IITs must get over their silo mindset

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Newspaper Clips

October 7, 2011

by Dinesh Mohan

THE INDIAN Institutes of Technology (IITs) have been in the news lately because of comments made by the board chairman emeritus N R Narayana Murthy at a gathering of hundreds of former IITians at the “Plan IIT” summit in New York.

He is reported to have said that “the majority of the students face poor jobs and global institutions of higher education” and that IITs should “transcend from being just teaching institutions to reasonably good research institutions”.

We are told that the audience applauded with gusto. The most quoted response from India came from Chetan Bhagat, “Mr Murthy had a point, but why wasn’t he so sweepingly high handed? It’s the system, no pointadding students” and also “that such comments should not have come from a person who runs a ‘body shopping’ company and calls it ‘I-tech’.”

It is interesting to note that both of them are former IIT students and so were those applauding them. An equally plaintive response by many of those who have graduated from an IIT is that they are in ignorance of how the system functions, its accomplishments and its role in the development of science and technology in India.

Chetan Bhagat provided us with an entertaining account of the ram- bunctious life of students at an IIT in his novel Five Point有人 East. We do not speak of a body shopping system. It is not an isolated case. More so at times.

Performance

Mr Murthy claims that IITians don’t perform well in global institutions of higher education and that IITs should graduate from just teaching institutions to research institutions. The first comment has no basis in fact or a study, and the second is ignorant of the recent output of IITs.

At their annual convocations last year all the older IITs awarded out 1,500-1,700 degrees each. Of these 60-70 per cent were post graduate degrees including about 180 PhDs each. Bachelor degrees constituted only about a third of the IIT production.

In terms of student population and faculty interest, IITs have already become research institutions. They are also well aware of what the world of education looks like and are capable of being aware of the possibilities in the industry.

The second claim is probably because our research oriented graduate students occupy high positions in industry or write novels.

As long as the quality of research being done in IITs today is much more than double that just ten years ago. On average, the research capability of faculty members today is also far greater than it was ten years ago.

A study done by the Department of Science and Technology 10 years ago showed that more than 80 per cent of all employees in the research departments of both public sector and private sector large companies mostly came from IITs. But these are the employees who don’t get to speak at GII or IFICON annual meetings.

Today the main problem lies not in the quality of students or the faculty of IITs. The problem is much more basic. There is very little demand for research either in the private sector, including Mr Narayana Murthy’s company. These shows in the low number of jobs available for PhD graduates every year. India produces less than 800 PhDs in engineering last year, and China more than 8,000 PhDs have a hard time getting a good job, especially in the private sector.

The Chinese PhDs are absorbed in their own country. Unless there is a much greater demand for technical research in the country, it will be difficult for IIT faculty or students to improve the quality of their work.

Problem

Demand for research comes from three sources: infrastructure and public sector needs, private corporations, and defence departments. All three sources in India are sub-critical and don’t employ people who understand how research is funded and managed. Very typically, they demand results in months, don’t have a professional knowledge in the topic involved and don’t have a network of researchers they consider friends.

Analyses done in Europe and the USA show that academic-industry or academic-government collaboration takes place more often when the people involved know and trust each other and meet each other in some other social context also.

This is a greater chance of happening when all organisations involved employ MTechs and PhDs. Since Indian industry, and the public sector do not have many respectable job openings for PhDs, the possibility of human contacts developing for collaborative work becomes minimal.

Most collaborative projects are ordered from above and the project monitors have little understanding on how to deal with the academic or human aspects of working together.

We also have to understand what kind of research is required for research careers anywhere in the world. They usually come from the middle or lower middle class, and have spent nothing on their education, do their post graduate studies on scholarships and then look for stable jobs. It is the same in India. We recently received a thank you email from a student declining an offer of a PhD scholarship. He said he could not spend more time without a high paying job because both he and his father had taken loans for his education and they had to be paid back. He added that a research career was his first option and not the job which he knew was going to be boring. But he had no option and knowingly decided on a course of life not to his taste. This is not an isolated case.

Evolution

Therefore, an equal school education and very innovative college education are pre-conditions for encouraging research careers. This is why in most European countries, college is free and scholarships are given for living expenses.

Even in the USA, all the top universities take pride in announcing that no deserving candidate will be denied an education for financial reasons.

IITs themselves will also have to change to a great deal to compete internationally.

The recent Shanghai rankings of world class universities show that most of those included are largely government funded and not discipline based like the IITs.

To enter the international league in research output, IITs must evolve into full fledged universities to promote interdisciplinary research and escape from their silo mindsets at present. But this will certainly not happen if we follow Mr Narayan Murthy’s advice to shift from the tenure system for its faculty to a five year contractual appointment system.

This will ensure greater corruption, lack of vision and serious researchers opting out of the system. I guess I should not fault Mr Murthy much. If I had to give advice on how to run his company, I am sure they would go bankrupt quite soon.

The writer is Vello Chair Professor Emeritus at the Indian Institute of Technology, Delhi.
IITs & IISc fail to woo aspirants for online CAT

THE addition of the IITs and the Indian Institute of Science to the list of institutes accepting CAT score has failed to create an impact on the total number of applicants registered for the online test this year.

Registration for CAT 2011 stands at 2.05 lakh candidates, which is just 1,000 applicants more than last year’s figure. The registration process was closed on Tuesday night.

Though the number of CAT aspirants has witnessed a steady decline since 2009, it was expected to pick up this year. In anticipation, the organisers had also added three new test centres in Bilalai, Dehradun and Jammu.

But a marginal, almost insignificant, increase in registered candidates has come even when reputed B-Schools such as the Faculty of Management Studies of Delhi University, MICA, Ahmedabad, along with IISc and six of the best IITs joined the CAT camp this year.

The main reason for the decline in the registration, according to CAT convener Professr Jankiram Moorathy, remains the same as the last few years — the economic slowdown.

“Youngsters would work for a few years and then quit to pursue an MBA degree. With the job market taking a hit in 2009, the number of aspirants decreased. Things are not looking so great for the economy once again,” Moorathy said. “More importantly, two lakh candidates is still a large number as we (the 13 IIMs) absorb just 3,000 out of them. That’s just .5 per cent of the total.”

CAT 2011 will be conducted over 20 days this year between October 22 and November 18.

Mail Today/New Delhi
Harvard out, Caltech is new varsity No. 1

London: There is now a fresh name at the top, unseating long-time leader Harvard.

California Institute of Technology (Caltech) knocked the famous Massachusetts institution from the summit of the Times Higher Education league table for the first time in eight years, with US schools claiming 75 of the top 200 places.

Not a single Indian university — not even the celebrated IITs and IIMs — figure in the latest ranking of the world’s top 200 universities, with American varsities dominating the list. AGENCIES

Indian Express ND 7/10/2011

No Indian university in world’s top 200: Report

PRESS TRUST OF INDIA

LONDON, OCTOBER 5

NOT a single Indian university — not even the celebrated IITs and IIMs — figure in the Times Higher Education magazine’s ranking of the world’s top 200 universities, with American varsities dominating the list.

US institutions have grabbed seven spots in the top 10 despite President Barack Obama warning American students of stiff competition from their counterparts in India and China.

Three British universities, Oxford, Cambridge and Imperial College London, continue to make the cut with a university in China also making the grade. The magazine places 75 US universities in the top 200. UK has 32 universities in the list, followed by Germany (12), the Netherlands (12) and Canada (9).

The list of top 200 includes universities in Taiwan, Brazil, Singapore, South Africa and China, but this year repeats earlier trends about India — no Indian university is deemed good enough to be included in the elite list, despite India claiming to have substantially increased its spending on higher education in recent years.

The top 10 in the list of 200 universities are: California Institute of Technology, Harvard University, Stanford University, University of Oxford, Princeton University, University of Cambridge, Massachusetts Institute of Technology, Imperial College London, University of Chicago and the University of California, Berkeley.

Britain’s Universities Minister David Willetts said the list showed that relative to its size, the UK’s university system was the “world’s best-performing”.

“With as many as seven million students predicted to be studying outside their home country within the next few years, and with international research collaboration at the top of government agendas, these world university rankings are more important than ever,” said Ann Mroz, editor of Times Higher Education.
MANAGEMENT COURSES

Registrations for CAT rise after falling for two years

By Prashant K. Nanda
prashant.n@livemint.com

NEW DELHI

After seeing a drop in aspirants for their elite management courses the past three seasons, the Indian Institutes of Management (IIMs) have a bit to cheer about this year—there's been a small increase in registrations for their entrance tests.

While some of this can be attributed to an improved summer training season and a recovering economy, a few experts say the adoption of the Common Admission Test (CAT) by other top institutes, including the management departments of the Indian Institutes of Technology (IITs), also weighed in.

"The number of CAT registration was falling for the last few years, but this seems to have changed this time," said Janakiram Mohrth, convenor of CAT 2011.

The small increase in registrations is a sign that management is still a sought-after career choice, he said.

Registrations for the test improved to 205,000 from about 202,000 who sat for the entrance last year. But that's still a steep drop from 242,000 candidates in 2009 and 270,000 the year before.

"The good thing is that the number has stabilized now instead of falling, and in future it will consolidate. I believe these days candidates are mature and they take a conscious decision to choose a management career," said Mohrth, a professor at IIM-Calcutta.

IIM students are top picks every year for leading international and Indian companies, but the courses are expensive and entail rigorous training.

Manek N. Daruvula, founder-director of the TIME chain of coaching centres for CAT aspirants, says students not serious about taking up the courses are staying away from CAT.

"Appearing for CAT is directly linked to the country's economy and placement. Thus, it's a return-on-investment kind of decision," said Daruvula. "Those who are ready to spend Rs13 lakh for an MBA course will definitely look for a better return through a better job."

Vinayak Kudva, product head at Mumbai's IMS chain of test-prep centres, agreed. "After the economic slowdown and poor job scenario in 2008 and 2009, many gave a rethink to management courses and only serious candidates opt for it now."

He added that CAT got a push this year as other leading business schools have adopted the test to screen students for their courses.

In August, the IITs at Mumbai, Delhi, Kanpur, Kharagpur, Chennai and Roorkee, and the Indian Institute of Science decided to scrap their own joint management entrance test to adopt CAT, Mint reported on 23 August. The six IITs run two-year, full-time postgraduate management programmes with an intake of about 600 students. The 13 IIMs admit around 3,300 students every year.

The Faculty of Management Studies at Delhi University, the Delhi School of Economics, and the Mudra Institute of Communications in Ahmedabad, too, have adopted CAT.

Moorthy of IIM said this may not have contributed significantly to increased registrations. "These are leading B-schools, and anyway CAT aspirants must have been applying for them earlier," he said.

In-campus placements of IIM students into leading companies in 2010 and an improved pre-placement scenario also helped, said Kudva.

In the 2011 placement season, IIM-Lucknow received 528 offers for a batch of 366. Of the 206 recruiting companies, 53 were first-time recruiters. IIM-Calcutta has already received 45 pre-placement offers for the 2012 batch.

The US-headquartered Prometric Inc. that conducts CAT for the IIMs said it is focusing on the delivery of the exam.

"Our global experience of providing self-service, online registration and scheduling capabilities, coupled with our capacity planning expertise, have allowed us to manage such a large number of registrations," said Soumitra Roy, managing director, Prometric India.
Marginal Rise in CAT Applications

Nearly 2.05 lakh candidates register this year versus 2.04 lakh last year

**Flat Growth**

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CAT Registrations (in lakh)

MAHIMA PURI
NEW DELHI

The number of applicants who registered for the Common Admission Test or CAT, the gateway to the Indian Institutes of Management (IIMs), has remained almost stagnant this year. CAT convenor Janakiram Moorthy told ET that about 2.05 lakh candidates have registered for CAT this year, compared to 2.04 lakh candidates in 2010. This reflects that the number of registered applicants has stabilised or remained stagnant.

According to data provided by Prometric, the US-based agency that conducts the computer-based exam, CAT 2010 saw 2,04,267 candidates registering for the exam.

Prof Moorthy said, "There were about 2.06 lakh vouchers sold this year, of which about 2.05 lakh candidates have registered. The number of CAT applicants seems to have stabilised. The good thing is that the number has not declined further."

CAT registrations have been declining since 2009 when the new format of computer-based test was launched. About 2.41 lakh candidates registered for CAT in 2009, which fell to a little over 2.04 lakh in 2010. However, in 2008 the number of registrations was close to 2.76 lakh.

On the stagnant numbers of aspirants, Moorothy said the current economic situation and the future expectations were impacting the numbers to a great extent. "For instance, those in the IT industry seem to be holding on to their jobs, rather than going for MBA studies. Once the economic outlook improves, we may see the number going up again," he added.

Asked if students and professionals are losing interest in MBA studies, he said, "It seems there are more focused candidates that have been taking CAT in the past two years, compared with those who would attempt CAT just for the sake of it a few years ago."

The number of applicants has not gone up, despite the fact that this year IIMs are offering more than 3,100 seats. Besides IIMs, six IITs, three NITs and other major B-schools would also consider CAT scores for admissions this year.
Stagnant B-Schools Need Reforms

POOR GRADES: CAT is biased in favour of engineers, the curriculum is fixated on exotic subjects and there is scant respect for faculty in industry circles

K RAMKUMAR

During the past 50 years, we have never had an open and transparent debate on the state of our B-schools. The backlash from administrators, faculty and the alumnus is what daunts even the well-intentioned person.

There are three areas which demand an urgent debate and a meaningful course correction, if B-schools are to be true to their primary stakeholders, the students. These are, selection process, curriculum and pedagogy, and quality of faculty. I am restricting myself to raising the issues and am not going to be prescriptive with solutions.

COGNITIVE INTELLIGENCE OR BUSINESS INTELLIGENCE?

Take a glance at the CAT or any B-school entrance test. There is serious confusion on what they are selecting the candidates for. If entrepreneurship and management is largely a general skill with a broad specialisation in knowledge, why is there a reliance on mind-bending quant? I am afraid, if CAT were to be administered to the successful 500 CEOs/entrepreneurs in India, the results may not be flattering. The same will be true of the faculty.

When was the last time that anyone tested and published reliability and validity data on these tests? The less said the better about the English testing in CAT. Such an anachronistic and irrelevant approach has built a huge bias in selection.

This system is designed for engineers, as is proven by 90% of any MBA class. It excludes very bright commerce, economics, science, sociology or psychology graduates. Are we to buy the logic that other than engineers, no one else has the intellect or skills required to be an entrepreneur or manager?

The sham called GD, whether for B-school selection or placement adds insult to injury. Fifteen people, shouting at each other on exotic topics and the evaluators scoring them whimsically cannot be any indicator for checking out personality traits or social skills. Finally, an unplanned interview, reduced to a rambling chat, rounds off what most of us believe to be great meritocracy: Selection-related reform is the most important one. The moot point is: Can we ever value cognitive ability but give less importance to other aspects such as judgment and social skills?

A MESS CALLED CURRICULUM AND PEDAGOGY

B-schools give, contemptuous treatment to operational areas such as distribution, supply chain, customer service, business analytics, selling skills and channel management, product/process/system design, managing performance of people, management accounting etc. You will find an obsession, fixation with exotic like marketing, advertising, corporate governance and ethics, CSR, a variety of strategy and international prefixed courses, structured finance, derivatives, change management etc. The key issue is, only a small fraction, who join consulting firms, ever get to even sight these exotics. I have never seen more than 10 people in departments which purportedly do these exotics.

Thousands work in the areas I have listed in the first set. Any conversation I have tried to have with the evangelists at the B-schools, leads to a dismissive remark from them, to the effect that they do not dabble in the desplicable domain of skills.

B-schools delude themselves in serving industry and the country, in building higher-order humans and intellectuals and dismiss any application-oriented knowledge and skill as vocational education. The quality of case writing and teaching is abominable. Consider the fallacy in testing application-oriented knowledge and skill through the conventional memory-based or cognitive testing and confirming proficiency. Can you recollect the last innovation in pedagogy? Can you believe that the only professional education in the world, which has an apology of an internship, is B-school education?

Two months of a general walk-through in a place of work, pass off for internship. Compare this with medicine, law, chartered accountancy, even engineering. How can a course which is supposed to build perspectives, application-oriented knowledge, problem-solving skills, leadership and creating economic surpluses be imprisoned in a classroom for 90% of the course? This is the second most point to be debated for B-school reforms.

IN SEARCH OF QUALITY FACULTY

Less than one-fourth of faculty in any campus is respected by students and industry. Contemplate the reality of a faculty doing the mandatory follow up in corporate governance and then teaching marketing or economics. This, unfortunately, is the case. How many PhDs done 20 years back? The worm-eaten notes, the cases from economics which are non-descriptive and the good old HBR, pull the faculty along. Why do they not intern in industry, to sharpen their appreciation of the context? This is seen beneath their dignity.

Unfortunately, many who bandy their corporate background, were misfits and ineffective in the corporate world and hence chose teaching. Or this is a post-retirement assignment. This may not be true of all, but a significant many fall in this category. They have no motivation in investing further in their own learning. The fact that so few faculty members are considered worthy of a consulting assignment by Corporate India is testimony to their atrophy.

There are very few faculty of repute in the Indian B-schools whose views matter, in the public domain on issues as important as that of the economy, economic policies, industry outlook etc. Name the last book published or the last globally noteworthy case published by a member of the faculty from an Indian B-school. Where is the CK Prahalad of the Indian B-school and what will it take to produce such a muse and shaker of CEOs, from an Indian B-school? This is my third moot point.

I contemptuously refuse to deal with the sorrow of placements. My guess is as good as yours, on whether anyone is listening.

CHRISTOPHER is executive director of ICICI Bank. He is responsible for human resources, customer service and operations.
‘Give OBC seats to general students’

AGE CORRESPONDENT
NEW DELHI, OCT. 6

A single-judge bench of the Delhi high court has directed the Delhi University to convert 50 unfulfilled Other Backward Castes (OBC) seats into general category in the LLB course for the academic year 2011-2012 and give admission to students who are in the waiting list.

Pulling up Delhi University for not complying with the apex court’s direction, Justice Kallash Gambhir said, “Courts have consistently held that every endeavour by the university and all other institutions should be made to fill all the seats as wastage of seats is not only at the cost of the public exchequer but at the cost of depriving a number of aspiring students struggling to get admission in coveted institutions and universities such as Delhi University which is a dream of many.”

Justice Gambhir directed the Delhi University to convert 50 Other Backward Castes seats, which have been vacant since completion of admission process, into general seats and hold a special counselling session for the students after notifying the candidates belonging to the general category through notice board and also on the website.

“....At least seven days time shall be given to the candidates through such a notice inviting them to participate in the special counselling,” the court said while asking the Law Faculty to give wide publicity to make the students aware of the new development.

Rejecting the university’s argument that the students would suffer as the session has already begun since August, the court said that admission be given at this stage.

The court’s direction came on the plea of a group of students seeking direction to the university to convert the unfulfilled Other Backward Castes seats into general category as many students have been waiting to get admission in the LLB course.

COURT: CONDUCT SUPPLEMENTARY EXAM IN 6 MONTHS

AGE CORRESPONDENT
NEW DELHI, OCT 6

A division bench comprising Justices A K Sikri and Siddharth Mridul of the Delhi high court has sought a response from the Delhi University after hearing a plea of a law student for direction to hold supplementary examination in each semester to give another opportunity to students to clear their papers.

Issuing a notice to the DU, the court asked it to file an affidavit within three weeks, and said, “Why will LLB students, who are in IIInd and IVth semester, not be allowed to appear in supplementary examinations?”

The court also asked the counsel for the DU to make its stand clear by October 24, the next date of hearing in the case.
Don’t be book worms: DU V-C tells students

STAFF REPORTER [NEW DELHI]

Within three months after going into the semester mode, Delhi University on Thursday launched its B Tech/BS in Innovation in Mathematics and Information Technology (IT). Unlike other courses that lay down stress on merely reading from the books, the B Tech course promises to its students more innovation and experimenting with mathematics and science. The course also promises students’ faculty from IIT Mumbai and an exchange programme with a Singapore University.

Addressing the first batch of students on its day one, the Vice-Chancellor of the university Dinesh Singh encouraged the students to move out of the classroom and instead of being book worms, experiment with the surroundings. He insisted that the students should not just study for knowledge of the mind, but listen to and recognise the voice of their soul. Singh also insisted that use of hands and use of mind and intelligence are equally important to excel.

“In India an educated mind is given more important than a skillful hand. However, knowledge and skill of both mind and hand is equally important to excel,” he said.

Singh also said that if great men like Mahatma Gandhi and Isaac Newton had gone to the universities, they would not have been what they are today. “If Newton had gone to the university, we would have missed out on his contributions,” said Singh. It was during the year 1665 that the Cambridge University was temporarily closed as a precaution against Great Plague that Newton developed his theories on calculus, optics and law of gravitation. Singh also insisted that the students should strive to learn to attain knowledge. “The quench for knowledge should never die away. The search for knowledge should go on all throughout the life,” added the Vice-Chancellor.

He further said that the students should listen to and recognise the voice of their soul and should work for the betterment of the society like these great men. The new course the is

Students should not just study for knowledge of the mind, but listen to and recognise the voice of their soul

Dinesh Singh

being run by the Cluster Innovation Centre (Institute of Life Long Learning) promises the students more innovation through experiment. Singh, who is a professor of mathematics himself, said that mathematics is “with us, no matter where we go” and that the course would encourage students to do more experiments with mathematics.

Forty students have enrolled themselves for this course. The students on their day one were given a chance to meet the Vice Chancellor and introduce themselves. “I opted for this course because I was convinced that through this course, I will get to learn more beyond mathematics and engineering,” said a student Geetika. Geetika had taken admission in first year Mathematics Honours in Maitreyi College and had later quit to take admission in this course. Though the course does not have a planned out facility so far, professors from various departments will be teaching in this programme. Faculty from IIT Bombay has been roped in for a paper on Robotics. The students of this course will also participate in an exchange programme with a Singapore University.
DU innovation course set to blaze a trail

BY JYOTI RAJ
TRIBUNE NEWS SERVICES

NEW DELHI, OCTOBER 6

With the introduction of the path-breaking course under the cluster of innovation concept, Delhi University faculty members today welcomed the first batch today.

The course aiming to challenge the "rote learning" in schools is the first of its kind. The course B Tech / BS innovation in IT and Mathematics, will have association with some of the world's best universities with visiting lecturers and researchers coming in over the next four years.

Interacting with students, vice-chancellor Dinesh Singh today said that the four-year undergraduate programme will be an inter-disciplinary degree focusing on application and hands-on training.

"Maths and IT are two fields that will pave the way for any career that students wish to embark upon. From genetics, electronics, astrophysics to molecular biology, zoology, these two courses will help students discover themselves beyond their curriculum," Singh said.

Among the teachers who comprise the faculty are professors from multiple disciplines like informatics and communication, zoology, mathematics, physics, electronics and finance.

Spread across eight semesters, the programme requires students to undergo internships in the industry and undertake projects in communities at regular intervals. They will also get to implement the new ideas they have in an "engineering kitchen".

Speaking more of his pet project, Singh said, "Visiting lecturers from IIT Bombay, IIMs, University of Singapore and the prestigious Yale University will associate themselves with the course. The president of the Indian National Science Academy has promised to be regularly associated with the course."

A river-rafting enthusiast himself, Singh said he would make sure the students are taken for such adventure sports.

"I will take them personally to these trips. This will be a fun course. It's a heavy course that students have to worry about. We want them to enjoy this course thoroughly for four years and be involved completely in the process. That will not be possible without some fun," said a smiling Singh.

"The course will not practise the existing teaching mechanism prevalent in colleges across the country. The course will be just 40% theory, while the rest will be project-based. Students will be taken out on the field to various locations. They will adopt semi-slum areas and help with whatever they can. They would be given the freedom to choose from an array of projects. They will have the freedom to innovate, research and learn with some of the best minds. "Blackboard teaching" is a thing of the past now, outdated methods of teaching will no longer do any good to the students," said DU proctor, HP Singh, associated with the course as a physics professor.

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A prize for what can’t be known

Notwithstanding grand theories, science has little to say on puzzles ranging from the universe’s origin to turbulence

The Nobel Prize for physics has gone to three scientists for their discovery—one that they themselves were astonished by initially—that the universe is expanding at an accelerating pace. No one has still figured out why, but they have given the reason a name: dark energy. And when everyone redid their math, they reached a truly amazing conclusion: that 70% (that’s right, 70%) of the universe is dark energy. Now add to that what cosmologists call “dark matter” (stuff that is invisible to us because it neither emits nor scatters light or any other electromagnetic radiation), which constitutes another 25%. So all the normal matter—that is, what our instruments can detect—makes up about 5% of the universe. To quote the National Aeronautics and Space Administration (Nasa) website: “Come to think of it, maybe it shouldn’t be called ‘normal’ matter at all, since it is such a small fraction of the universe.”

Yes, we don’t have a clue about 95% of the universe. That’s the really big stuff—for the guys with unruly beards and genius IQ’s to ponder over. But what about the smaller stuff, things that could mean the difference between life and death?

Last month, one of the strangest murder trials in history began in Italy. Over four months in 2008-9, the city of L’Aquila was rocked by a series of seismic tremors. The government set up a team of seven experts to assess the risk of a major earthquake. In March 2009, the team declared that there was no such danger, but six days later, a 6.3-magnitude earthquake hit, killing 308 people. The team has been indicted for manslaughter. The logic of if had not assured the populace, many people would perhaps have left their homes and not been killed. The scientists say that L’Aquila is situated in a highly seismic zone, and they decided, after studying the data, that the possibility of a powerful earthquake striking the city remained essentially the same, with or without the series of small tremors. They saw no reason to take emergency action. The prosecution argues that all seismologists know that a series of small earthquakes increases the probability of a major one. True, say the accused, but the absolute probability still remains very low, in the range of 1 in 1,000. Is that enough to take an alarmist stance and evacuate thousands of people? It’s staggering when we think of how ignorant we actually are about how the world works. Our textbooks teach us all sorts of theories, but we actually know almost nothing.

At the subatomic level, we are still confused as hell about what’s going on and how. What quantum physicists call the Standard Model—described elegantly by writer Bill Bryson as "essentially a sort of parts kit for the subatomic world"—is accepted very grudgingly: after all, it’s unwieldy, gives a sort of slapdash cobbledtogether feeling about the world’s fundamentals, and is quite obviously incomplete. So, some brainiacs came up with the superstring theory, which explains (mostly) everything, except for a small problem: the math work perfectly only in an 11-dimensional universe. So we don’t know what the action is at the cosmic level, and we don’t know what’s playing out in the building block league.

The truth is, our science textbooks lie. They give us a sense of false security. Ask a simple question: How old is the universe? The most popular estimate currently is from Nasa: 13.75 billion years, give or take 110 million years. But Nasa, in true scientific spirit, also warned that its conclusion was "based on the fact we have assumed the underlying model we used is correct." Which, in layman terms, roughly means fitting observational data into already concluded results. So we are not really certain.

Ask another simple question: Will it rain tomorrow? Human beings have been trying to predict the weather for thousands of years, from studying animal behaviour to whether the sky remains red after sunset, to chaos theory. At the end of it all, we have a fairly good grip on whether it’s going to rain tomorrow, but beyond that, it’s anyone’s guess. Beyond one week, it is nearly impossible to predict anything with any certainty, because the impact of extremely small errors in the initial input doubles every five days. It’s good sense to keep an umbrella handy. All of us have been on aeroplanes (for all I know, you’re reading this at 40,000 feet above sea level), and have experienced turbulence. The plane bumps around, the old lady next to you starts muttering prayers, you clutch your seat handles tightly. But no one has a clue why turbulence happens suddenly in a clear zone. Richard Feynman termed it "the most important unsolved problem of classical physics."

And the story goes that Werner Heisenberg (whose "uncertainty principle", one of the foundations of quantum physics, Einstein never believed), when asked what he would ask God, given the opportunity, replied: "Two questions: Why relativity? And why turbulence? I believe he will have an answer for the first."

Have a nice flight. And don’t trust scientists.

Comments are welcome at theirview@livemint.com
Jobs Takes iWay To Heaven

At 56, Loses Battle Against Cancer

Chidambaram Rajappa Iyer

Washington: Steve Jobs, who brought joy to the world by simplifying computer and phones, hanged out of life on Wednesday following an operating seven years battle with pancreatic cancer. The founder of Apple Inc and tech visionary was mourned worldwide by millions whose lives he uniquely touched in ways.

Apple's co-founder, Jobs was diagnosed with cancer in 2004 and retired as CEO in 2011. The company's shares fell sharply and the tech giant faced uncertainty about its future.

**APPLE OF OUR EYES**

- 1976: Steve Wozniak and Steve Jobs start Apple
- 1990: Macintosh PC debut
- 1995: Jobs leaves Apple
- 1997: Apple buys NeXT
- 2006: Jobs returns as CEO
- 2010: iCloud launch

**WORLD WIDE WOE**

Thieves have changed the world. The one offered to Adam, the one that fell on Napoleon, and the one of Steve Jobs.

For those of us lucky enough to get to work with him, it was an intensely great honour. I will miss Steve immensely.

**STEVE JOBS**

- Worlds greatest CEO of his generation
- RIPSTICK MUNICH | USA
- The greatest inventor since Thomas Edison

**STEVE JOBS**

- Thank you for being a mentor and a friend. Thanks for showing what you can build can change the world. I will miss you.
- Work remember | MacBook Pro & iPod

**TIM THOMAS**

- The Michangelo of the computer era. He demonstrated that genius does not need an expensive, elite education.

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**STEVE JOBS**

- Loses battle with cancer
- Died on October 5, 2011

**WILL APPLE KEEP ITS SHINE?**

Will Apple keep its shine?

- Jobs was famous for keeping an iron grip on every step of the product development process, from conception to execution.
- Investors and consumers remained confident in the company.
- Apple has plenty of new products in the pipeline, and there should be few hiccups in the short term.
- But it's not clear if Jobs' brilliance would be transferable.
- The leadership would have to adapt.

**WHAT WILL HAPPEN TO APPLE' S SHARE PRICE?**

- Jobs' health had been an issue with investors for years.
- The company has not stopped Apple shares from zooming higher.
- The stock moved little when Jobs announced in August that he was stepping down as CEO, and it moved little in after-hours trading after the announcement of his death.
- The Stock market leaders.(the company) has 119 billion dollars of cash on hand.

**WHAT IS JOBS’ LEGACY?**

- Jobs was counted among the greatest CEOs in history, mentioned in the same breath as Henry Ford.
- One of his most iconic achievements was uniting Apple to world leadership not just once, but twice.
- There were few examples in any field of such a brilliant second act.
- Jobs in 1986 bought Pixar, which was then little more than an experiment in digital animation technology. The company became a juggernaut, and when it was acquired by Disney in 2006.

**WILL APPLE CHANGE UNDER COOK?**

- While both Cook and Jobs have earned reputations as hard-driving perfectionists, Jobs' successor is considered easier to work with. While Jobs was in for courting employees, Cook is said to be better at forging consensus.

**WHO ELSE IS IMPORTANT TO THE COMPANY'S FUTURE SUCCESS?**

- Design guru Jonathan Ive, marketing chief Phil Schiller, and mobile software head Scott Forstall are three of the most important players.

**WHAT WILL BE APPLE'S NEXT BIG THING?**

- Jobs had already laid the foundation for Apple's "Next Big Thing." Industry speculation centers around some sort of an attempt to shake up the living room, and TV.
Tough India visit led him to question many illusions

Steve Jobs' trip to India was eventful, to put it mildly. He arrived in India, accompanied by his friend Dan Kottke, who later became Apple's first employee.

Soon, he had swapped his jeans and T-shirts for lungis as he set out from Delhi for the Himalayas. Along the way, Jobs and Kottke slept in abandoned buildings and survived on local food. “He looked at prices everywhere, found out the real price, and haggled. He didn't want to be ripped off,” Kottke was quoted as saying in the book 'iCon: Steve Jobs, The Greatest Second Act In the History of Business'.

While he was searching for Neem Karoli Baba, Jobs chanced upon a mendicant who laughed uproariously at the sight of him, led him up a mountain path, dunked his head in a pond at the top of the mountain and shaved his head. Jobs and Kottke then set off to meet one Harikan Baba, but came away unimpressed.

On the way back, while sleeping in a dry creek bed, they were trapped in a fierce thunderstorm. As Kottke narrates in 'iCon', “I remember us praying to any god that could hear us, ‘Dear God, if I ever get through this, I’ll be a good person, I promise’.”

Having picked up lice and dysentery, the two set off to see Tibet, but contracted scabies near Manali. Worse, Kottke's traveller's cheques got stolen, which ended their trip.

“The hot, uncomfortable summer made Jobs question many illusions he had nursed about India. He found India far poorer than he had imagined and was struck by the incongruity between the country's condition and its airs of holiness,” author Michael Moritz wrote in Jobs' biography, as he was quoted as saying in his biography, 'The Little Kingdom — The Private Story of Apple Computer'.

However, Jobs retained his interest in spirituality. In fact, he suggested the name Apple to Steve Wozniak after a visit to a commune in Oregon which he referred to as an "apple orchard".

More than a quarter century later, Jobs thought of setting up a facility in India. But it didn't pan out as he found the costs higher than expected.
**CHANGE AGENT**

Steve Jobs

1955-2011

Steve Jobs, the visionary co-founder of Apple, died on October 5, 2011. He was 56 years old. Jobs was the driving force behind many of Apple's most iconic products, including the Macintosh computer, iPhone, iPod, and iPad. His leadership and innovation transformed the technology industry and had a profound impact on the world.

**THE COMMUNICATOR**

The man credited with the iPhone, iPad, iPod and desktop PC, transformed the worlds of computing, music and mobile phones for us.

**Tweets to smash Internet records**

**ON THE JOB**

Teen’s sombre design in an instant cyber kit

**DISEASE**

John should have known better than to let his computer go on all night. He had never really taken much care of his computer. He should have known better than to let his computer go on all night. He had never really taken much care of his computer. He should have known better than to let his computer go on all night. He had never really taken much care of his computer.

**ALL YOU WANTED TO KNOW ABOUT STEVE JOBS**

- **FULL NAME**: Steve Paul Jobs
- **BIRTH**: February 24, 1955, in San Francisco, California
- **DEATH**: October 5, 2011, in Palo Alto, California
- **PERSONALITY**: Innovative, visionary, and enigmatic
- **EDUCATION**: Reed College, Portland, Oregon
- **ACHIEVEMENTS**: Co-founder of Apple, co-founder of NeXT, and co-founder of Pixar Animation Studios
- **BIOGRAPHY**: Jobs was born in San Francisco to a single mother and was later adopted by the now-deceased Steve Jobs Sr. and Margot Jobs. Jobs dropped out of Reed College after six months and later worked briefly at Atari, a video game company. In 1976, Jobs and Steve Wozniak founded Apple Computer, which became one of the most successful companies in history.

**FROM INDIA, ALL HE REALLY SPOUTED WAS INSPIRATION**

Sandeep Mathur

**AMERICAN PIE**

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**IN EXCLUSIVE PARTNERSHIP WITH THE WASHINGTON POST**

**DROPOUT, VAGABOND, VISIONARY**

A photo of Jobs and co-founder Steve Wozniak during the early days of Apple.

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Charm offensive remembered

Yashwant Raj

WASHINGTON. They flew in late on a flight from Sydney, greeted at the airport by a host of press, a band, and a hoard of fawning fans. The two girls, dressed in sparkling costumes, walked down a red carpet, signs raised high, and were greeted by cheering crowds.

Washington Times, 2011

Jobs's legacy will stalk successors

HOPE AND SCHEMPTISM

The responsibilities of the Apple founder fall on new CEO Tim Cook and design head Jonathan Ive

Michael S. Rosenweig

WASHINGTON. The death of Steve Jobs, the visionary leader behind the company that revolutionized technology, marked the end of an era in Silicon Valley. Jobs was not only a visionary entrepreneur but also a creative genius, known for his ability to bring together art and technology.


Apple's share price has more than 12-fold over the last 11 years

GOING THROUGH THE ROOF

Steve Jobs's legacy will be felt for years to come. His impact on Apple and the technology industry is immeasurable.

San Francisco Chronicle, 2011

Ive to now lead product vision

Valerie Strauss

WASHINGTON. Apple's latest tech innovation, the iPhone 5, was unveiled by Jonathan Ive, the company's design chief. The iPhone 5 is the latest in a long line of successful Apple products, and Ive has played a key role in their development.

The Wall Street Journal, 2011

iSad: grief sweeps across the world

David Mollendo and Lisa Baker

EXPLORER Apple fans from New Zealand were among the thousands of Apple fans who gathered to mourn the death of Steve Jobs. The loss of the Apple co-founder and CEO was felt around the world, with many expressing their condolences and tributes.

The Guardian, 2011
अंतरराष्ट्रीय स्तर का होगा दीयू का बीटेक

नई दिल्ली (एसपीआर)। नई दिल्ली के बीटेक-बीएस इनोवेशन फार्मेस्टिसंग क्षेत्र में कास्टल अंतरराष्ट्रीय स्तर का होगा। बीटेक कोट्स में हटकर दीयू के बीटेक-बीएस इनोवेशन फार्मेस्टिसंग क्षेत्र में विद्यार्थीयों को दिखाई देगा। 

विविध विषयों को हर प्रकार के मिश्रण में अध्ययन करने की उम्मीद है। राष्ट्रीय तरीके के बीटेक-बीएस इनोवेशन फार्मेस्टिसंग की ओर से है जिसमें विद्यार्थीयों को दिखाई देगा। 

इतने तक के बीटेक-बीएस इनोवेशन फार्मेस्टिसंग के मिश्रण में विद्यार्थीयों को देखने का अवसर होगा। 

2012-13 में एआईईई व आइएआईटी-जेइई से मिलेगा बीटेक!

नई दिल्ली (एसपीआर)। इस बार तो दीयू द्वारा हितिन्द्र पंेरिया और निर्माण कार्य के लिए एक बीटेक के बीटेक-बीएस इनोवेशन फार्मेस्टिसंग के लिए दिखाई देगा। नीचे दिया गया है:

- पहले दिन 41 में 38 विद्यार्थीयों ने शिखर शिक्षा के लिए प्रकाशित हुई।
- सिग्नाउर संघ भारतीय संघ अंतरराष्ट्रीय संघ के लिए प्रकाशित हुई।
- दूसरे दिनों को प्रकाशित हुई।

मॉल्टलूक्स विवेक और अनुभवित इंजीनियर, मैक्सिस्टिंग, कॉम्प्यूटर इंजीनियरिंग व फाइनेस क्षेत्र के शिक्षा की उपलब्धि की प्रेरणा देता है। प्रो सिंह ने कहा कि पाठ्यक्रम में गणित, कॉम्प्यूटर विज्ञान, विज्ञान और उद्योग के अनुसन्धान काम का महत्वपूर्ण भाग है।