this to become a regular feature, covering plays from a broad spectrum of daily life, along with the possible revival of the now dormant film society.

As Shakespeare had rightly said, "All the world's a stage, and all the men and women merely players"!

A Giant Nano Step

Devasheesh Mathur and Abhinav Dhall report on the recent developments in the institute to further Nanotechnology research.

New millenium
brings about new age
dawn of nano sapiens
- James M. Palmer

Nanotechnology is one of the most rapidly expanding fields in the world of technology. Research in this field is being funded extensively the world over. IIT Bombay is by no means being left behind. Recently IITB consolidated its research activities in Nanotechnology through the formation of the Centre for Research in Nano Technology and Science (CRNTS). Besides, the Center for Excellence in Nanoelectronics (CEN) will soon be set up in collaboration with the Indian Institute Science (IISc). Prof. V.Ramgopal Rao, Head, CRNTS revealed to us the recent developments.

CRNTS encompasses around 45 faculty members from across 9 departments who work in the various disciplines of Nanotechnology. An 80,000 sq. ft building will be constructed as part of the Golden Jubilee celebrations of IIT Bombay during the period 2007-2009. Apart from the seed grant of Rs.7.5 crores being provided by the Department of Science & Technology, Govt. of India, it will receive an additional Rs.30 crores from the industry, government as well as alumni.

For the establishment of CEN, the funding from the Govt. shot up to Rs.50 crores. Apart from this CEN will also receive USD 7.8 million (about Rs.35 crores) from *Applied Materials* (USA) for setting up equipment. It's planned to erect a building for CEN next to the Electrical Engineering Dept (covering 18,000 sq. ft) by the end of the year 2007. Going by the quantum of funding involved, this is easily the biggest project that IITB has ever undertaken.

IITB will also be introducing an innovative program called the Indian Nanoelectronics Users Program (INUP) to make CEN accessible to external users including other academic institutions, research labs and industries. Students who apply and are selected by the program will be completely funded by the Dept of Information Technology.

All said and done, one wonders: Why was IITB chosen for such a centre in the first place?

Prof. Rao satisfies our query, "In the case of Nanoelectronics (CEN), we have been identified as one of the two major institutions in the country based on our research activities in the area. This was done by the Principal Scientific Advisor (PSA) to the Govt. of India, Dr. R. Chidambaram. It is well-known that IIT Bombay ranks amongst the best in the world in the field of Microelectronics. Nanoelectronics is just a natural extension of this. In the case of CRNTS, we have been selected because of our diverse ongoing research activities in this area." Prof. Rao's statements are backed by the fact that during the past 5 years IITB has produced over 400 high quality publications in this field and has undertaken high profile research projects from agencies like ISRO, CSIR, TCS, BARC and industries like INTEL (USA), Applied Materials (USA), Hitachi Ltd (Japan), IMEC (Belgium) and so on.

But how can one justify such a huge investment?

Prof. Rao replies, "The idea of setting up centres in such emerging areas is to produce quality manpower so that we attract international industries to the country and also encourage Indian industries to diversify into these areas. Further, these are also areas where there is tremendous scope for technology incubation. We have promised the funding agencies that we will encourage/facilitate growth of new start-ups at these centres. IIT Bombay also has an excellent culture for multi-disciplinary research and we wish to build upon this strength."

What does he foresee, say 10-15 years down the line?

"The future is definitely very bright, though one must say that there is also a certain amount of hype surrounding the field. One needs to keep in mind that Nanotechnology is not something that has been discovered overnight. It is based on the strong foundations of basic sciences and is a technology that has evolved over the years. Products based on Nanomaterials have already been in the market, either as stain resistant coatings for clothing or UV shielding for sunscreens. The market is expected to grow further. According to some recent estimates, the Nanotechnology market is expected to grow to USD 1 trillion worldwide by the year 2015."

Forbes.com hit the nail right on the head when they wrote, "As tech and telecom stocks continue to languish, investors and media commentators are looking for the next big thing. Nanotechnology fits the bill."

At the Crossroads

*Karthik Ramkumar and Dheeraj Singaraju both passed out of IIT Bombay in 2004 with a B.Tech in Electrical Engg. Karthik is currently employed as a business analyst at a financial company Capital One in Richmond, USA. Dheeraj is pursuing his Ph.D at Johns Hopkins University, Baltimore, USA. In an attempt to help you make the all-important **Job vs App** decision, they share their experiences.*

Karthik Ramkumar (Kram)

About three months back, I started taking salsa classes. Over this time I have become friends with a 22-year old whose name is Glen. Glen goes to college from 9 a.m - 5 p.m from Monday to Friday. In the evenings, he teaches dance classes to 7-year olds. To pay for rent, he works the night shift at the local supermarket on weekends, moving huge crates around from 9 p.m to 5.a.m. His life is so crazy; he ends up sleeping 5-6 hours on a good night, less most nights.

But there is one thing about Glen you don't know. Glen has a passion - he wants to be a professional dance instructor. At college, he takes extra courses in dance. In the evenings he teaches 7-year olds so that he can learn how to teach. At 4 a.m on a Saturday night, when everyone he knows is fast asleep, Glen hooks up his iPod, plays his salsa music and practices his dance steps in the middle of an empty warehouse as co-workers just drop their jaws and stare. Glen knows what he wants to be and he will get there one day.

Despite living the most comfortable of lives, having my dad pay for my education, working in a Fortune 200 company and living the yuppie life, I unfortunately do not know what I want to be. If you ask me, I truly believe that it is immaterial whether you choose to do a job or a PhD; work for non-profits or a business; go into arts or science. What really matters is that you love doing whatever it is that you choose to do.

In high school, I was a geek who loved math. I studied to get into IIT and become an engineer. When I came to IIT, I assumed that I would end up doing a PhD. However, as time went by I realized that I probably wasn't made for academia and I wanted to try out a job first. When I started working, I was completely lost. I felt stupid that I hadn't taken my internships more seriously. It has been 2 years now and they have had their ups and downs.

Do I miss the carefree undergrad existence? Of course I do. But at the same time there are many things I love about working. The freedom to do all that I ever dreamed of without feeling guilty about spending my dad's money. The responsibility of the professional life in stark contrast to the lukkhaness of IIT life. Very quickly you realize that it is time to become an adult. You want to succeed, you work. You slack, you stay where you are. I like having tangible short-term goals to work towards. I like being rewarded for doing well. The ability to work during the week and have the weekends (most, at least) to do whatever you enjoy. But of course there are things I don't like. Office politics. Sucking up. The feeling that you are just a cog in a wheel.

I have friends who know exactly what they want to do with the rest of their lives. Unfortunately, life isn't that easy for all of us. There is a senior manager on my team who gave me some great advice. We were talking about the professional goals people have for themselves and he likened the situation to that of a man on the bank of a river trying to get to the other side - that salary raise, that next promotion. But once he crosses the river, he realises that there is another river to cross. He said that his boss once told him to forget about crossing the river and imagine the person on the top of the hill at the end of all those rivers whom he wants to be. Imagine the life that person has lead, the experiences he has, the different characteristics he possesses. Imagine it all in excruciating detail and work backwards from there. Somehow it made a lot of sense to me.

My plan now is to continue accumulating experiences (both professionally and personally) and try and figure out who that guy at the top of the hill is that I want to be. And whenever I worry about the years going by and me not knowing what I want to do, I remember this immortal song called "Everybody's free (to wear sunscreen)" which you must all listen to if you haven't.

"Don't feel guilty if you don't know what you want to do with your life. The most interesting people I know didn't know at 22 what they wanted to do with their lives, some of the most interesting 40 year olds I know still don't." - Baz Lurhman

Dheeraj Singaraju (Golu)

In the summer of 2006, I was inspired by many reasons (boredom being the most significant) to make a movie on the lives of Indians pursuing PhDs in USA. While working on the script, I went around asking a few fellow Indian grad students how they felt about their student life. One answer I got really stood out. "Yaar! Wahan mere batchmates apne bacchon ke saath khel rahe hain aur main yahan baithkar quadratic equations solve kar raha hoon." Such a moment of truth comes in the life of probably every PhD aspirant and is the sole reason why a PhD seems so difficult.

This raises the quintessential question of a doctoral candidate's life "So if your life is really moving in slow motion as compared to the rest of the world, why are you doing it?" While my answer two years back would have been quite different from what it is today, the point is that I did have a satisfactory answer to keep me going. When I completed my undergraduate studies, I was, as they say, young and innocent. I had dreams; that some day I would be involved in *bleeding* edge research and contribute to the welfare of mankind. I believed that a PhD degree was the next logical step in my life and that it was a stepping stone to the success of my dreams. Well, at least that is what my Statement of Purpose read. Today, after having been weathered by the rigmaroles of a PhD for two years, I have a different perspective. As of now, there are primarily two things that keep me going. The first one being that I would like to take up teaching at some point of time after I graduate. More importantly, I **love** what I am doing.

It is imperative that one is genuinely interested in his research. A PhD is very different from the style of academics at the undergraduate level. One does not get a PhD by just staying at a university for four years. A PhD demands continuous commitment and a certain level of sincerity. However, the work culture does offer a certain degree of freedom. You are allowed to work on topics of your choice and at your own pace. The pressure to meet deadlines is not as pronounced as it is in a regular job. Pressure however, is there all the same. The formula is simple "Publish or Perish".

However passionate a person is about his work, he is bound to hit a rough patch at some point of time. There are times when equations seem unsolvable, theories are difficult to formulate, experiments do not complement the developed theory and nothing seems to be going right. At this point, I shall let you into a big secret about PhDs. It is not the formulation and implementation of novel ideas that is the difficult part. It is the survival.

When one is bogged down by work, you begin to question the position you are in. It's not that the stipend is low. It is more than enough to live comfortably, go partying every weekend and fund a trip back home once a year. However, the lure of a good car, fancy gadgets and a better lifestyle is more than enough to sway a student from his goal to get a PhD. This is where the secret formula comes in - *passion*. I am sure that people are laughing as they read this, wondering if I am one of those *foolish academic romantics*. However, trust me it is this passion in one's work that decides whether a person is going to continue to work for a PhD or not.

I firmly believe that it is wrong to label people who leave a PhD program "quitters". This is not an Amazing Race. There's no point in fooling yourself to put in time and energy into something that you do not feel for strongly. People often realise later during the course of their stay that there are probably better avenues for their skill sets. As long as one is clear what the short term goals are with a vague idea of the long term, there is absolutely no loss of pride in leaving a PhD program. Completing a PhD is an aspiration and not an obligation.

On a final note, my advice to those who are confused about whether they should pursue a PhD is - Apply. The fact that you are even considering a PhD is an indication of a certain degree of interest in research. This degree can be gauged after two years or so in a PhD program. While some might find this long, it is the ideal time frame to learn about the trials and tribulations of the academia and the industry alike. Internships along the way will help one get a taste of work culture in the industry.

Education is not synonymous with qualification. As long as you know what lies at the end of the tunnel, be it a PhD or jobs with reputed firms, any means that get you there is equally justified.

(Karthik and Dheeraj can be contacted at kramkumar@gmail.com and dheeraj.singaraju@gmail.com respectively.)

Bulletin Board

National Academy of Sciences Symposium

The National Academy of Sciences, India is organising the concluding function of its Platinum Jubilee celebrations featuring a symposium on "Science and Technology in the Service of Society" in IIT Bombay from Oct 6-8. The aim of holding the conference at IIT Bombay is to sensitize the youth with the challenges and opportunities in science and technology. The Hon'ble Prime Minister, Dr. Manmohan Singh is likely to inaugurate the function on the 6th of October. Several luminaries from fields related to science and technology are also slated to attend - Mukesh Ambani, Narayan Murthy and Ajai Piramal representing the industry, along with Dr. R. Chidambaram, Prof. Asis Datta, Prof. K.A. Dinshaw, Prof. M.G.K. Menon and many more from various fields of science. During the three days of the symposium, security in the institute will be tight. A notice has already been issued to all students and faculty to carry their Identity cards.

Panther Spottings

At around 10:45 P.M. on Sept 20th, a panther was sighted inside the compound of Hostel 10. It carried away a pup from a brood that lives there and escaped by jumping over the compound wall. The same animal was spotted again around 5 A.M. making its way towards the lakeside. 3 days later, at around 9:30 P.M. another panther was spotted near Hostel 7. Though these recent visits by our spotted visitors come after a period of hibernation, they just refuse to go away. One can only hope that it will not take a tragedy to end this menace once and for all.

Déjà vu: the Movie

Last year's ground-breaking PAF, Déjà vu had a script like none other before it. It was the audience's overwhelming response to the PAF that gave Prof. Kundu, one of the judges, the idea of making Déjà vu into a movie. In the beginning of May a team of students, several amongst them pass-outs about to begin their jobs, got together with a budget of 2.2 lacs to make Déjà vu: the Movie. Last month, the teaser was released and it immediately generated a lot of interest in the campus. The movie is presently in the post production stage and is due to be completed soon. Prof. Kundu intends that the movie be shown in all the IITs to begin with and then depending upon people's reactions, be publicized further.

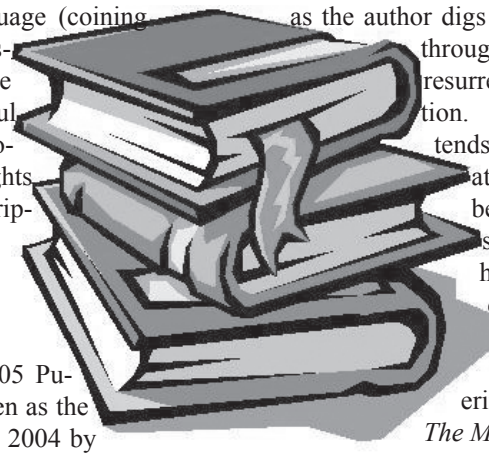
Esoterica

Book Review

Our resident bibliophiles, Kartik Shekhar and Vaibhav Devanathan review some not-to-be-missed books.

Nineteen Eighty-Four - George Orwell

George Orwell's satirical masterpiece tells an engaging and thought provoking tale of Winston Smith and his attempt to rebel against the politics of the totalitarian state in which he lives. This 1948 release was the last one by Orwell, who apart from being a prolific political commentator and essayist, was known for his views against fascism and totalitarianism, especially Stalinism and Nazism. The story, set in the year 1984, evolves through the eyes of Winston Smith who is faced with the corrupted reality of the world around him, essentially propagated by the ruling party 'Ingsoc', whose sole aim is to stay in indefinite power. Smith works in the 'Ministry of Truth', where his task is to refurnish historical records, so as to comply with the Party's version of the past. He is a small element in the Party's machinery of extreme propaganda which is responsible for a constant edition of historical documentation, essentially eliminating the concept of an objective reference in the past, which may instigate discontent in the present. As Orwell argues, the only way a political party can perpetually stay in power is not by suppressing the physical capacity of its people to revolt by force but by constricting their mental ability to even think of rebellion - through extreme deceit and propaganda. Smith wakes up every morning in a world where the citizens live under constant surveillance and the Party has engraved an ideology where knowledge and freedom are social aberrants and even thinking against the views of the party is considered an act of treason. Both the reader and Winston Smith begin as doubters and through reasoning and revelations, Orwell conjures a brilliant narrative portraying the extent to which an anti-imperialist revolution could degenerate into a totalitarian society, essentially betraying the objectives of the revolution. The book, undoubtedly one of the greatest modern day classics, is a must read much less due to the indelible impact it has left on the English language (coining new words and phrases) but more because of Orwell's masterful ability to present profound political thoughts and ideas through a gripping piece of fiction.



Maximum City – Suketu Metha

A finalist for the 2005 Pulitzer Prize and chosen as the Book of the Year for 2004 by The Economist, *Maximum City* entered the book stalls with pomp and fanfare that is rare for a work of non-fiction. The gritty portrayal of Bombay by author Suketu Mehta, a New York based writer of Indian origin has been compared to Hemmingway's and Balzac's memoirs on Paris. Through its 500 odd pages, Mehta weaves a character of our magnificent metropolis through life-portrayals, interviews and anecdotes with a myriad of people inhabiting it – a Shiv Sainik, a hit-man from the D-company, a police officer, a bar-dancer, a famous film-director, an affluent diamond merchant who has decided to renounce the world and many others. Starting with the riots of 1993 and the subsequent bomb-blasts, Mehta evolves the city before our eyes as he seeks and explores it himself through the lives of his protagonists. Although positioned as non-fiction, it has the intensity and vividness of a fictional piece as the author digs into the city's heart through its fall, perdition, resurrection and redemption. Though the book tends to ramble minutely at some parts, it can be unequivocally stated that Bombay has been handsomely documented by narrative reporting at its best, even towering Salman Rushdie's *The Moor's Last Sigh.*

It's Not About the Bike: My Journey Back to Life - Lance Armstrong

"I want to tell the truth. I'm sure you'd like to hear about how Lance Armstrong became a Great American, how he won the Tour de France, the Race that's considered the single most gruelling sporting event on the face of the earth. You want to hear about faith and mystery, and my miraculous comeback. But the Tour was the least of the story."

Armstrong's pathbreaking autobiography reveals to us the power of a steely resolve to win through all setbacks. Starting with a chilling description of the day he was diagnosed with testicular cancer, the book takes us back to his childhood and adolescent years, where we see how his talent and determination took him from an unknown to a feared competitor. The second part of the book is the story of Armstrong's painstaking fight against cancer after doctors gave him a 30% chance of survival. After he beats cancer, Armstrong talks about his Tour victories and how he came back literally from the dead to lay hands on one of the most coveted trophies in all of sport. *It's Not About the Bike* offers several valuable insights. We get glimpses of how the Tour de France works, of how cryptic words like 'peloton', 'echelon' and the 'elastic band effect' determine the mechanics that make a cycle race so complex. We also learn what makes the Tour special. As Armstrong says, "I had learned what it means to ride the Tour de France. It's not about the bike. It's a metaphor for life, not only the longest race in the world but also the most exalting and heartbreaking and potentially tragic." The most valuable insights, of course, occur when Armstrong shows us the mind of a champion, the indomitable will at work. We see that even the dominant sportsman of our times is essentially human and fallible. His devotion to his mother is apparent from the book – he credits her for 'teaching him what a true champion is'. The writing style is refreshingly blunt and direct. Through the book, Armstrong's courage shines like a beacon, providing inspiration and assurance that even the toughest times can be endured. All in all, an inspiring, informative, solid read.

Editorial

From the Editor's Desk

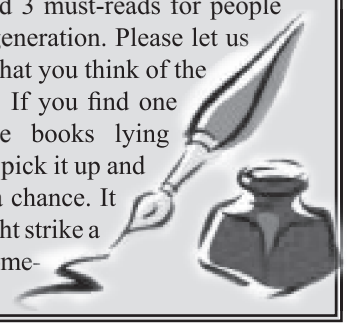
When my brother was in high school, he was once caught reading a book in class. He was then sent to meet the Vice Principal, who promptly let him off saying – "No wonder you have such a good vocabulary and logical ability!" It is one thing for school kids to be encouraged to read. Adults are either expected to have already cultivated the habit or are otherwise deemed a lost cause. Look around you and try to count the number of people who are avid readers. If you even get past one hand, consider yourself to be in elite company. I used to read a ton in school. These days though, it takes a marathon effort for me to get through a book.

It is a commonly accepted fact that the reading habit has deteriorated over the years. The internet, television, videogames and even the SMS culture are considered to be the primary culprits. Computers are changing the way people think. And read. Search engines have made any information a click away. Wikipedia is now a phenomenon on its own. You cannot fault technology such as these because they truly have revolutionised the way we live. However, clichéd as it sounds, reading broadens your horizons and improves your creativity like nothing can. There really is no substitute.

Even newspapers are, for many of us, a thing of the past. A disturbingly large number of people read them only for the daily gossip. It never ceases to amaze me how a newspaper like ToI can be one of our leading national dailies. Last month, one of our articles was misinterpreted by them and quoted completely out of context to brand us all nerds. Another article that I recently saw in the papers though interested me. It claimed that the runaway success of Lage Raho Munnabhai has led to a sudden surge in the interest for *books* on the Mahatma. Munnabhai ki jay!

Last week saw the revival of the institute's Dead Poets' Society (DPS). The first of the revival sessions was held as a tribute to T.L. Aravind Vignesh Subramaniam, the founder of DPS who passed away recently. DPS comprises a group of literature enthusiasts who meet once a week and share their favourite prose, poems and short stories with each other. If you think you have a knack for poetry and humour, keep an eye out for our upcoming **Limerick Competition**. A limerick is a type of humorous, and often nonsensical, 5-line poem with a strict meter and internal rhyme.

We have also introduced a book review section in this issue where we have reviewed 3 must-reads for people of our generation. Please let us know what you think of the column. If you find one of these books lying around, pick it up and give it a chance. It just might strike a chord somewhere.



Should LAN be banned for the greater "good"?

The issue of the declining academic inclination of students has been a problem in the institute for quite a while now. The increasing amount of time being spent by people nowadays in front of their computers has been a worrying issue in this regard. It was proposed, about a year ago, that some affirmative action would be taken to curb the activities on the LAN. In a student body meeting held last semester, it was identified that people getting addicted to gaming was a big problem and that it should be reduced. So, a solution was proposed along these lines and presented to the institute authorities.

This semester, a student-faculty committee was constituted under the convenorship of the Dean, SA to make a final decision on this issue. A meeting of this committee was held earlier this month. Extensive discussions took place on the various causes of the problem and possible solutions. The following salient points were debated upon:

- A bandwidth limitation to moderate the amount of material being downloaded from the internet.
- A solution to the gaming problem, in which some technical framework would be implemented to completely put an end to gaming.
- A time-based ban on internet in the hostels. Different timeframes were suggested, such as 1 AM-7 AM, so that people spend this time in their beds instead of on their computers, or 8:30 AM-12:30 PM, so that people attend classes. It was also mentioned that this would be coupled with an increase in computer facilities in the departments so that students with genuine academic commitments did not suffer. A selective ban on messengers/ Orkut was also debated.
- Promotion of the legality of the content being transferred on the LAN. With the beginning of the MSDNAA program (in association with Microsoft), the institute already provides legal copies of Windows and many other Microsoft software for free to the inmates of the institute. This measure is to extend this policy to other fronts. People found using the institute computer resources for "distributing" illegal stuff of any form would be penalised, up to expulsion from the institute.

Of the above, the student representatives (GSAA, GSHA, MLC) agreed upon the implementation of the first and second points; and upon the third conditionally, should the first two not work over a period of time. Over the next few months, the institute computer resources are bound to see a sea change. If you feel strongly about the various points discussed above and the measures being taken, please give it a good deal of thought and give us some logical feedback. The institute student representatives have been discussing these issues extensively and seriously for the last 2 weeks. However, advice of any sort will be greatly appreciated because we require as much logical feedback as possible to help us put our case forward in the most effective manner. Please mail your feedback to: lan.feedback@gmail.com, asap.

(Swapnil S. Sachdev and Saurabh Singhvi are members of the institute Middle Layer Committee. They can be contacted at swapnil@me.iitb.ac.in & sobers_2002@iitb.ac.in respectively.)

The Black Sheep of the Family

Ashish Goel delves into the controversy surrounding Pluto and its status as a planet.

134340 Pluto. Strange as it may seem, this is the new name assigned to Pluto, following the controversial decision of the International Astronomical Union (IAU) to strip it of the planetary status it has enjoyed, ever since its discovery in 1930. On August 24th 2006, Pluto, the last planet to join the heavenly pantheon, became the first to leave it.

For those with a sound understanding of solar astronomy and planetary motion in general though, this decision does not come as a surprise. Astronomers have always been skeptical about the classification of Pluto as a planet and with time, the developments in the field of astronomy, have only strengthened these suspicions.

Size: Neptune, the eight planet was actually, first discovered on paper. Astronomers followed the trend set by the previous planets in terms of mass and orbital parameters and predicted the position of the next planet and when the telescope was turned to that point, they found Neptune. Pluto however, is a complete misfit. Its size is too small to fit into the picture. As a matter of fact, Pluto is even smaller than several satellites of the solar system, including ours.

This also makes Pluto incapable of clearing its immediate neighbourhood and defining its territory in some sense. The term 'clearing the neighbourhood' refers to a situation in which the gravitational influence of the object is strong enough to cause all the small bodies around it to either accrete with it, or be thrown away into another orbit. This is considered an important step in the process of planet formation and the fact that Pluto has not cleared the Kuiper belt objects such as Plutinos, is an important condition that Pluto does not satisfy in the IAU's new definition of a planet.

Orbit: The orbit of Pluto is highly eccentric while all other planets have near circular paths of revolution. In fact the eccentricity of the orbit is so high that for some period of time during a Plutonian year (which is roughly 248 Earth years) Neptune, and not Pluto, is the farthest planet from the sun. In addition to this, the orbit of Pluto is highly inclined (up to 17 degrees) above the ecliptic plane (an imaginary flat plane in which all other planets revolve round the sun).

The last nail in Pluto's coffin came with the discovery of several trans-Neptunian objects like Quaoar and Sedna which satisfied the expected orbital parameters better than Pluto. The only factor that could still have saved Pluto was the fact that it has an atmosphere and a satellite. But with the discovery of Eris, which has a similar surface composition to Pluto, and possesses a satellite as well, all its hopes were laid to rest. There was nothing special about Pluto anymore.

Does this change of status mean anything apart from the fact that all 6th standard NCERT textbooks will now need some modification? It certainly raises a question regarding what Pluto really is. For the time being though, astronomers have settled this issue by assigning Pluto the status of a 'dwarf planet'. In fact astronomers had to come up with a new term 'dwarf planet' in order to accommodate for heavenly bodies like Pluto. Currently, only 3 objects Eris, Pluto and Ceres (the largest asteroid) bear the status of a dwarf planet. More importantly, there can be no example, as vivid as this one, to demonstrate the fact that science is self correcting.

In any case, all those who have some sort of an attachment with Pluto can express their discontent and petition against this decision by logging onto www.ipetitions.com/petiton/planetprotest , a forum setup by the rebel astronomers (and there are lots of them) to lodge their protest against the IAU.

Watch out for the new developments in this field. Classifications are changing so thick and fast, that by the time you read this, there could be several other members of the solar system added to the list of dwarf planets.

Some interesting facts about Pluto

1) Pluto was discovered in 1930 by Charles Tombaugh at the Lowell Observatory. Apart from being the name of a Roman god, the christening of this heavenly body was also intended to evoke the initials of Percival Lowell who played a pivotal role in its discovery.
2) It has 3 satellites viz. Charon, Nix and Hydra. The size of Charon is so close to that of Pluto that they are often considered to be a binary system. As a matter of fact, their centre of mass lies outside either of the two bodies.
3) It was earlier mistaken that Mercury and not Pluto was the smallest planet of the solar system because the astronomers had observed both Pluto and its satellite Charon as a single entity.
4) When Pluto is close to the sun, the Nitrogen in its atmosphere (that had solidified when it was away from the sun) sublimates and produces a cooling effect similar to the one produced when sweat evaporates from our skin. Due to this effect, known as the 'anti-greenhouse effect', the surface of Pluto is 10 K cooler than expected.
5) Pluto shares several features in common with comets. In fact solar winds are gradually blowing its surface away into space.
6) After reaching Saturn, the controllers of Voyager 1, could have continued on their journey towards farther planets, which would have brought them closer to Pluto. Instead, they opted to analyse the newly discovered atmosphere of Saturn's moon, Titan. This required the probe to take a flyby around Titan and the consequent change in trajectory ended their hopes of reaching any other planet. However, on the 19th of January this year, NASA launched the spacecraft 'New Horizons' to visit Pluto.

The Path to the Future

Ashwin Ravikumar and Avtansh Agarwal highlight a few inventions that are creating a buzz in the scientific community.

Nanotech solar- cells

With the spiraling crude oil prices and the political uncertainity on the issue, the impetus on scientists to come up with new innovative alternate sources of energy has never been greater. The immense potential that solar technology offers is a known fact., but is yet to be tapped. The speed-breakers for the success of traditional solar panels have been relatively poor efficiency and the exorbitant price of silicon. However, now the synchronisation of solar technology with nanotechnology offers just the right combination.

Researchers have significantly increased the efficiency offered by the most sophisticated silicon cells of today from 14% to 42% with the help of materials laced with **quantum dots**. A quantum dot is a nanoscale crystalline structure that absorbs white light and then reemits it a couple of nanoseconds later in a specific colour. Because quantum dots have discrete energy levels, much like atoms, they are sometimes called 'artificial atoms'. The energy levels can be controlled by changing the size and shape of the quantum dot. Most of the solar energy striking the silicon surface is lost as heat. So a photon can at very best knock out a single electron. Quantum dots however productively use a wider spectrum of wavelengths and hence can remove as many as 7 electrons per photon. However most of these extra electrons get diffused in the structure. Hence researchers are now concentrating on ways to tunnel them into wires.

Optofluids

The conventional large optical lenses of a camera render all the work that goes into miniaturizing the electronics totally null and void. Imaging technology is however set to experience a major facelift with the advent of optofluids. Consider the human eye - we focus on objects by flexing the eye's ciliary muscles so as to change the shape of a soft lens, so that the image forms exactly on the retina. Now researchers are attempting to mimic this very action by using lenses with shape changing properties. The cheap mobile phone, currently crippled by the fixed focus lens, will benefit immensely.

The shape of a water droplet can be changed by varying the voltage across it. If the surface is hydrophilic, the area of contact is maximum, and if the surface is hydrophobic, the water forms a bead in a bid to try and minimize the contact area. Varying the voltage across a water droplet changes the wettability of the surface- the extent to which the droplet 'sees' the surface as being hydrophobic/hydrophilic. Result? A lens with a focusing power 5-10 times that of the eye and with a response 5-10 times faster.

Another fascinating aspect is that one could provide an extra degree of freedom to the droplet. Instead of applying a uniform voltage across the whole lens, preserving the symmetry, we could apply different voltages at different points on the lens, endowing the lens with the capacity to shift the focal spot from up to down and from side to side, as well as backwards and forwards. Thus, cameras will now be able to follow motion of objects without any apparent movement of their own, exactly like the human eye.

Zebrafish revealed

The zebrafish, today, is ubiquitous not just in pet stores but in scientific labs too. Zebrafish are providing an understanding of the development of a vertebrate from an embryo to an organism. Zebrafish and humans share a considerable amount of genetic material; the zebrafish is thus helping us comprehend the vast human genome. The good thing about them is that they breed quickly, have fast embryonic development, and their embryos develop outside the body in a beautifully transparent egg.

Thanks to the see-through egg, scientists can study closely the first beat of a new heart, the growth of blood vessels and nerves and so on at leisure through the microscope. To study the function of a specific gene, scientists disrupt the activity of that particular gene using mutagen chemicals, and then observe the changes in the embryo and the final organism. The production of these mutants has helped answer some profound questions - albino zebrafish helped scientists isolate the gene which controls melanin production, a disproportionately long-finned mutant told them which gene is responsible for maintaining the proportion of organs and so on. With the quantity of research being undertaken on it, the zebrafish is set to join the club of organisms which we know very deeply, perhaps more deeply than ourselves!

Profs' Space

Why HSS?

- by Prof. Sharmila

Let me make a confession straight away. I teach in the Dept of HSS- the "lukkha" department. Worse, I teach English. Now that I have exposed myself to the full blast of your scorn, let me plough ahead. I've been asked to address the question that apparently many of you are asking: "Why, why must we be inflicted with so many HSS courses? We are B.Tech students after all."

It is a difficult job that I have on hand. Not because I am unconvinced about the relevance of my discipline or of others in H&SS. But because for some time now we have been inhabiting two separate continents in the academia. You live on the one that is called Science & Technology and I on the one called Humanities & Social Sciences. And there has been so little trade or conversation between us that we tend to mishear each other.

But let me run this risk. Let me try and hear the questions you mutter under your breaths as you file in for HSS classes. Or ask out loud as you sit around in coffee shacks and canteens.

What's the point of learning HSS courses?

None - I am afraid that is what the answer would be, if one has already decided what the point is. If one has already decided that certain domains of knowledge and certain modes of enquiry are important and others are not. But, let me put this to you: Could it be that at least a part of the "irrelevance" of HSS courses is because of these rather inflexible perceptions? Could it be because there is a great reluctance to reconsider what the point is? HSS courses do not easily fit; they do not easily mesh with what Sc & Tech students know and respond to. Therefore, they get to be pointless?

But surely the point is that we have chosen to do "technology". So why…?

Let me take a brief detour through history. Indulge me for just a little while. As you all know, IITs were set up in the early years of independence. It was part of the Nehruvian dream of nation-building. IITs were not conceived of as production-houses for making glorified workers. They were not to be knowledge-factories that would manufacture engineers who would simple-mindedly and efficiently complete the projects assigned to them. No.

IITs were the grand institutions of an optimistic young nation. They were to serve as the learning-grounds for the splendid dreamers-architects-builders of free India. They were to create citizen-subjects who would dream the expansive dream. Who would formulate the "problems" that needed to be solved, who would draw ambitious blueprints and build the nation which we aspired to be.

In this teaching-plan, "technology" was not abstracted as the only point. It was to be the agent of social, political and economic change. The citizen-subject that IITs produced had to appreciate not just the narrow area of their specialization, but also the socio-cultural landscape in which they were intervening.

Departments of H&SS were set up with this bigger design. Its mandate was not only to train you to speak English better (or Russian, as in the early days of IITB) or do courses that will give you easy formulas for connecting technology and economics/psychology/history/philosophy/sociology. It was set up so as to enable students to appreciate larger socio-cultural, political and intellectual landscapes, to encourage them to think critically, imaginatively. So when you chose to "do technology" in IIT, you chose to be part of this rather grandiloquent dream.

But we have so many boring courses to do in HSS…

Touché. You have me there. But let me try and explain how it looks from where we stand. As teachers we go into classrooms expecting to find a set of students who are hostile/indifferent/plain bored. It is scary. And disheartening. We know that most of you will merely go through the motions of doing our courses. You will proxy attendance, you will doodle in your books, do assignments for other courses, catch up on backlogs of sleep...

So what do we do? We dumb it down. We make knowledge into palatable pellets. Offer you capsules of information. So that we won't have to fail you in the exams. But when the answer-sheets come in, we despair all over again. It makes us think: Perhaps we should make things even simpler, even more digestible. In the process, we fail. We fail to convey the heady excitement of possible intellectual journeys. We fail to stimulate even those of you who care and are curious.

[Caution: This is a fable. It should not be generalised to all HSS teachers. Or indeed, to all B.Tech students.]

We really cannot see how we are going to use these HSS courses in the future…

If that is so, truly, there is a problem. And we should hold ourselves at least partly guilty. When we [again, I wouldn't want to over-generalize and hold all HSS professors responsible] give you information-nuggets that will help you pass exams and fetch you decent grades, perhaps we fail to do other, more important, things. We perhaps don't encourage you to think differently, to ask questions that have not been asked, to take corridors of enquiry that are not clichéd, to have adventures with ideas.

The plan was never that HSS courses would help you find answers today for problems that you will encounter tomorrow. Rather, the idea was to equip you with ways by which you can understand the complexity of the issues that you would encounter. I have no doubt that the department of H&SS has a crucial place in IITs. But if you feel that it has not lived up to its mandate, then I think we need to do some serious rethinking. If you think that the mandate itself has grown old and outdated, then we need to re-engage with the possibilities of the HSS pedagogy. And when I say we, I mean you and us- inhabitants of what are now separate continents.

Prof. Sharmila is an assistant professor in the Dept of Humanities and Social Sciences. She can be contacted at sharmila@hss.iitb.ac.in

Unnati...

In the last issue, we reviewed the objectives and structure of Unnati. ***Devarun Ghosh*** *makes an attempt to briefly outline the conglomerate of activities through this article.*

Within the IITB campus, we are faced with an imbalance of a different kind, an intellectual imbalance. On one side we have the best minds in the country doing world-class research, while on the other hand we have children struggling to get elementary education opportunities and falling an easy prey to every addiction in sight. It is imperative that the IIT community is made aware about these ills and the need to find solutions. We draw motivation in this regard from what Mahatma Gandhi believed, "The first duty of the students should be, not to treat their period of study as one of the opportunities for indulgence in intellectual luxury, but for preparing themselves for final dedication in the service of those who provided the sinews of the nation with the national goods and services so essential to society." The cornerstones of our educational activities are primary and secondary education to the disadvantaged sections of society and adult literacy. We run programmes in the Campus school, Kendriya Vidyalaya, National Sanganak Vidya Kendra catering to remedial education and non-formal open schooling for a multitude of age groups.

The basic purpose of the Group for Rural Activities is to generate awareness among the students of IIT about the present rural scene and to participate in developmental activities as far as possible. The rural visits organized bring down IIT students from the ivory towers of higher education in which they reside to the ground realities of rural India. We also run "Teach Me" activities in slums like Phulenagar to spread awareness about the need for education. We interact with villagers, discuss about their problems and facilitate technological solutions by dint of our expertise. This is done in conjunction to the projects at the Centre for Technology Alternatives to Rural Areas.

Our programmes for the youth stress on the need to destress and re-acquaint oneself with smiles. Based on the principle of Health, Hygiene, Human values, Homes for the homeless and Harmony, our Navchetna Shivirs focus on Dhyana, Satsang and Pranayam. These camps have been immensely beneficial to mess workers, institute employees as well as students.

Besides we also organize multifarious events throughout the year. Some events that we have successfully organized in the past are An Orchestra by Blind School, Salvation Campaign, and Donations to the Tsunami/ Mumbai Flood victims. The Salvation Campaign programme aims to draw voluntary contributions that people in the campus like passing out seniors can make through donation of clothes, blankets and other household items to be distributed to those in need through the interface of a NGO or otherwise.

Our sister organization, Vidya's integrated programmes for the development of youth and adults help women in becoming self-reliant. These include several community programmes like Aahar (a food cooperative), Udyogini (handicrafts) and Vastrakala (embroidery).

One ambitious programme we envisage for the future is the setting up of a Career Cell to organize vocational training and reach out to companies to recruit unskilled/semi-skilled technicians.

Foootbaaall feevverr!

Saurabh Das explores the latest phenomenon to have hit the institute, hostel football leagues.

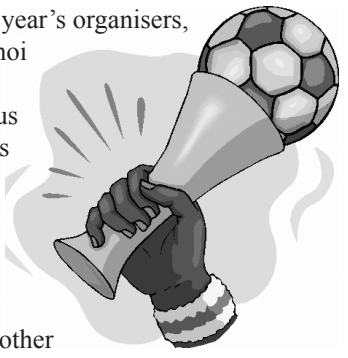
"He gets past the goalkeeper, has an open shot and he scores! Mohan Bagan 1, Real Madrid 0!" screams the commentator as a huge cheer erupts in the crowd. "What in God's name is happening to world football", you ask? Fear not. Nothing's happened to world football. We are talking here about something far more exciting: The FPL, or Four Premier League.

Intrahostel football is always exciting but with the usual 'wing-vs-wing' format, certain problems arise. As a result of the knockout format, many good and enthusiastic players get to play only a very few number of matches. The matches can at times get extremely rough. It is also quite difficult for every wing to float a team of its own.

Last year two die-hard football fans of Hostel 4, Arvind Iyengar and Renil Gogri came up with the brilliant idea of the FPL. Six enthusiastic seniors were picked as managers and each formed a team of his own. The teams were rather exotically named after world-famous football clubs and the league kicked off. However, all the matches unfortunately could not be concluded for reasons such as the impending placements.

This year, the league has been taken to new heights. A home-and-away match system (all players actually own a white and black FPL T-shirt each), official FIFA rules, open bidding for players, a transfer season, a fixed schedule and what's more, live commentary! They truly seem on course to emulate a professional football league. One of the most interesting features of the FPL is the open-bidding system where managers come together and bid for players, thus ensuring that no team is too strong. It also means that managers have to know about all the league's players in order to make a clever bid!

With 10 teams and more than 160 players participating, the FPL brings a very large section of the hostel together. It serves as a great platform for freshie-senior interaction too. This year's organisers, Aashish Vishnoi and Bhrugesh Chauhan tell us that 80 players - that is half the league - are freshies!



Interestingly, other hostels are following in the footsteps of the FPL. Hostel 13 has just launched its '13 La Liga' and though the rules of the league are quite different, the basic idea is the same. Other hostels are also toying with the idea. At this rate, we might soon have our very own IIT Bombay League!

In the meantime if you are lukkha some evening, head over to Hostel 4 and watch the teams slug it out. Who knows? Perhaps Mohan Bagan will actually beat Real Madrid!

WE-BIOG

Blogging is one of the biggest revolutions to have hit the media in the past decade. Nikhil Chandra Jha gives you a taste of the immensely diverse blogosphere.

If an infinite number of monkeys are given typewriters for an infinite amount of time, they will eventually produce the complete works of Shakespeare.
~Infinite monkey theorem

We've all heard that a million monkeys banging on a million typewriters will eventually reproduce the entire works of Shakespeare. Now, thanks to the Internet, we know this is not true.
~Infinite monkey theorem gone wrong

Leaving this monkey business aside for a while, the first question that pops up in one's mind when you discuss blogging is - why blog? Some people dismiss it as a self-indulgent waste of time, a narcissistic pursuit by people short of friends in real life; they do this on their own blogs of course. Some others hail it as a media revolution, an unparalleled platform for exchange of opinions and ideas, an outlet to showcase creativity. A few others say that it's either blogging or standing in a public place and shouting into a megaphone. Blogging is by far the easier alternative then.

Much like the quest for the answer to Life, Universe and everything else, even after innumerable discussions, dissertations and studies a definitive explanation remains elusive. Again like the ultimate question, it may be argued that it's not needed anyway. Whatever be the motivations, one thing that can be ascertained for sure is that blogging is a very powerful medium to reach out to people and this fact is being exploited by companies, media networks and even political parties with great success. Blogs such as these, though, might well be classified as websites, given the content and motive.

Apart from a few popular blogs which pursue a definite purpose and pattern, the vast majority of blogs are personal blogs. These personal blogs contain anything from chronicles of day-to-day happenings, travel accounts, personal poems, reviews, stories, cribs, rantings to transcripts of Gilmore Girls episodes or photographs of dressed up dogs and cats. Now unless these are cats resembling Hitler (go search!), there is no reason why anyone would like to visit these blogs. Except maybe a few loyal friends who have a sort of unspoken understanding of mutual reading and commenting. Other than putting the personal lives of bloggers at the mercy of search engines, there is little these daily disclosure type blogs achieve. The anonymous ones are often the more colourful ones, writing about exotic experiences and giving uninhibited opinions without having the burden of being accountable for them. A welcome change, but very often they tend to lack credibility.

Thankfully, exceptions to these mind-numbing and mediocre blogs do exist. Very often, these are the ones that get noticed. Good content, a natural respect for language and grammar, a tone of humour, sarcasm or satire, innovation coupled with creativity and regular updates are just few of the parameters that make a good blog stand out from the others. Given the factors that go into making a blog - a fair supply of free time, regular network access and most importantly an ample amount of intellectual grey matter, it is only natural to expect IITs to boast of some good bloggers. IITB, by extension, follows this rule. There are a host of people from IITB, both current students and alumni, who have chosen this medium to showcase their creativity and voice their opinions. Some of them are getting noticed too.

Zishaan, who graduated from IITB in 2005, has a photoblog [http://www.hayath.com/pointandshoot/]where he captures, rather beautifully, the world around through his camera lens. For his laudable efforts, he was nominated for 'Best South East Asian/ Indian Photoblog' at Photobloggies 2005 and 2006.

J Ramanand, a current student in KreSIT and a past winner of BBC's Mastermind India, maintains a well categorised and widely read blog [http://quatrainman.blogspot.com] which has a distinct trivia quotient to it along with reviews and opinions. He has also started a popular quizzing blog Interrobang [http://notesandstones.blogspot.com].

Sahal Merchant, a graduate from IDC, regularly puts his digital animations and sketches on his blog [http://lightboxx.blogspot.com]. One of his animation shorts 'The Bench' bagged a special mention at the International Animation Day Awards 2005 in the students' category.

Shantanu Godbole, who completed his PhD from KreSIT in 2006, runs a blog that is a foodie's delight called Sigfood [http://www.sigfood.org]. Needless to say, it attracts a lot of people who enjoy and contribute to the wonderful compilation of food related articles and restaurant reviews.

With such examples from a wide range of special interests to emulate, the standard of blogging in the campus is surely set to move north. So if you have a blog and are looking for ideas other than the ubiquitous daily descriptions, you don't have to look too far. If you do not have a blog as yet, then well, what are you waiting for?

Just as a parting note on the monkey business, this is what Stephen Colbert, of The Colbert Report fame, had to say about the infinite monkey theorem,

"One million monkeys typing for eternity would produce Shakespeare, ten thousand (drinking) monkeys typing for ten thousand years would produce Hemingway, and ten monkeys typing for three days would produce Dan Brown."

I'm so glad Colbert is yet to read my blog.

Stop being a Zombie!

What is a Zombie?

A zombie is a computer that has been implanted with a Trojan horse that puts it under the control of a malicious hacker without the knowledge of the computer owner. You can think of a Trojan horse as a remote-control tool. It quietly sits in the background, waiting for you to go online, and for the hacker to load it. Trojans are far more sophisticated than viruses or worms, and often allow a hacker unlimited access to a compromised machine.

How?

You can infect your system with a Trojan horse by clicking (and thereby executing) an e-mail attachment. Currently, these crooks' weapons of choice are Trojan horse programs, which typically arrive as harmless programs or innocuous files such as JPEG images. Double-click the files, and you launch a hostile program!

So what?

Once Trojan horses are installed, a hacker can do a range of things, from pranks such as changing the look of your screen, deleting and renaming files, to more serious breaches such as reformatting your hard-disk and stealing your passwords or private information.

Firewall: A software program that prevents intruders from entering a computer or network from the Internet. Anything entering or leaving a system protected by a firewall is examined to see if it violates the system's security standards. A firewall can also be set to prevent unauthorised data from being sent out over the Internet from a user's computer.

Zombies are used to launch DoS (Denial of Service) attacks that can bring a network down to its knees. The hacker sends commands to the zombie through an open port like a broadband connection. On command, the zombie computer sends an enormous amount of packets of useless and confusing information to a targeted website in order to clog and cripple the site's routers and keep legitimate users from gaining access to the site.

A Distributed DoS occurs when several computers are controlled by the hacker. As is obvious, this attack can be much more dangerous to a server due to the fact that the attacks are more widespread, can target multiple components on the server at the same time, and attack in parallel so that the server has to prevent all these attacks at once. Once the DDoS attack has been launched, it's hard to stop. If the addresses are spoofed, you will have no way of knowing if they reflect the true source of the attack until you track down some of the alleged sources.

Oh No! Help!

· Implement router-based filtering - This is more for an ISP or businesses that use high-end routers on their networks.
· Installing a Firewall may save your computer. Google for details.
·Consider partitioning your hard drive in to smaller drives. This way, should a DoS occur, it will not crash your hard drive but only the partition being attacked.
· Monitor systems' performance - Windows offers something called the 'Task Manager' that gives you a diagnostic of your CPU and memory; and what processes are currently using them (Ctrl + Alt + Delete keys).
· Deploy detection software like Moosoft's The Cleaner which not only detects and prevents Trojans but also sounds an alarm when a change is made to your computer (which you might not have made).
· Make sure your Windows is up to date with the latest critical updates and patches. Hackers have made it their goal to find vulnerabilities within Windows and exploit them.
· Check if your computer's antivirus has Trojan protection; if not, get things like Trojan Slayer from the net.

(Aaditya Ramdas can be contacted at aaditya.ramdas@iitb.ac.in)

Did you know?

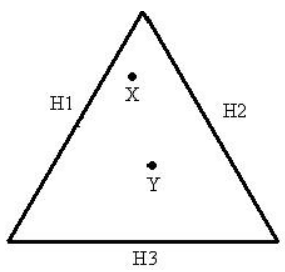
The Yahoo website was attacked at 10:30 PST on Feb 7th 2000. The attack lasted three hours. Yahoo was pinged at the rate of one gigabyte/second.
The websites - amazon.com, buy.com, cnn.com, eBay.com were attacked on Feb 8th 2000. Each attack lasted between one and four hours. CNN reported that the attack on its website was the first major attack since its website went online in August 1995.
The websites of E*Trade, a stock broker, and ZDNet, a computer information company, were attacked on Feb 9th 2000.
About fifty computers at Stanford University, and also computers at the University of California at Santa Barbara, were amongst the zombie computers sending pings in these DoS attacks.

Questech

Tick-tick
At what time between 00:00 and when the hands are next aligned (just after 01:05), is the distance between the tips of the hands increasing at its greatest rate, given that the minute hand of a clock is twice as long as the hour hand?

Far far away
There are six towns Mumbai, Kharagpur, Chennai, Delhi, Guwahati and Roorkee. The smallest distance between any two of these six towns is 'm' km. and the largest distance between any two of the towns is 'M' km. Show that M/m > √3. Assume the land is flat though the Indian land is not.

Highways and 2 villages
Three highways H1, H2 and H3 on intersection form a triangular region which has same lengths of highway as its sides. Two villages X and Y are located within this triangular region as shown. What can be said about the sum of the smallest approach roads to these highways from these villages?



2 and 5 power
Onkar and Shweta are computing powers of certain numbers as an assignment. Shweta being the lazier (and smarter) one chooses to take powers of 2 and Onkar chooses the number 5. At some point they realize that for some values of 'n' the powers (i.e. 2^n and 5^n) start with a same digit. What is this digit? The numbers are written in decimal notation, with no leading zeroes.

Prime power
An interesting observation is that $(2 - 1)! + 1 = 2^1$, $(3 - 1)! + 1 = 3^1$, $(5 - 1)! + 1 = 5^2$. Find all such primes p such that (p - 1)! + 1 is a power of p?

Please mail your suggestions, cribs and/or solutions to onkardalal@iitb.ac.in and/or shweta@iitb.ac.in (Please mail with topic as Questech). You may also drop your solutions with the tech secys of your hostel. Please mention your e-mail ID and the time and date of submission on handwritten solutions. The early bird gets a treat at the Coffee Shack :)

The solutions will be out on the InsIghT website two days after distribution.

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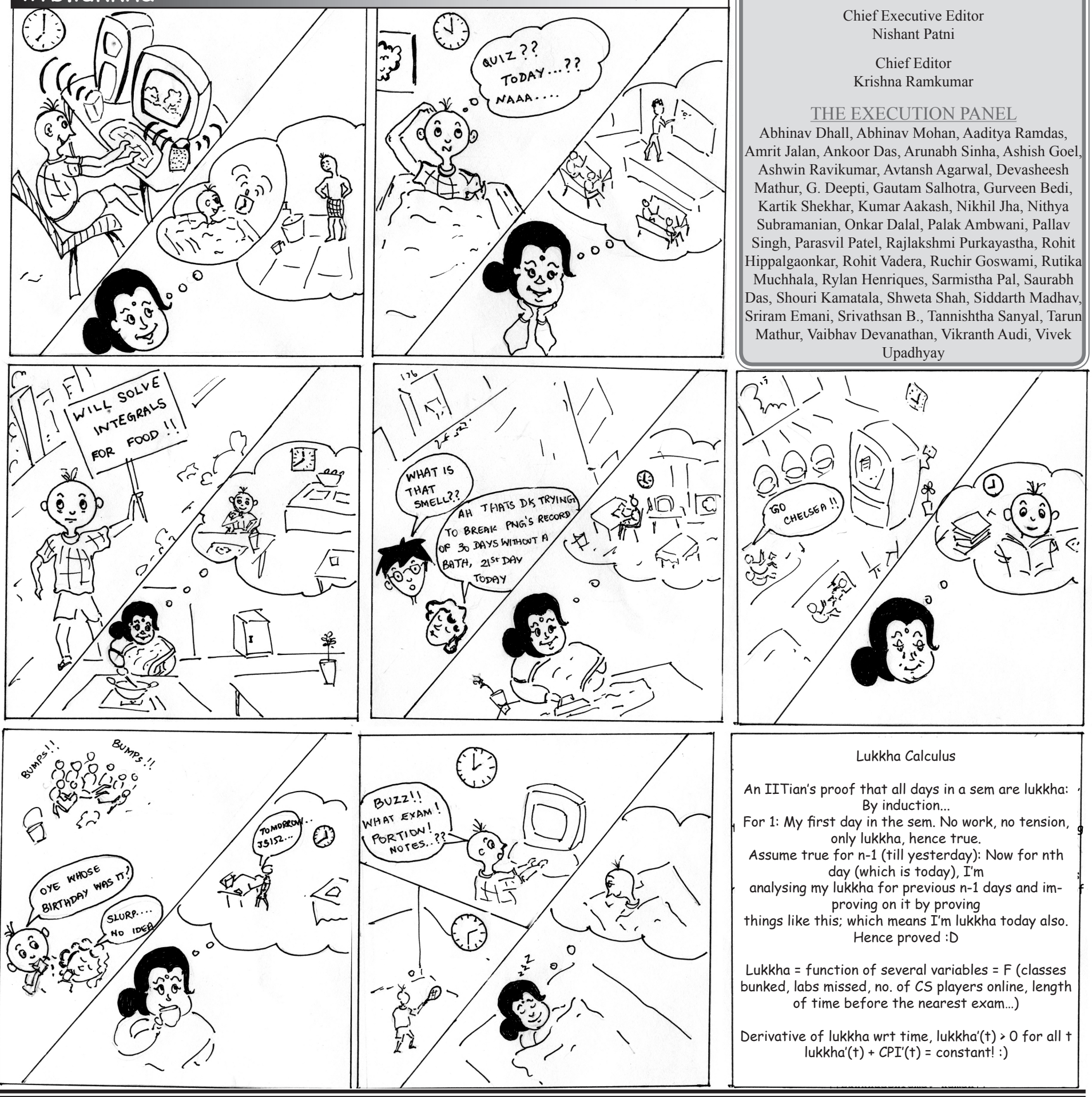

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Lukkha Calculus

An IITian's proof that all days in a sem are lukkha:
By induction...
For 1: My first day in the sem. No work, no tension, only lukkha, hence true.
Assume true for n-1 (till yesterday): Now for nth day (which is today), I'm
analysing my lukkha for previous n-1 days and improving on it by proving
things like this; which means I'm lukkha today also.
Hence proved :D

Lukkha = function of several variables = F (classes bunked, labs missed, no. of CS players online, length of time before the nearest exam...)

Derivative of lukkha wrt time, lukkha'(t) > 0 for all t
lukkha'(t) + CPI'(t) = constant! :)