# Newspaper Clips

## January 6-8, 2013

## January 6

Times of India ND 06/01/2013 P-15

# Short on faculty, IITs look towards students

Himanshi Dhawan | TNN

**New Delhi:** Under-graduate engineering students from technical institutes may be able to teach and earn as they learn at the premier Indian Institutes of Technology (IITs).

Faced with a severe faculty shortage, IITs have proposed mentoring the top 15% under-graduate students from IIITs, National Institutes of Technology (NITs), Indian Institutes of Science Education and Research (IISER) and National Institute of Science Education and Research.

The proposal will be discussed at the IIT council meeting on January 7 to be chaired by human resource development minister M M Pallam Raju. IITs hope this joint program will enhance teacher quality and mitigate faculty shortage.

The selected students could be asked to undergo a trainee teacher program at NITs. "While initially they would assist in teaching they would simultaneously go through part-time post-graduate and doctoral programs so they can acquire higher education qualification that is a prerequisite for teaching at IIT and NITs," sources said.

Students taking up teaching programmes is not an unusual feature in many western universities but they are more typically pursuing post-graduate programmes.

IITs hope to produce well-qualified and skilled teachers and researchers while addressing the faculty needs for under-graduate students.

The ministry had set up a committee to suggest solutions to the lack of faculty in all central government-funded institutes and student-teachers is one of the proposals being considered.

According to HRD ministry, IITs suffer from a nearly 33% vacancy while the faculty shortage is about 35% in the NITs. The teacher-student ratio in the seven older IITs is about 1:16 at present, higher than the suggested 1:10. In the eight new IITs, the ratio is about 1:8, in adherence to the international standards.

Times of India ND 06/01/2013 P-17

# Spat between alumni, faculty stalls IIM-A chief's appointment

A tug-of-war between faculty members and alumni has stalled efforts to find a new IIM-Ahmedabad, director for the last eight months. At the last board meeting in December, members of the governing board had stressed that the debate over the appointment should conclude. But the five-member search committee, comrpising of alumni, has failed to arrive at a consensus on a panel of three, who would succeed Samir Barua, who is on extension, as the director. Barua's extension ends on February 7 but there are doubts if the successor would be nominated by then. TNN

Business Standard ND 06/01/2013 P-2

# Vibrant Gujarat: Govt to mobilise colleges for online training under IIT-Bombay

VINAY UMARJI
Ahmedabad, 5 January

Taking its knowledge-sharing and innovation theme further this Vibrant Gujarat Summit 2013, the Gujarat government has roped in Indian Institute of Technology, Bombay (IIT-B) to conduct its 'Spoken Tutorial Project' for state varsities and colleges.

The premier technical institute conducts online courses for training educational institutes in open source software under the 'Spoken Tutorial Project'.

"IIT Bombay has been conducting this online programme on training institutes in open source software since some time now. Since, our focus this Vibrant Gujarat Summit is also on knowledge sharing and innovation, we wanted the universities and colleges in Gujarat to make the most of it. Hence, we are mobilising all universities and colleges in Gujarat to tie-up with IIT Bombay for getting trained under the Spoken Tutorial Project," said Jayanti Ravi, commissioner, higher education.

Under the project, IIT Bombay offers 5 different packages of various open source softwares.

Indian Express Pune 05.01.2013 P-3

# Dancing robot gets all the attention at IIT-B Techfest

DIPTI SONAWALA
MUMBAI, JANUARY 4

TECHFEST — the annual technological event of Indian Institute of Technology's (IIT), Bombay on Thursday unveiled several exhibits for gadget buffs. However, the highlight of day one was the 'Gangnam' robots.

The robot has been designed by Aldebran robotics, a French company that is into building state-of-the-art social and service robots. The company has managed to bring in 'Nao Robot', a humanoid bot all the way from France. These robots perform dance moves to the worldwide music hit 'Gangnam' Style, by South Korean rapper Psy.

"These robots win your hearts instantly with their looks. And while you'll still be in much awe looking at these bots, it will show you its 'Gangnam style' dance. On day one, over 12,000 people thronged just to take a glimpse of the Nao Robot. I think the popularity of the Gangnam style was something which managed to attract a large crowd to this stall," said Shrey Singh, Media manager, Techfest 2013. However, if you plan to buy this robot, you will have to shell Rs 15 lakh.

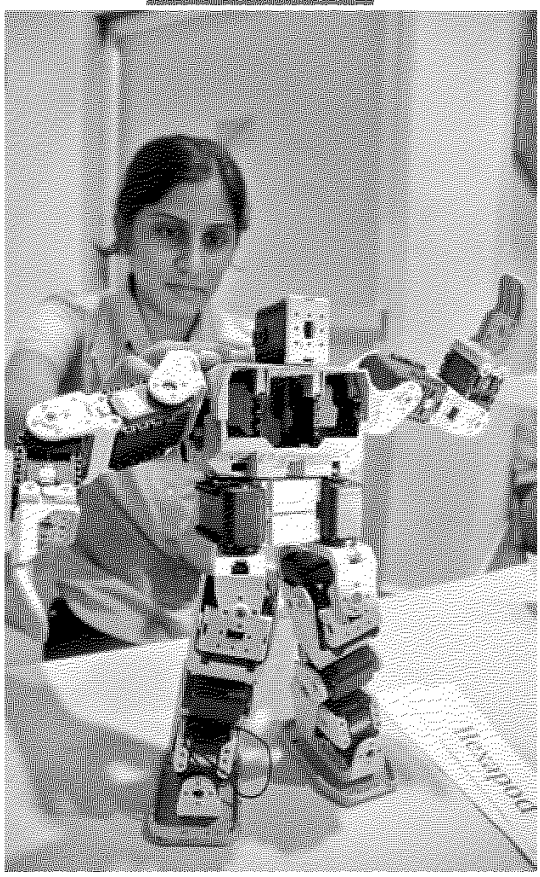
Another attraction at IIT-B on Thursday was the SONIN based HIRO robot. HIRO is also a very popular robot created by Hasegawa Lab Tokyo, because it can make educated guesses based on past experiences, which means it can learn, react and think just like a human being. The robot was programmed using an unsupervised learning mechanisiam created by the researchers called Self-Organising Incremental Neural Network that processes information in a dynamic way making it easy for the robot to think up future patterns. The creator of HIRO, Osamu Hasegawa, is also among the list of prominent personalities who will address the people on robots at Techfest.

Another popular exhibit was AirBurr, a robot designed specifically to study the physical interaction between flying robots and their environment. A team of PhD students, Adrien Briod and an engineer, Przemyslaw Kornatowski from Ecole Polytechnique Federale de Lausanne college in Switzerland, have developed a multi-sensor, light-weight robot capable of flying in clustered environment. "The robot weighs just about 350gm and does not need to avoid obstacles, and its design ensures there is little scope for damage. The robot can stand upright on its flexible legs," Broid said.

Day one witnessed a footfall of over 24,000 people on the Powai campus. The international exhibitions had students lining up to see some world-class technology from close quarters. There are overall 150 events spread over three days and a total prize money of Rs 17 lakh. Speaking on the events and exhibitions, Singh said the 16th edition of Techfest is even better then last year as some of the best known inventors and their inventions have been displayed. "There are nano robots, exhibits on light and sustainable energy sources and many other exhibits from USA, Japan, France, Switzerland and from India. Being a working day we had expected a very low turnout on Thursday however, we had over 24,000 visitors which included 1,500 schoolchildren from Mumbai and Pune," he said.

Deccan Chronicle Chennai 05.01.2013 P-5

IGNITING IMAGINATION



A girl displays a battery-powered robot at IIT-M's Shaastra fest. —DC

# IIT-M's tech fest Shaastra opens

**DC CORRESPONDENT**
CHENNAI, JAN. 4

The Union government spends 70 per cent of its higher education budget on top institutes like IITs, so students should have a social commitment when doing research, said Prof L.S. Ganesh, dean (students), IIT Madras, inaugurating IIM Madras' Shaastra on Friday.

He said students should not only look at quality but the detail of each innovation they do. "India lags behind in competitiveness and is ranked far behind several small countries. We need to look why we are so far behind.

The Union government spends 70 per cent of its higher education budget on top institutes like IITs, so we have a social commitment which I want students to keep in mind when doing research," he said.

Shaastra began with a bang on Friday with students from IIT-M displaying their innovative projects. A team of students has developed a cycle fitted with a motor which would propel the bicycle at a maximum speed of 40 kilometres per hour.

The cycle, according to the developers, converts mechanical energy into kinetic energy to power it.

Another team displayed their miniature flight 'Want to Fly', which would go around the institute during Shaastra to enthral the audience.

A group of students has embarked on a project to develop an underwater vehicle which they will exhibit in an international competition to be held soon.

IIT Madras provided a platform for its students through confluence to exhibit their spirit of innovation and achievements in technical fields in the presence of distinguished alumni.

This conclave also brought together stalwarts from different fields of research, industry and public policy with a focal theme 'Ignite your Imagination'.

Times of India ND
06/01/2013 P-10

# Even B'desh beats India in gender equality: Sen

**Hemali Chhapia | TNN**

**Mumbai:** Nobel laureate **Amartya Sen** has expressed shock at some suggestions made by politicians in the wake of the horrific gang rape in New Delhi. Speaking at the G L Mehta memorial lecture titled 'India: A defence and a critique', at IIT-Bombay on Saturday, he said, "Ever since the gang rape, silly statements about men and women have come from extremely conservative quarters."

Slamming the state for the way it has approached human development and the prevalent gender inequality, he said, "Some people think the atrocities that this woman suffered, and many others suffer, is a problem of urban areas and that it does not exist in rural areas. Dalit women have been violated and subjected to violence day in and day out without any group taking up their cause. The whole issue of death and neglect is far greater than we assume. It has an immediate effect on human life because half the people in the world are women."

Sen spoke at length in the lecture that lasted for an hour and a half. He elaborated on the need to rectify the place of women in India and spoke of how Bangladesh has overtaken India in every parameter of human development, which has a lot to do with gender equality. "In Bangladesh's politics, gender equality became increasingly important," said Sen. "Not too long ago Bangladesh was behind India on all indices. Today Bangladesh is the only country with more girls in schools than boys. It has a higher life expectancy, lower mortality rates and women in the labour force."

Quoting Mahatma Gandhi, Sen said, "Gandhi made an important statement about counting women as equal partners. I think it is important to recognize that the father of the nation was clear on this subject."

Aaj Samaj ND 06.01.2012 P-5

# अस्सी फीसदी बढ़ेगी आईआईटी की फीस

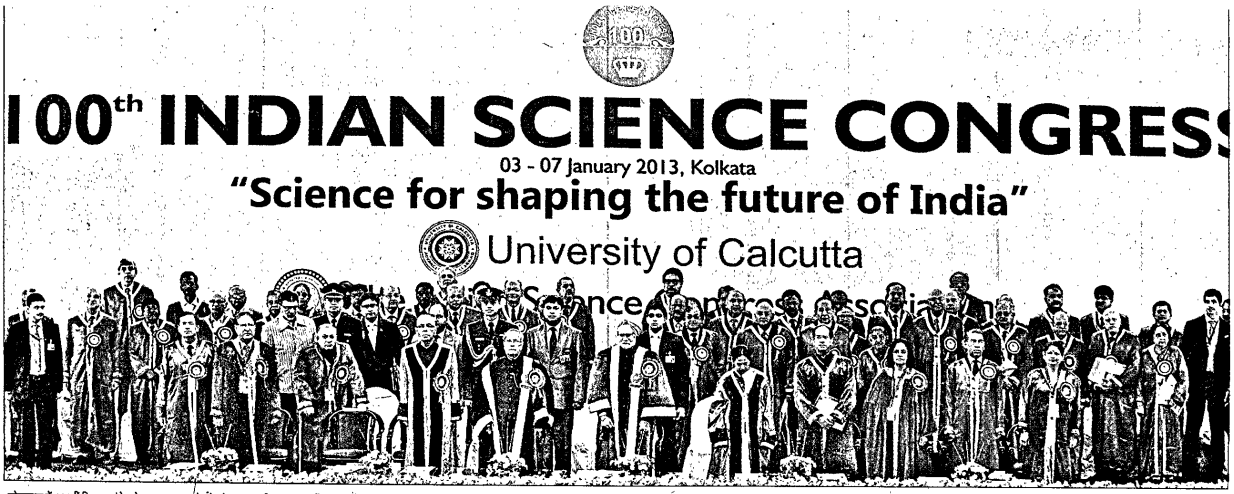
एजेंसी

नई दिल्ली। देश के सर्वश्रेष्ठ इंजीनियर तैयार करने वाले भारतीय प्रौद्योगिकी संस्थानों (आईआईटी) में भी भारी फीस बढ़ोतरी की तैयारी की जा रही है।

संभावना है कि आईआईटी काउंसिल की सोमवार को होने वाली मीटिंग में 80 फीसदी फीस बढ़ोतरी के फैसले पर मुहर लगेगी। फिलहाल आईआईटी संस्थानों में स्नातक कोर्स की फीस 50000 रुपए सालाना है, जिसे बढ़ाकर 90000 रुपए किया जा रहा है। इससे पहले आईआईटी संस्थानों में फीस बढ़ोतरी 2008-09 में हुई थी और उस दौरान फीस को 25000 रुपए से बढ़ाकर 50000 रुपए सालाना किया गया था। फीस में बढ़ोतरी की सिफारिश पिछले साल नवंबर में आईआईटी स्टैंडिंग कमेटी की और से की गई थी। उल्लेखनीय है कि एक सरकारी पैनल ने आईआई स्टूडेंट्स की फीस को 2 लाख से 2.5 लाख रुपए सालाना (चार साल के कोर्स के 8 से 10 लाख रुपए) किए जाने की सिफारिश की थी, जिससे प्रौद्योगिकी संस्थान अपने आधारभूत ढांचे को बेहतर बना सके।

- आईआईटी काउंसिल की सोमवार को मीटिंग में फैसले पर लगेगी मुहर
- फीस को 50000 रुपए सालाना से बढ़ाकर 90000 रुपए किया जा रहा है

हर साल देश के विभिन्न आईआईटी संस्थानों में स्नातक कोर्स के लिए करीब 10000 स्टूडेंट्स प्रवेश लेते हैं। मानव संसाधन विकास मंत्रालय के सूत्रों का कहना है कि फीस में बढ़ोतरी आवश्यक है, क्योंकि केंद्रीय सरकार के आईआईएम जैसे संस्थान और डीम्ड संस्थान आईआईटी के मुकाबले तीन गुना से अधिक फीस ले रहे हैं।




कोलकाता में 100वीं विज्ञान कांग्रेस के उद्घाटन समारोह के दौरान राष्ट्रपति प्रणब मुखर्जी, प्रधानमंत्री मनमोहन सिंह, राज्यपाल एम.के. नारायणन, मुख्यमंत्री ममता बनर्जी और केंद्रीय मंत्री जयपाल रेड्डी समारोह में हिस्सा ले रहे डेलीगेट्स के साथ। फोटो : प्रेट

# प्रयोगशालाओं से बाहर निकलेगा विज्ञान

दीपक रस्तोगी
(क्षेत्रीय संपादक, नेशनल दुनिया)

**भारत की नई विज्ञान नीति में वर्ष 2020 तक भारत को शीर्ष पांच वैश्विक विज्ञान ताकतों में शामिल करने का उद्देश्य रखा गया है मगर शोधों को मुनाफे से जोड़ने की चुनौती कायम है**

मानव जीवन में विज्ञान की भूमिका अतुलनीय है। लेकिन जन-नीतियों के साथ विज्ञान को कैसे जोड़ा जाए, कैसे विज्ञान को अर्थव्यवस्था से जोड़ा जाए, वैश्विक चुनौतियां क्या हैं, मानव के सामने भविष्य की दैनंदिन चुनौतियों में विज्ञान की क्या भूमिका होगी- इन सवालों का जवाब तलाशने की कोशिश में जुटे हैं दुनिया भर से जुटे वैज्ञानिक। शोध कार्यों की गुणवत्ता और औचित्य दोनों को लेकर ही गहन मंथन दिख रहा है कोलकाता में चल रहे पांच दिवसीय सौवें विज्ञान कांग्रेस में। छह नोबेल पुरस्कार विजेता, 60 विदेशी वैज्ञानिक, 20 देशों के 15 हजार प्रतिनिधि और छात्र मानव जीवन के सवालों पर चर्चा करने कोशिश कर रहे हैं कि प्रयोगशालाओं से बाहर निकले विज्ञान। वैज्ञानिक सम्मेलनों के संदर्भ में कोलकाता का आयोजन दो कारणों से खास है। एक, यह पहली बार हो रहा है कि दुनिया भर के शीर्ष वैज्ञानिक एक साथ बैठकर भोजन, ऊर्जा, अनाज-पैदावार, पानी, जमीन आदि के रोड मैप पर चर्चा कर रहे हैं। दूसरे, कोलकाता से विज्ञान कांग्रेस के आयोजनों की शुरुआत हुई। तब के वैज्ञानिकों ने प्रयोगशालाओं से बाहर विज्ञान को निकालकर जिस तरह से इसे जनोन्मुख बनाने का एजेंडा निर्धारित किया था- अब उसकी जरूरत महसूस की जाने लगी है।

विज्ञान कांग्रेस की शुरुआत में भारत सरकार ने अपने इरादे स्पष्ट कर दिए हैं। विज्ञान नीति-2013 के अलावा राष्ट्रपति और प्रधानमंत्री ने अपने अभिभाषण में वैज्ञानिक संस्कृति विकसित करने एवं समाज और विज्ञान के बीच की दूरी मिटाने की बात उठाई, उससे भविष्य की दिशा काफी कुछ स्पष्ट हो जाती है। अधिकांश वैज्ञानिक मानते हैं कि कई दफा ऐसे शोध कार्यों पर व्यय हुआ है, जिनका मानव जीवन से कम ही लेना-देना है। साथ ही, कई दफा जरूरी शोध कार्यों में धन की कमी आड़े आती है। तीसरी सबसे अहम बात कि विभिन्न संस्थानों

- **जड़ों की तलाश करते हुए भविष्य के दरवाजे की कुंजी तलाश रहे वैज्ञानिक**
- **आर्थिक विकास के एजेंडे के साथ विज्ञान, शोध और आविष्कार की प्रणाली को जोड़ा जाएगा**
- **अगले 10 वर्षों में जीडीपी का दो फीसदी वैज्ञानिक शोध पर खर्च किया जाएगा**

और शोध कार्यों में राजनीति और खींचतान के चलते भी अहम उद्देश्य कहीं पीछे छूट जाता है। क्या यह विज्ञान कांग्रेस ऐसे गतिरोधों पर काबू पा सकेगा?

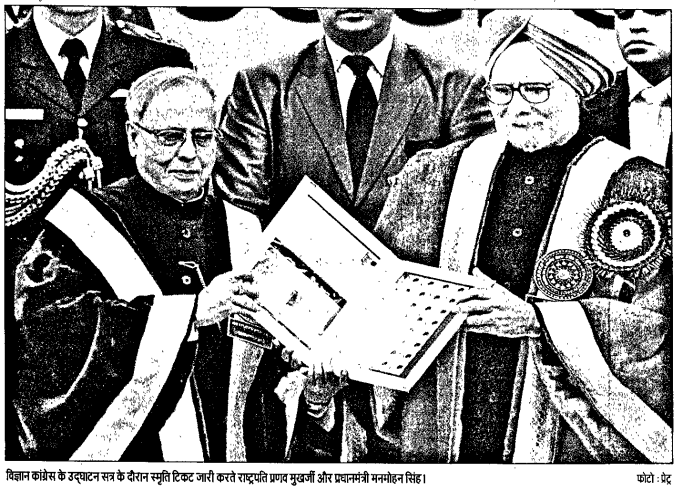
भारत की नई विज्ञान नीति में वर्ष 2020 तक भारत को शीर्ष पांच वैश्विक विज्ञान ताकतों में शामिल करने का उद्देश्य रखा गया है। यह कैसे होगा? दुनिया अब पूंजीवादी व्यवस्था की ओर तेजी से बढ़ रही है। ऐसे में वैज्ञानिक शोधों को मुनाफे से कैसे जोड़ा जाए। मुनाफा तभी आएगा, जब आम लोगों की जरूरतों से शोध कार्यों को जोड़ा जाएगा। केंद्रीय विज्ञान एवं तकनीकी सचिव रामासामी के अनुसार, इसका उद्देश्य विज्ञान के क्षेत्र में युवा प्रतिभाओं को आगे लाने के लिए हमारे विश्वविद्यालयों में अनुसंधान के लिए विज्ञान के क्षेत्र में प्रतिभाओं को तराशना और उन्हें सम्मान देना है तथा विज्ञान और तकनीकी के क्षेत्र में अनुसंधान और नवाचार में निजी क्षेत्र की ज्यादा साझेदारी के लिए नीतिगत माहौल बनाना और राष्ट्रीय एजेंडे को हासिल करने के लिए अंतरराष्ट्रीय सहयोग कायम करना है। महिला वैज्ञानिकों को प्रोत्साहित करने का फैसला अहम है। बौद्धिक संपदा व्यवस्था में संशोधन कर सार्वजनिक निजी साझेदारी में विकसित पेटेंट पर सह- साझेदारी होगी, समाज के हर वर्ग के युवाओं में विज्ञान और विज्ञान की सुविधाओं के प्रति अभिरुचि जागृत की जाएगी, विज्ञान, शोध और आविष्कार को रोजगार और कैरियर से जोड़ा जाएगा, विज्ञान के कुछ विशेष अग्रणी क्षेत्रों में विश्व स्तरीय शोध एवं विकास का ढांचा विकसित किया जाएगा, आर्थिक विकास के एजेंडे के साथ विज्ञान, शोध और आविष्कार की प्रणाली को जोड़ा जाएगा और जरूरत के हिसाब से प्राथमिकताएं तय की जाएंगी। इस उद्देश्य से जुड़े शोध एवं विकास के आउटपुट के साथ नए मॉडल विकसित किए जाएं। विज्ञान नीति का एक अहम बिंदु यह भी है कि नए मशीनीकरण के जरिए विज्ञान एवं तकनीक आधारित मुश्किल आविष्कारों को सुलभ और सहज बनाया जाए।

अच्छी बात यह है कि वैज्ञानिक शोध की समूची कवायद को सकल घरेलू उत्पाद के आंकड़े के संदर्भ में मापने की कवायद हो रही है। अभी तक सकल घरेलू उत्पाद (जीडीपी) का एक फीसदी वैज्ञानिक शोध पर खर्च किया जाता है। अब अगले 10 साल में इसे बढ़ाकर दो फीसदी किया जाएगा और इसे राष्ट्रीय आर्थिक गतिविधियों के साथ जोड़ा जाएगा। मौजूदा आंकड़े और रोडमैप में फर्क जाहिर है। अभी शोध कार्यों से डेढ़ लाख शोधार्थी जुड़े हुए हैं। अगले पांच साल में यह संख्या दाई लाख होगी। 1958, 1983 और 2003 में भारत सरकार ने विज्ञान और तकनीक को लेकर प्राथमिकताएं घोषित तो की थीं, लेकिन फंडिंग बड़ी समस्या रही। अब जबकि, जीडीपी का दो फीसदी का लक्ष्य निर्धारित किया गया है, निजी क्षेत्र को जोड़ने की नीति पर चर्चा हो रही है।

नेशनल इनोवेशन काउंसिल के सदस्य रघुनाथ माशेलकर कहते हैं कि अभी सरकारी और निजी क्षेत्र की फंडिंग का फर्क तीन और एक की हिस्सेदारी में है। अगले पांच साल में इसे बढ़ाकर बराबर करने की योजना है। माशेलकर के अनुसार, इसके लिए हमें अपना माइंडसेट बदलने के साथ ही निजी क्षेत्र की ओर से शोध में निवेश को बढ़ावा देना होगा। नेशनल फीजिकल लैबोरेटरी के पूर्व निदेशक श्रीकृष्ण जोशी के अनुसार, निजी क्षेत्र से ऐसे लोगों को लाने की जरूरत है, जो रिस्क उठाने का माद्दा रखते हों। विज्ञान और तकनीकी संस्थानों में से कई अब इस तरह के निवेश आमंत्रित करने में जुट गई हैं। माशेलकर उदाहरण देते हैं कि 20वीं सदी में हमारे आचार्य जगदीश चंद्र बोस ने वायरलेस का आविष्कार कर लिया था, लेकिन फंडिंग मिली तो रेडियो मारकोनी ने बना लिया। सर सीवी रमन ने रामन इफेक्ट की खोज की मगर रामन स्कैनर्स विदेशों में बनाए गए। इसरो के पूर्व चेयरमैन और योजना आयोग के सदस्य के कस्तुरीरंगन के अनुसार, नई विज्ञान नीति के संदर्भ में नई निवेश नीति भी बनाई जा रही है। फोकस में खाद्य सुरक्षा और अन्य विषयों के साथ ही आनुवांशिक रूप से परिवर्द्धित (जेनेटिकली मोडिफाइड) खाद्य या परमाणु ऊर्जा या अंतरिक्ष के अन्वेषण जैसे जटिल मुद्दों को भी समेटा जाएगा।

इसके लिए इंडियन स्टैटिकल इंस्टीट्यूट और इंडियन इंस्टीट्यूट ऑफ मैनेजमेंट जैसे संस्थानों की भागीदारी बढ़ाते हुए कोर टीम गठन करने की कवायद चल रही है। आईएसआई के निदेशक विमल राय के अनुसार, उद्योग जगत मुख्य रूप से अपनी इकाई लगाने के लिए शोध पर धन खर्च करता है। अब अन्य तरह के उद्देश्यों को भी प्रेरित किया जाना चाहिए।

इसी तरह आईआईएम कोलकाता के शिक्षक और अर्थशास्त्री अनूप सिन्हा के अनुसार, शोध केंद्र और वाणिज्यिक संगठनों के बीच तालमेल बनना चाहिए। साथ ही, बाजार तक पहुंचने वाले एंड प्रोडक्ट को लेकर भी चर्चा होनी चाहिए कि उसकी कितनी खपत होगी और विपणन मूल्य क्या होगा। सधे शब्दों में कहें तो विज्ञान को जनोन्मुखी बनाने की कवायद में बाजार से जोड़ने की कवायद चल रही है। सावधानी यह रखनी होगी कि बाजार की जरूरतें विज्ञान के उद्देश्य पर भारी न पड़ने लगे। तभी आम लोगों में वैज्ञानिक संस्कृति विकसित करने एवं समाज और विज्ञान के बीच की दूरी मिटाने का उद्देश्य पूरा होगा।



विज्ञान कांग्रेस के उद्घाटन सत्र के दौरान स्मृति टिकट जारी करते राष्ट्रपति प्रणब मुखर्जी और प्रधानमंत्री मनमोहन सिंह। फोटो : प्रेट

## विज्ञान का नया मक्का बन सकता है भारत

वेंकटरामन रामाकृष्णन (2009 में केमिस्ट्री का नोबेल पुरस्कार प्राप्त भारतीय मूल के बॉयोलॉजिस्ट)

भारतीय विज्ञान कांग्रेस में छह नोबेल पुरस्कार विजेता वैज्ञानिक और जाने-माने शोधकर्ता उपस्थित हुए हैं। इससे साफ है कि भारत में विज्ञान से जुड़े शोध कार्यों को लेकर गंभीरता बढ़ रही है। लेकिन तुलनात्मक रूप से यूरोपीय देशों की तरफ शोध का केंद्रीकरण बढ़ रहा है। अतीत में विज्ञान की धारा बदल देने वाले कई शोध भारत में हुए, लेकिन ऐसे वक्त में जब भारत 2020 तक विज्ञान का सुपरपावर बनना चाहता है, कुछ बातों पर गौर करना चाहिए। भारत में विज्ञान का नया मक्का बनने की पूरी संभावना है। लेकिन जरूरत यहां वैज्ञानिक संस्कृति कायम करने की है।

मैं यहां उदाहरण रखना चाहता हूं यॉरक्ट सोसाइटी ऑफ लंदन में प्रतिनिधित्व का। यह स्वायत्त संस्था है और यहां दुनिया के जाने-माने

### ■ भारत में दिमाग बेहतर, जरूरत वैज्ञानिक संस्कृति कायम करने की

वैज्ञानिक फेलो बनते हैं। कॉमनवेल्थ देशों का प्रतिनिधित्व अगर देखा जाए तो मुझे लगता है भारत काफी पीछे है। ऐसा क्यों? इसे किसी तरह की पूर्व धारणा का नतीजा नहीं माना जाना चाहिए। जो लोग अच्छे शोध करते हैं, उन्हें सोसाइटी खुद ब खुद खींच लेती है। भारतीय वैज्ञानिकों के शोध के स्तर पर बात होनी चाहिए। विज्ञान कांग्रेस में सैकड़ों प्रतिनिधि जुट आए हैं, यह साबित करता है कि विश्व के लोग भारत से क्या उम्मीद रखते हैं। लेकिन इसका मतलब यह नहीं कि यहां का स्तर बेहतर हुआ है।

भारत में नोबेल पुरस्कार को लेकर जितना मंथन होता है, उतना गंभीर शोध को लेकर नहीं। अगर कोई भारतीय नोबेल पुरस्कार पाता है तो इसका मतलब यह नहीं कि यहां विज्ञान के लिए अच्छा काम हो रहा है। यह पुरस्कार ऐसा मापदंड है, जिससे विज्ञान के क्षेत्र के बाहर के लोग उस व्यक्ति के बारे में जान पाते हैं। जो लोग शोध कार्य करते हैं, उनको एक तरह से स्वीकृति मिलती है इस पुरस्कार से। लेकिन उनका लक्ष्य शोध होता है, न कि, पुरस्कार प्राप्त करना। मैं यहां अंग्रेज मॉलिक्युलर बॉयोलॉजिस्ट फ्रांसिस क्रिक की चर्चा करना चाहूंगा, जिन्होंने एक दफा कहा कि कुछ लोग भाग्य से नोबेल पुरस्कार पाते हैं और कुछ इसलिए चूक जाते हैं, क्योंकि उनके भाग्य ने साथ नहीं दिया। कई दफा इस पुरस्कार का नकारात्मक प्रभाव भी दिखा है। कई वैज्ञानिक पुरस्कार पाने के लिए बेहतर काम नहीं कर पाए। मेरे लिए यह सम्मान जरूर था। लेकिन मेरे लिए यह जीवन का सर्वोच्च दिन नहीं था।

मैं यहां दो साल पहले बंगलौर में प्रोफेसर सीएनआर राव से मिला था। तब वे भी भारत में शोध की गुणवत्ता को लेकर काफी चिंतित नजर आए। यहां क्रिएटिविटी और युवा वैज्ञानिकों में इच्छाशक्ति की कमी की चर्चा वे बार-बार करते रहे। वे इस बात से चिंतित थे कि युवा वैज्ञानिक अपनी पोस्ट डॉक्टोरल डिग्री पूरी कर छोटे प्रोजेक्ट या अपने पुराने प्रोजेक्ट को आगे बढ़ाने में जुट जाते हैं। नया करने, नया चैलेंज लेने की इच्छा नहीं जताते।

मेरा मानना है कि युवा वैज्ञानिकों को डॉक्टोरल या पोस्ट डॉक्टोरल डिग्री के लिए यूरोप या अमेरिका जरूर जाना चाहिए। आपको विदेश जाकर वहां अलग तरह की वैज्ञानिक संस्कृति के साथ घुलना-मिलना चाहिए। इससे आपका क्षितिज वृहद् होगा। आपकी सोच का दायरा बड़ा होगा। यही बात मैं अमेरिका और इंग्लैंड के शोधार्थियों को भी कहता हूं। जब आप अपने यहां लौटते हैं तो आपको नया करना चाहिए। भारत में मेधा बहुत है। यहां का दिमाग दुनिया में कहीं से बेहतर है। लेकिन यहां वैज्ञानिक संस्कृति मिसिंग लिंक है। कोई व्यक्ति अच्छा विज्ञान कैसे रच सकता है, जब आपके आसपास अच्छा विज्ञान दिख नहीं रहा हो। पर्यावेक्षण बहुत जरूरी है। यहां खुले माहौल की जरूरत है। मेरे विद्यार्थी तो पठन-पाठन के दौरान कई बार मेरे से लड़ते-झगड़ते भी है। इतना खुला माहौल है। भारत में हायरेरकी का ध्यान रखा जाता है। जरूरत बहस-मुबाहिस के लिए खुले माहौल की है।

मुझे बड़ौदा की एमएस यूनिवर्सिटी में अपने दिन याद आते हैं। वहां भौतिकी और गणित के लिए माहौल बेहतर लगा। लेकिन बॉटनी और जूऑलॉजी में पुराने अंदाज में चीजें याद कर काम चलाई जाती थीं। काफी थकाऊ और उबाऊ अंदाज में। तब मैं जीव विज्ञान को लेकर उतना आग्रह नहीं दिखा पाया था। लेकिन बाहर गया और नया माहौल देखा, धीरे-धीरे मैंने अपने शोध का ध्येय तय किया। मेरे कहने का आशय यह नहीं कि जो है, बाहर ही। मेरे कहने का आशय यह है कि यहां माहौल विकसित करने की जरूरत है। दुनिया हमारी ओर देख रही है। शोध का नया मक्का बन सकता है भारत।

(प्रस्तुति : दीपक रस्तोगी)

# विज्ञान और जन नीतियों में मेल जरूरी

एमएस स्वामीनाथन
(चरित्र वैज्ञानिक एवं भारत में हरित क्रांति के जनक)

मौजूदा समय में विज्ञान और जन नीतियों के बीच मेलबंधन में जरूरी मानता हूं। जन नीतियों के लिए राजनीतिक सदिच्छा जरूरी है। भविष्य को ध्यान में रखकर हमें तैयारी करनी होगी। हमारी चुनौतियां बदल रही हैं। अतीत में हम पैदावार बढ़ाने और दुनिया की खाद्य समस्या हल करने की कोशिश कर रहे थे। अब तक जल, ऊर्जा और लगातार बदलते पर्यावरण की भी चुनौतियां हमारे सामने हैं। वैश्विक चुनौतियां तो हैं ही। हम ज्ञान आधारित अर्थव्यवस्था की ओर अग्रसर होने की कोशिश में हैं। इसलिए कि हमारी अपनी अर्थव्यवस्था- कृषि आधारित अर्थव्यवस्था को नया मोड़ दे सकें। यहीं राजनीतिक सदिच्छा की बात आती है। इसके अभाव में हम जन- नीतियां ढंग से तैयार नहीं कर सकते। विज्ञान और तकनीक का प्रभाव नीचे तक किसानों के दरवाजे तक पहुंचने के प्रति हम गंभीर हों- इसकी जरूरत है। कृषि से कितना उपार्जन हो रहा है, यह देखने की जगह हमें सोचना होगा कि कृषक का उपार्जन कितना होगा। यह निर्भर करेगा सरकार की नीतियों के ऊपर।

मैं एक बहुत पुराना संदर्भ उठाना चाहूंगा। बंगाल के दुर्भिक्ष का। तब सड़कों के किनारे हजारों लोग भूख से मर गए थे। विज्ञान और समाज के बीच बड़ी दूरी अब भी बनी हुई है। हम खाद्य सुरक्षा विधेयक तो बना लेते हैं। उसे मूल अधिकार बनाने की कवायद हो रही है। लेकिन तकनीकी बैक-अप के बारे में नहीं सोच रहे। दुर्भिक्ष के अतीत से सबक लेकर हमें चहुंओर सोचना होगा। हमारे देश में लगभग 65 प्रतिशत लोग ग्रामीण

### ■ भविष्य में खाद्य की जरूरत 40 और पानी की 55 फीसदी बढ़ेगी

क्षेत्रों में रहते हैं। उनके जीवन स्तर में सुधार काफी हद तक कृषि उत्पादन और उत्पादकता की वृद्धि पर निर्भर करता है। 12वीं पंचवर्षीय योजना में उम्मीद जताई जा रही है कि देश में खाद्य सुरक्षा सुनिश्चित करने के लिए प्रति वर्ष चार प्रतिशत की दर पर कृषि क्षेत्र की टिकाऊ वृद्धि आवश्यक है। इस वृद्धि में पानी और भूमि की वजह से बाधा आ रही है। खेती के लिए पानी बचाने संबंधी तकनीकों में नए उपायों, भूमि उत्पादकता बढ़ाने तथा जलवायु में विभिन्न लचीलेपन व्यवस्था के विकास की जरूरत है। विज्ञान और प्रौद्योगिकी नीतियों सहित हमारी जन नीतियों की सर्वोच्च प्राथमिकता कृषि क्षेत्र में परिवर्तन करना होना चाहिए।

जीन संबंधित खाद्य पदार्थ या परमाणु ऊर्जा या अंतरिक्ष की खोज जैसे जटिल मुद्दों का समाधान विश्वास, भावना या डर से नहीं किया जा सकता है। इसे व्यवस्थित बहस, विश्लेषण और समझ से सुलझाया जा सकता है। हमारी युवा पीढ़ी को वैज्ञानिक सोच अपनानी चाहिए, ताकि विज्ञान का पूरा लाभ लिया जा सके।

भारत जहां राष्ट्रीय आय में लगातार वृद्धि की कोशिश कर रहा है, हमें वैज्ञानिक उपकरणों का उपयोग वंचितों की जरूरतें पूरी करने के लिए करना चाहिए। विज्ञान का उपयोग समावेशी समाज बनाने में होना चाहिए, जिसमें बड़ी सामाजिक समस्याओं का समाधान विज्ञान का उपयोग कर निकाला जाना चाहिए।

मैं हमेशा यह सोचता हूं कि 20 साल बाद क्या होगा। पिछले दो दशक में काफी बदलाव आए हैं। मोबाइल फोन, इंटरनेट, नए तरह की गाड़ियां, स्वास्थ्य के क्षेत्र में नए शोध। लेकिन एक बात नहीं बदली है- बढ़ती आबादी की खाद्य जरूरतें। भारत जैसे देश के लिए इस बारे में सोचना जरूरी है।

गांवों से शहरों की ओर पलायन भी काफी हो रहा है। भविष्य में खाद्य की जरूरत 40 फीसदी और पानी की 55 फीसदी बढ़ने वाली है। इन बातों को ध्यान में रखते हुए आगे का रोड मैप तैयार करना होगा।

# January 7

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# Different boards to have similar papers

Manash Pratim Gohain | TNN

New Delhi: Come 2014, class 12 students of maths and science from one particular education board will not be able to complain about having to face tougher question papers and marking systems than their counterparts studying under other boards.

The majority of educational boards conducting class 12

▶ Common design, P 15

exams across the country have agreed in principle to have a common design of question paper to make the school-leaving exams as uniform as possible in terms of difficulty.

This is being done to give students a level playing field.

## COMMON CORE

- Council of Boards of School Education in India sets up **panel to work on common design of papers** for maths and science
- In **2014**, Class XII exams conducted by various boards will be based on core curriculum
- **Difficulty level** and marking system will be **equivalent**

Efforts began in 2010, when 20 educational boards, including the Central Board of Secondary Education (CBSE) and Council for the Indian School Certificate Examinations (CISCE) adopted the core curriculum in maths and science.

Times of India ND 7/01/2013 p-15

# IIT board asks CBSE to work on common design of Q paper

Manash Pratim Gohain | TNN

**New Delhi:** Science and maths students will soon face similar question papers, regardless of the board under which they study.

In 2011, all 29 boards conducting senior secondary exams had adopted a core curriculum. Taking forward the uniformity, the Apex Board of IIT has asked CBSE to work on a common design of question paper for Class XII exams for mathematics and science subjects.

Coordinating on behalf of the boards, Council of Boards of School Education in India (COBSE), a common platform for all educational boards in the country, has instituted a sub-committee comprising of state board members from Assam, Maharashtra, Bihar, Kerala and Rajasthan to work on the common design of question paper.

"We are going to have the first batch that will appear in Class XII exams from various boards based on the core curriculum. With a common design of question papers the difficulty level as well as marking system will be equivalent and therefore there will be complete uniformity in the system," said chairman of COBSE as well as CBSE, Vineet Joshi.

The move is also likely to offer a level playing field to science students from different boards while appearing for centralized entrance examinations like the Joint Engineering Entrance (JEE) as well as the single medical entrance test. From this year the JEE (main) merit list to be conducted by CBSE will give 40% weightage to board results.

"Initially, once the design is ready, a pilot run will be introduced by five state boards for class XI. Based on the experience, and in case there is any need for improvement, finally it will be introduced in class XII from 2014. The idea is to have uniformity in the level of difficulty as the curriculum is already uniform so that students get a level playing field," said Puran Chand, joint secretary, COBSE. Once the recommendations of the sub-committee are ready, the matter will be placed at the COBSE for approval.

Hindu ND 07/01/2013

P-9

# Kerala front-runner for IIT: Pallum Raju

Staff Reporter

**KOCHI:** Kerala is the front-runner for an Indian Institute of Technology (IIT), Union Human Resource Development Minister M.M. Pallum Raju has said.

Talking to reporters on the sidelines of a function here on Sunday, he said in the 11th Plan, some IITs were granted. They were in various stages of progress. "We need to consolidate and definitely we will look into new requests. I think definitely Kerala is the front-runner." he said.

Prime Minister Manmohan Singh, during his visit to Kerala in September for the inauguration of 'Emerging Kerala' investors meet, had said the Centre was seriously considering a proposal to set up an IIT in the State. — PTI

**Staff Reporter writes from Kozhikode:** Union Minister of State for Human Resource Development Shashi Tharoor said that he would not give up his fight for getting an IIT for the State though the Planning Commission had ruled out the possibility of the project.

Addressing an interactive session organised by the Malabar Chamber of Commerce here on Sunday, Mr. Tharoor said he was not in favour of dismissing the realisation of the project here as all Parliament members from the State were battling for it.

He said that Kerala would present its stance once again before the Planning Commission to win a favourable stance. Mr. Tharoor made it clear that the task would not be that easy as India was following a centralised planning system where the demands of other States too should be taken into account.

"As per the existing status, there is no provision for sanctioning an IIT for Kerala in the 12th Five Year Plan, which we have to overcome in the first phase," he said.

Business Standard ND 07/01/2013
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# आईईटी-जेईई पंजीकरण में जबरदस्त उछाल

**कल्पना पाठक और एम सरस्वती**

संयुक्त इंजीनियरिंग परीक्षा (जेईई) का नया अवतार खूब रंग लाया है। वर्ष 2013 की परीक्षा के लिए पंजीकरण करवाने वाले छात्रों की तादाद रिकॉर्ड 25 फीसदी बढ़कर 14 लाख तक पहुंच गई है। पिछले साल जेईई के लिए 11 लाख छात्रों ने पंजीकरण कराया था।

प्रतिष्ठित भारतीय प्रौद्योगिकी संस्थानों (आईआईटी) में दाखिले के लिए अप्रैल 2013 में दो चरणों वाली संयुक्त इंजीनियरिंग परीक्षा ली जाएगी- मेन और एडवांस्ड। आईआईटी के लिए आवेदन करने वाले छात्रों को जेईई-मेन में शामिल होना पड़ेगा।

इंजीनियरिंग संस्थानों में दाखिले के लिए नई जांच परीक्षा अखिल भारतीय इंजीनियरिंग प्रवेश परीक्षा (एआईईईई) और आईआईटी-जेईई का संयुक्त रूप है, जहां मेन परीक्षा एआईईईई के बराबर होगी और एडवांस्ड परीक्षा आईआईटी-जेईई के बराबर।

इस क्षेत्र के विशेषज्ञों का कहना है कि आईआईटी-जेईई के लिए पंजीकरण कराने वाले छात्रों की तादाद में इजाफा कई राज्यों की तरफ से राज्य स्तरीय इंजीनियरिंग परीक्षाओं की व्यवस्था खत्म करने का नतीजा है। इसके अलावा मानव संसाधन विकास मंत्रालय ने वर्ष 2013 की बोर्ड परीक्षाओं में उन छात्रों को दूसरी मर्तबा प्रयास करने की भी इजाजत दे दी है, जिन्होंने वर्ष 2012 में समान परीक्षा दी थी।

मंत्रालय ने यह अनुमति यह सुनिश्चित करने के लिए दी है कि ऐसे छात्रों को भी आईआईटी-जेईई 2013 की एडवांस्ड जांच परीक्षा में बैठने वाले शीर्ष 20 फीसदी छात्रों की फेहरिस्त में शामिल होने का मौका मिल सके। जेईई मेन में जितने छात्र शामिल होंगे, उनमें से केवल शीर्ष 1,50,000 छात्र ही जेईई-एडवांस्ड परीक्षा में बैठने के योग्य होंगे, जो मेन परीक्षा के कुछ सप्ताह बाद आयोजित होगी। जेईई-एडवांस्ड परीक्षा के आधार पर आईआईटी में दाखिले के लिए छात्र को संबंधित 12वीं कक्षा के बोर्ड के शीर्ष 20 पर्सेंटाइल में आना चाहिए। वर्ष 2012 तक 12वीं बोर्ड में 60 फीसदी अंक लाने वाला छात्र आईआईटी में दाखिले के लिए होने वाली परीक्षा में शामिल होने के काबिल होता था। देश में 12वीं कक्षा की परीक्षा लेने वाले 32 बोर्ड हैं, जिनका पैटर्न और मूल्यांकन के तौर-तरीके अलग-अलग हैं।

जहां जेईई-मेन सीबीएसई लेगा, वहीं जेईई-एडवांस्ड आईआईटी की तरफ से आयोजित की जाएगी। नैशनल इंस्टिट्यूट ऑफ टेक्नोलॉजी (एनआईटी) और आईआईटी में दाखिले जेईई-मेन के अंक पर आधारित होंगे। कुछ डीम्ड विश्वविद्यालय भी छात्रों के दाखिले के लिए न्यूनतम प्रतिशत मानदंड निर्धारित करने के बाद जेईई-मेन परीक्षा के अंकों का इस्तेमाल कर सकेंगे। इंजीनियरिंग संस्थानों में दाखिले के लिए होने वाली परीक्षा का पैटर्न बदलना आईआईटी-जेईई के लिए तैयारी करवाने वाले कोचिंग संस्थानों के लिए भी फायदेमंद साबित हुआ है। मसलन, कोटा के करियर प्वाइंट ने अगले शैक्षणिक वर्ष के लिए सालाना शुल्क 70,000 रुपये से बढ़ाकर 80,000 रुपये कर दिया है।

संस्थान के संस्थापक निदेशक एवं मुख्य कार्याधिकारी प्रमोद माहेश्वरी ने कहा, 'संस्थानों में पंजीकरण कराने वाले छात्रों की संख्या बढ़ी है। हमने अगले शैक्षणिक वर्ष के लिए शुल्क में 10-14 फीसदी इजाफा पहले ही कर दिया है।' करियर प्वाइंट सूचीबद्ध कोचिंग संस्थान है, जिसे उम्मीद है कि अगले साल 20,000-25,000 छात्र पंजीकरण कराएंगे।

Indian Express Chandigarh 07.01.2013 P-7

# Fee hike, peer review on IIT Council's table today

EXPRESS NEWS SERVICE
NEW DELHI, JANUARY 6

WHEN the IIT Council meets on Monday, it will take a call on a slew of significant proposals, including those for a fee hike, external peer review of IITs and a drive to adopt, teach and espouse 'green technology'.

In a far-reaching move towards bringing in accountability in IITs, it is proposed that every IIT be peer-reviewed every five years by eminent persons from the industry and academia. The new IITs — once they have operated for five years — will also be subject to this peer-review, according to the proposal on the agenda of the IIT Council.

Before the review exercise begins, each IIT will also be required to undertake in-house department wise review. As per the tentative time line arrived at, while the review committee is to be notified by April, the reports of these committees will be submitted by October.

The review will address aspects like where the institute has reached in relation to its charters and the projections. That apart, the institute's future plans and metrics that it adopts in assessing itself will also be observed. The institute will be reviewed on factors such as teaching quality, research, governance quality, range of degrees on offer, environment for research, contribution to research and the bottlenecks in the way.

The IIT Standing Council had met in November to approve an 80 per cent hike in the annual tuition fee at IITs — from Rs 50,000 to Rs 90,000 per annum — with exemption for SC/ST category students. The proposal is now expected to get the final nod from the IIT Council, which has on board IIT Directors, Chairpersons of Board of Governors of IITs besides eminent persons and is presided over by the HRD Minister.

The fee hike apart, the IIT Council will also mull over a National IIT Scholarship programme that will take care of up to 100 per cent tuition fee for reserved category students.

Another interesting proposal approved earlier by the Standing Council of IITs is introduction of green programmes in the curriculum, work on 'green' technology, management practice. As part of this initiative, 'green offices' will also be set up on campus.

Hindustan ND 07/01/2013 p-9

# आईआईटी की फीस वृद्धि को आज मिल सकती है मंजूरी

नई दिल्ली | विशेष संवाददाता

भारतीय प्रौद्योगिकी संस्थानों (आईआईटी) में फीस बढ़ोतरी और अन्य मुद्दों को लेकर मानव संसाधन विकास मंत्री सोमवार को आईआईटी काउंसिल की बैठक की अध्यक्षता करेंगे। इन संस्थानों में फीस बढ़ोतरी के प्रस्ताव को स्वीकृति मिलने की संभावना है। इसमें फीस मौजूदा 50 हजार से बढ़ाकर 90 हजार की जा सकती है।

मंत्रालय से जुड़े सूत्रों के अनुसार, फीस बढ़ोतरी के प्रस्ताव के साथ-साथ साढ़े चार लाख रुपये से कम आय वालों के लिए संस्थानों में 25 फीसदी सीटें आरक्षित करने के प्रस्ताव पर भी चर्चा होगी। ऐसे छात्रों की फीस की राशि केंद्र सरकार स्कॉलरशिप के जरिए देगी। इससे आईआईटी को फीस बढ़ाने पर आलोचना से बचने का मौका मिलेगा।

बैठक के एजेंडे में और भी कई प्रस्ताव हैं। इनमें बीटेक थर्ड ईयर के छात्रों को गैट में बैठने की अनुमति देकर सीधे पांच वर्षीय एमटेक और पीएचडी कोर्स के लिए अनुमति देना शामिल है। यानी छात्र बीटेक, एमटेक और पीएचडी साथ-साथ कर पाएंगे। दूसरे आईआईटी के बीटेक छात्रों को एनआईटी और दूसरे संस्थानों में एमटेक करने के साथ-साथ बतौर ट्रेनी शिक्षक कार्य करने की अनुमति देना शामिल है।

इसके अलावा आईआईटी के बोर्ड ऑफ गवर्नर्स में नियुक्ति प्रक्रिया के नियमों में बदलाव, आईआईटी कैंपस को ग्रीन कैंपस में बदलने की योजना पर चर्चा, शिक्षकों की नियुक्ति में तेजी आदि अहम मुद्दों पर चर्चा होनी है।

## काउंसिल बैठक

- फीस में 40 हजार की वृद्धि के साथ इसे 90 हजार करने का प्रस्ताव
- आर्थिक रूप से कमजोर छात्रों के लिए 25% आरक्षण देने की योजना

Business Line ND 07/01/2013 P-1

**PILOT PROJECT**

# At IIT-Bombay, tech takes the cash out of shopping

## 2,000 students are using the 'virtual wallet' initiative of ItzCash, Rupay and Canara Bank

**Nivedita Ganguly**
**Deepa Nair**
*Mumbai, Jan. 6*

Imagine a world where you don't have to worry about running short of cash every time you pick up your breakfast cereal from the neighbourhood grocery or fret about change while getting a cup of coffee!

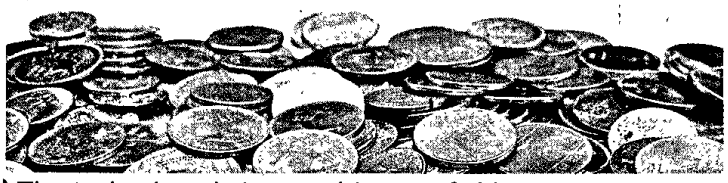
A cashless world is no longer a theory at the Indian Institute of Technology-Bombay (IIT-B). Thanks to a novel initiative, shopping here is all about a tap on their mobile phones.

The "virtual wallet" is a pilot project launched by ItzCash, Rupay and Canara Bank. "A person just has to use a 'tag' on any personal belonging like a mobile phone or an ID card and make payments at shops in the campus through it," said Vaibhav S. Joshi, Head, Government Business, ItzCash.

About 2,000 students are using this cashless card initiative since its launch in September last year. "This is the first time that we have introduced the system in an educational institution. We aim to extend it to 4,000 students in the next few months," Joshi added.

ItzCash plans to expand the cashless card system to other IITs and corporate campuses soon.

There are three active reloading spots and 35 stores enabled with this technology at the IIT-B campus. Through this system, students can, among other things, make day-to-day purchases, such as books and stationeries, and settle canteen bills.



▶The technology being used is near field communication, where devices establish radio communication with each other by touch or bringing them into close proximity.

**THE TECH IN USE**

The technology used is near field communication (NFC), where devices establish radio communication with each other by touch or bringing them into close proximity.

Countries such as Germany, Austria, Finland, New Zealand and Italy have tested NFC in ticketing systems for public transport, while China has implemented it in bus services across the country. Still at a nascent stage in India, NFC technology is now being explored as a new medium of transaction, which may gradually eliminate the usage of smaller currencies.

It costs the Government nearly a rupee to print a currency note of Rs 10 denomination and Rs 1.79 to make a Rs 100 note, according to information provided by the Reserve Bank of India.

**CHALLENGES**

The pilot project at IIT-B campus has had some teething issues in setting up a smooth transaction process. "Enabling device and application readiness and handholding merchants to move to this new automated system were some of the initial challenges that we faced," Joshi said.

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*deepa.nair@thehindu.co.in*

Hindustan ND 07/01/2013 p-1

**2010-11 में भारतीय छात्रों ने विदेश में शिक्षा के लिए 30 हजार करोड़ रुपये खर्च किए, केंद्र का बजट 15 हजार करोड़**

**कुछ अलग**

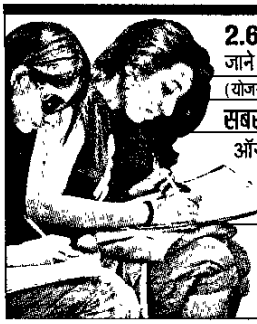
# उच्च शिक्षा के बजट से दोगुना विदेशों में पढ़ाने पर खर्च

**कोलकाता | मदन जैड़ा**

भारतीय छात्र विदेश जाकर पेशवर डिग्री लेना ज्यादा पंसद कर रहे हैं। योजना आयोग और मानव संसाधन विकास मंत्रालय का अध्ययन इस पर मुहर लगाता है। इसके अनुसार, 2010-11 में भारतीय छात्रों ने विदेश में उच्च शिक्षा लेने के लिए तीस हजार करोड़ रुपये खर्च किए। यह राशि उच्च शिक्षा पर केंद्र के बजट की दोगुनी है।

ऐसा तब है जब भारत में छह सौ से अधिक विदेशी शिक्षण संस्थान साझेदारी में शिक्षा दे कर रहे हैं (अखिल भारतीय तकनीकी शिक्षा परिषद के आंकड़ों के अनुसार)। अमेरिका, ब्रिटेन, कनाडा, न्यूजीलैंड और ऑस्ट्रेलिया जैसे अंग्रेजी भाषी देशों में पढ़ने के लिए सबसे ज्यादा छात्र जा रहे हैं। हैदराबाद विश्वविद्यालय के पूर्व कुलपति प्रोफेसर सैय्यद हसनैन का मानना है कि विदेशी संस्थानों के भारत में कैंपस खुलने से यह पलायन रुक सकता है। उच्च शिक्षा महकमे का बजट 15 हजार करोड़ रुपये है। सरकार इसे भी पूरा खर्च नहीं कर पाती।

अध्ययन में विदेशों में उच्च शिक्षा के लिए जाने की वजह का जिक्र नहीं है। लेकिन माना जाता है कि भारत में योग्य संस्थानों की कमी इसकी एक प्रमुख वजह है। छात्रों की मानसिकता ऐसी बनी हुई है कि बेहतर शिक्षा विदशों में ही मिल सकती है। विदेश जाने वाले छात्रों में दक्षिण भारतीयों के साथ-साथ बड़े पैमाने पर पंजाब, हरियाणा एवं हिमाचल प्रदेश के छात्र भी शामिल हैं।



**2.64** लाख प्रतिवर्ष तक पहुंची विदेश जाने वाले छात्रों की संख्या
(योजना आयोग व एचआरडी अध्ययन : 2010-11)

**सबसे ज्यादा अमेरिका गए छात्र**

ऑस्ट्रेलिया : 1,00,310
अमेरिका : 1,04,897
ब्रिटेन : 42,000

स्रोत : फोर्ब्स इंडिया आंकड़े 2011 के

**भारत में दस गुना कम छात्र**

**500** छात्र एक कॉलेज में औसतन
**3500** छात्र प्रति विश्वविद्याल

● वैश्विक औसत के अनुसार यह संख्या दस गुना ज्यादा होनी चाहिए
(आंकड़े औसतन, एचआरडी अध्ययन)

विदेश जाने वाले छात्र आमतौर पर कम योग्यता वाले धनी तबके के होते हैं। उन्हें यहां अच्छे संस्थानों में प्रवेश नहीं मिलता इसलिए वे विदेश जाते हैं। सरकार देश में अच्छे संस्थान खोल, धनी लोगों के लिए फीस बढ़ाए। प्रो. दीपक पैंटल, पूर्व कुलपति, डीयू

Publication: The Times Of India Delhi;Date: Jan 7, 2013;Section: Times Nation;Page: 15;

# Bengal project to trump CERN

## Particle Accelerator Will Be More Powerful Than At Geneva Facility

Subhro Niyogi | TNN

Kolkata: Scientists at the Salt Lake-based Variable Energy Cyclotron Centre (VECC) are making advanced components for a particle accelerator more powerful than the now-famous Large Hadron Collider at the Cern in Geneva that was used to detect the Higgs-boson, or God particle. This new accelerator, being built for a German facility, will be used to study simulations of a micro-second-old universe as well as research on the neutron star and other physics fields.

"The VECC has been entrusted with building the world's largest superconducting magnet, beam stopper and power convertors for the super accelerator at the Facility for Antiproton and Ion Research (FAIR) in Darmstadt, Germany. They are on the job and we are confident of them delivering the projects on time," said Horst Stoecker, scientific director of GSI Helmholtz Centre for Heavy Ion Research, the German laboratory that will be upgraded to FAIR, an international facility in which India is the third-largest stakeholder. FAIR will feature a double-ring synchrotron with a circumference of 1,100 metres connected to the existing GSI facility in Darmstadt.

What makes the FAIR accelerator unique is that though the energy of the particles will be considerably lower than that at Cern, the intensity of the beam will be of a magnitude higher than any other existing facility.

"The detectors being built for the new facility will be able to detect collisions at the rate of 10 million per second while detectors currently being used in other laboratories deal with 10,000 collisions per second," VECC director DK Srivastava told TOI on Saturday. The VECC had built the Photon Multiplicity Detector for ALICE, one of the four major detectors at Cern.

The draft design of the beam stopper is ready, too, but is yet to be finalized. The components — being built at a cost of Rs 260 crore — will be India's equity contribution in the $2 billion FAIR GmbH.

### FAIR QUEST FOR ANSWERS

➤ **India third-largest stakeholder in FAIR**, a facility for anti-proton and ion research being set up in Darmstadt, Germany

➤ FAIR will conduct experiments to **study a micro-second-old universe** and **neutron star**

**FAIR will reveal consolidated findings about so-far unknown states of matter and missing information about the evolution of the universe 13.8 billion years ago. It will help answer:**

- How did matter in the early universe evolve and why does it look the way it does today?
- How does matter behave across the wide range of temperatures and pressures found in the past and present universe?
- How does the strong force, which binds the particles comprising atomic nuclei work and where do their masses come from?
- Where do atomic elements come from?
- How does electromagnetic force, which binds atoms and molecules, work under extreme conditions?

Mail Today ND 7/01/2013 P26

# Degree certificate cannot be held as lien

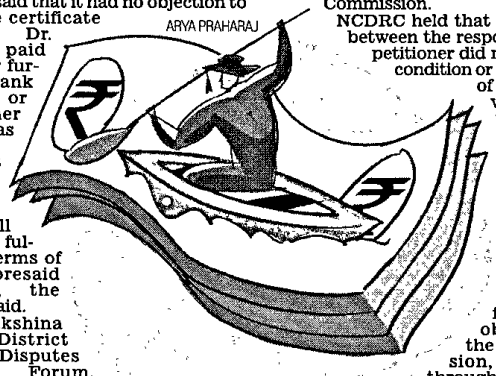
CONSUMER COURT

by Rosy Kumar

**CAN A university retain or refuse to issue the degree certificate of a student due to non-payment of fees? The question came up recently before the National Consumer Disputes Redressal Commission (NCDRC) in The Registrar of Manipal University v. Dr. Sushith, decided on the December 6, 2012.**

Dr. Sushith got enrolled for a post-graduate course in MD in biochemistry with Manipal University for the academic year 2005-06. He completed the course in 2008. The university was required to issue him degree certificate confirmed by Manipal Academy of Higher Education. In spite of repeated requests, he was not provided the certificate.

The university, in response to Dr. Sushith's allegations of deficiency in service, said that he was given concession because his fees had been waived off. Besides, there was an understanding between the university and Dr. Sushith that he would undertake to serve the petitioners for five years after completion of the course failing which he would repay the entire fees, it was contented. Dr. Sushith failed to abide by the conditions, the university further contented. The university also said that it had no objection to provide the certificate provided Dr. Sushith paid ₹9,30,000 or furnished a bank guarantee or any other surety. It was clearly stated that the certificate would be retained as a lien till Dr. Sushith fulfilled the terms of the aforesaid agreement, the university said.




The Dakshina Kannada District Consumer Disputes Redressal Forum, Mangalore, allowed Dr. Sushith's complaint and directed the university to hand over the original certificate. The order was challenged before the state commission, which dismissed the university's appeal.

Subsequently, the university filed a revision petition before the NCDRC, which said that the respondent cannot retain the certificate of the petitioner as per guidelines of the University Grants Commission.

NCDRC held that the agreement between the respondent and the petitioner did not contain any condition or clause by virtue of which the university was entitled to retain the degree/certificate of Dr. Sushith as a lien till he fulfilled the terms of the aforesaid agreement.

The Commission quoted with approval the following observations of the state Commission, "On going through the pleadings of the parties, one thing is clearly established that the complainant completed his course and the Manipal Academy has conferred on him the MD degree in biochemistry. OPs got the said degree but they failed to give the same to the complainant. Even if it is held for a while that there is breach of the said agreement and complainant is liable to refund the tuition fee, the remedy is still open to the OP to recover the same by approaching an appropriate civil court for recovery of the same. When such an equally efficacious remedy is readily available to the Ops, they cannot illegally retain the said degree certificate.

On going through the entire agreement, it does not disclose that the OPs have a right to withhold the MD certificate if the complainant violates any terms and conditions of the agreement namely either Clause 3 or Clause 4. It is not the case of the OP that the complainant has pledged the said MD certificate as a security. Under such circumstances, OP cannot exercise lien over the said certificate. There is no proof that OP terminated the complainant from his service or that he rejected their appointment. On the other hand, there is a proof that complainant paid nearly about ₹65,000 each year towards the college fee. Retaining of the degree certificate is otherwise compelling the complainant to serve under them. Such kind of practice is not fair."

Holding that there was no jurisdiction or legal error in the orders passed by the two fora, NCDRC dismissed the revision petition and ordered the university to pay ₹10,000. *(The writer is an advocate and editor of Consumer Protection And Trade Practices Journal (CTJ).*

*rosykumar2000@yahoo.com)*

Economic Times ND 07/01/2013 P-5

# Hardware Final, Govt Builds Ecosystem for Aakash Applications

SHELLEY SINGH
NEW DELHI

Now that the hardware of Aakash is more or less cracked, the government is driving a big effort to load software on to the world's cheapest tablet. A four-member technical committee formed by the government is looking to seed a software ecosystem, which will continuously release applications for Aakash, primarily related to learning and education, in the years to come.

According to Ashok Jhunjhunwala, a professor in IIT Madras and a committee member, about 25 academic institutions and private companies have signed up to build applications for Aakash, and the aim is to double that count by March. Simultaneously, IIT Madras is putting about 5,000 engineering students through a four-day crash course on Aakash in the hope that they will build applications for it, perhaps even businesses around it. "The focus of app development is around education – it could be live broadcast of lectures or interactive-e-book apps," says Jhunjhunwala.

The current Android-powered Aakash tablet – which the government buys for ₹2,263, but gives to students for ₹1,150 – comes with 24 apps, but in gaming, mail or chat. "We need apps specific to Indian education requirements and that's where the need to develop a home-grown Aakash apps ecosystem," says DB Phatak, professor, IIT Bombay. Besides IIT Bombay and IIT Madras, the committee includes personnel from the Centre for Development of Advanced Computing (CDAC) and an entity from the ministry of human resources and development, which is funding Aakash.

The list of 25 organisations includes academic institutions (for example, the IITs and American Digital University), private companies (Mango Learning, TopChalks and Digital BackPack), and service providers (ITZCash). So, for example, the British Council in India is working on two apps: one on English language learning and another to prepare students for interviews. At its open source lab, IIT Bombay is working on SciLab (which will port engineering software to Aakash) Clicker (a live assessment tool for instant quizzes) and Proximity (makes available lectures of IIT professors).

Elsewhere, US-based Mango Learning is developing apps to teach maths through games. "The tablet, by itself, is a dumb device and that's where you need apps," says Prakash Ahuja, CEO of Mango Learning. "We will embed Aakash with one free app and charge ₹49 per app to download any of our 400-plus maths learning apps."

Taking note of the ongoing shift of the public delivery and government welfare system to an Aadhaar platform, developers are also planning apps tailored to its foundation of doing biometric authentication to identify a person. "On the health side, there are apps like one by Eyenetra, which can be used for eye testing and iris scan," says Suneet Singh Tuli, CEO of Datawind, currently the only maker of Aakash. "Similarly, Noida-based SmartID is developing biometric apps to expand the use of device for authentication, if need be."

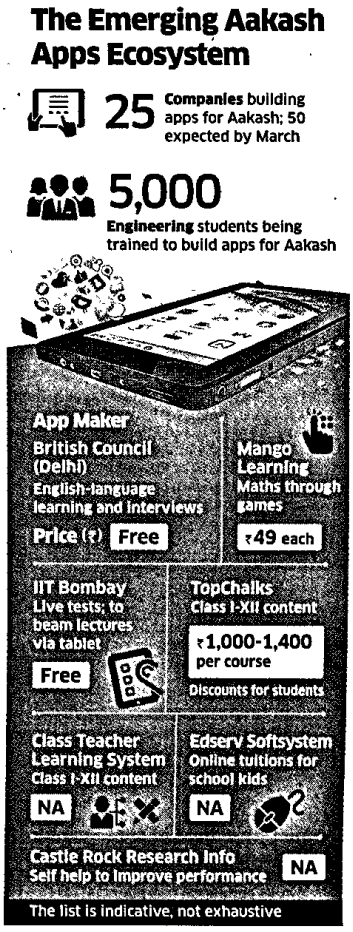
Some of these apps will be free, others paid. According to Jhunjhunwala, in the next three months, the government will take a call on whether to make available all Aakash apps on a common online location, as Apple or Nokia does. Building apps for Aakash presents its own unique challenges as the tablet is not as powerful, robust or visually-rich as, say, top-end tablets like an Apple iPad or a Samsung Galaxy. "The challenge on Aakash is the system is not good enough to support feature-rich apps," says Vishal Pal Chaudhry, COO of TopChalks. "For example, we can't teach the working of internal combustion engine via video on Aakash."

According to Tuli, an Aakash app should meet three conditions. One, it should not be heavy and should run easily on Aakash's modest specs: Android OS, 4 GB internal flash memory and 512 MB of RAM. Two, it should work on low Internet speeds (as broadband networks are still not pan-India). And, three, its user interface should be simple enough so that it is accessible even to users who are not computer-savvy.

Developers will have more latitude with the next version of Aakash, expected by March. According to Jhunjhunwala, the third version of Aakash will have a faster processor, choice of operating system (Android or Linux), more memory, and a SIM slot to use a mobile phone and network to connect to the Internet. "The devices will go to places where there may not be any broadband connectivity. That's why a SIM slot is a must," says Tuli of Datawind.

The upgraded Aakash will form the basis of the full-fledged rollout, which is likely to see the government buying 5.6 million tablets, in phases, from multiple vendors. At present, just one company, Datawind, is supplying 100,000 tablets to the government. "Aakash is not a one-off programme, but a decade-long project that will see computer-based delivery of education on the low-cost tablet," says Jhunjhunwala.

That's partly the thinking, he adds, behind training engineering students to build apps for Aakash. "Students will be using the apps," says Jhunjhunwala. "The idea of training them is they know what is needed to learn and are hence sensitive to requirements. Besides, since Aakash is a long-term project, some students could get entrepreneurial ideas, and set up companies to support Aakash."




Times of India ND 7/01/2013 p-5

# Two colleges claim ₹1.4cr UGC grants with forged papers

Raj Shekhar | TNN

**New Delhi:** Two colleges in Punjab and Uttar Pradesh have received grants of around Rs 1.4 crore from UGC allegedly on forged documents. When the matter came to light, UGC deputy secretary R C Kandera filed FIRs (copies of which are with TOI) with IP Estate police.

UGC had issued demand drafts of Rs 54 lakh and Rs 45 lakh to Patel Memorial National College located in Rajpura area in Patiala and Rs 40 lakh to Sri Baldeo P G College in Varanasi, said a cop. The colleges however are not eligible for the grants, UGC has informed the police. After a preliminary investigation, cases of cheating and forgery were registered on December 19 and 26.

Addl CP central, Devesh Srivastava confirmed that the two cases had been registered and that they were investigating the matter. The cops are now probing the involvement of UGC officials who will be questioned about their role and as to how the drafts were released from their department. In his complaint, Kandera, said, "The Directorate General of Audit Central Expenditure while conducting the audit of UGC pointed out that an amount of Rs 40 lakh was paid to Sri Baldeo College, Baragaon, Varanasi, for construction of a women's hostel."

When UGC's Northern Region Colleges Bureau, which sanctions grants for women's hostel stated that they have not sanctioned the amount, it became obvious that the draft was issued on the basis of forged documents, said police. The draft, however, was later returned by the college.

In the case of the Punjab-based college, Kandera told police that the matter came to their notice when they received a letter addressed to the chairman, UGC from an RTI activist (name withheld) informing that Patel Memorial National College had received a demand draft, dated March 12, 2012 from the UGC for Rs 54 lakh which was encashed on August 31. The other grant of 45 lakh was, apparently, deposited in a private account. As per UGC official's statement, the draft was issued by the finance division of the UGC against a sanction letter dated January 18, 2012 for Rs 54 lakh. Another grant of Rs 45 lakh had also been released to this college as the first installment of a grant based on a sanction letter dated November 4, 2010.

Times of India ND 7/01/2013
p-17

# Internet emits 830m tonnes of CO2/year

**Melbourne:** Internet and other components of information communication and technology (ICT) industry annually produces over 830 million tonnes of carbon dioxide (CO2), the main greenhouse gas, and is expected to double by 2020, a new study has found.

Researchers from the Centre for Energy-Efficient Telecommunications and Bell Labs explain that the ICT industry, which delivers internet, video, voice and other cloud services, produces about 2% of global CO2 emissions — the same the aviation industry produces.

Researchers said their projections suggest that ICT sector's share in emissions is expected to double by 2020. They have also found new models of emissions and energy consumption that could help reduce their carbon footprint.

The study said that controlling those emissions requires more accurate but still feasible models, which take into account the data traffic, energy use and CO2 production in networks and other elements of the ICT industry.

Existing models are inaccurate, so they set out to develop new approaches that better account for variations in equipment. PTI

Times of India ND 7/01/2013
p-17

# Curiosity spots 'flower' on Mars

**Washington:** A peculiar petal-shaped cluster spotted on Mars by Nasa scientists has sparked speculation that flowers might be blooming on the red planet.

The "Martian flower" is seen in an image captured by Nasa's Curiosity rover last month. In the image, pearl-coloured petals appear to sprout from a rock's surface.

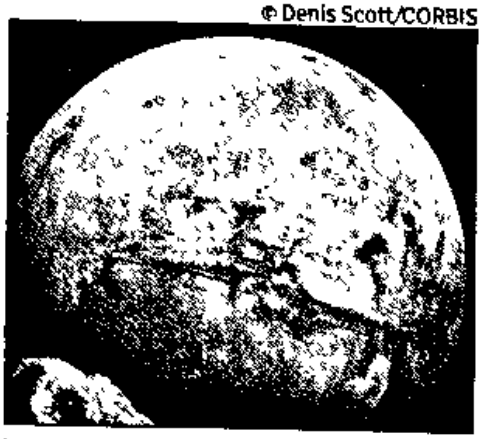
Space fans on online discussion forums remarked that it might be quartz embedded in the rock. One optimistic commenter suggested it might be the pistils of a blooming flower, the New York Daily News reported.

A similar find in October last year had turned out to be a piece of plastic that had fallen from the rover itself.

"But the cluster appears to be part of the rock," Nasa spokesperson Guy Webster told the Daily News in an email.

"I would guess that the 'flower' was someone's descriptive term for its appearance, not meant as an interpretation that flowers exist on Mars," he wrote. PTI





**HOPE BLOSSOMS:** A peculiar petal-shaped cluster spotted on Mars has sparked speculation

## Nasa gifts space photos to Earth

A large new collection of unique space photos taken at wavelengths that are invisible to the human eye and blocked by Earth's atmosphere has been released as a New Year's gift to the people of Earth by Nasa. The photographs have been released by Nasa in collaboration with Penn State University. The images have been captured by Swift observatory's Ultraviolet/ Optical Telescope that studies ultraviolet light. PTI

# January 8

Publication: The Times Of India Delhi;Date: Jan 8, 2013;Section: Delhi Times;Page: 29

They'll go for off-campus placements, do their masters, or do nothing at all, rather than work in what they've deemed the 'Unsafe City'


# IIT GIRLS DITCH DELHI JOBS

Renu Singh

Career comes first, but never at the cost of life. And as the placement exercise is on at IITs across the country, the after-effects of the Delhi gang rape case are clearly visible on campus. The female students are hesitant to accept job offers from Delhi companies, making them either reject the offer and go for off-campus placements, or consider other options.

## PARENTAL WOES

Not just the girls, the parents' concern for the safety of their daughters is obvious. Radhika Goel, a student of B Tech, 4th year, from IIT Bombay, shares, "I never thought I'd have to refuse the job offer after competing and excelling in the interview. The company was placing me in Delhi, with a package of ₹6 lakh. When I told my dad about the offer, he asked me to refuse it straight way. Knowing that Delhi has become the most unsafe city to work in, I couldn't contradict his decision. So now, I'll either appear for other interviews or go for an off-campus placement."

## THE UNSAFE CITY

Saloni Gautam, a 4th year B Tech student from IIT Guwahati, has turned resident would be," she says. Aditi Mantri, a B Tech 4th year student from IIT Bombay, says, "I got placed with a package of ₹10 lakh. I'll be joining either in Delhi or Mumbai. I hail from Chhatisgarh, and Delhi is closer to my hometown, but the city has always been considered unsafe for girls. So, even before this incident, I had told the company representatives during the interview that I'll prefer joining in Mumbai ".

## WON'T GO IF IT IS DELHI

The same apprehension is looming over the students who are finished with placements and are waiting for their offer letters to find out which location they've been allotted. Avani Garg, a B Tech student from IIT Kanpur, says, "I got placed with a package of ₹10.4 lakh in an MNC and I will receive the offer letter sometime in March or April. I have been told the location would be either Mumbai or Gurgaon. My parents and I wanted it to be Mumbai because Gurgaon is close to Delhi and, in all probability, I'll have to commute between the two cities often. I hope it's Mumbai and I don't have to consider other options." Another girl from IIT Guwahati, *Smriti Rai, who is also waiting for the offer letter, has decided to re-

down an offer from a company in Delhi offering a package of ₹7.5 lakh, despite the fact that she will not be allowed to sit for interviews of other companies on campus after rejecting the offer. "It is not the first time that a gang rape has happened in Delhi, but this incident was so horrific that it has left everybody shocked. The students on campus who're from Delhi have told us about how unsafe the city has become in recent years. One of my friends lives in Vasant Vihar and she says she feels unsafe stepping out of her house after sunset. And so, I have decided to not go with the offer. If people living in the city are so scared, imagine how terrified a non-

> "THE COMPANY WAS PLACING ME IN DELHI, WITH A PACKAGE OF ₹6 LAKH. WHEN I TOLD MY DAD ABOUT THE OFFER, HE ASKED ME TO REFUSE IT STRAIGHTWAY"

have been told it would be between Kolkata and Delhi. According to the policy of the institute – once selected, a candidate cannot refuse the offer and if she does, she is not allowed to sit for other company interviews. Since I am in no mood to pursue my job in Delhi, I'll opt for an off-campus placement."

### WILL DO MASTERS INSTEAD

Those students who are not getting the desired placement are looking for other options. Saloni says, "I believe it will be better if I switch to research work after completing B Tech. Since I didn't get the desired placement and I can't do the job just to get employed if I am unable to justify my presence in company."

*Neelam Khare, who is a student from IIT Roorkee, says, "Since the Roorkee institute doesn't have too many big firms visiting the campus, unlike other IIT campuses, and I have already utilised the opportunity of on-campus placement, so after B Tech, I will pursue my masters. My parents are not confident about me staying alone and working in Delhi."

*Names changed on request

Publication: The Times Of India Delhi;Date: Jan 8, 2013;Section: Editorial;Page: 20;

# A Season For Science

*Indian science must break free from the present bureaucratic culture to come up with big innovative ideas*

Sumit Bhaduri

According to a popular song of the 1960s, there is a season for everything to turn and change. One would like to believe that the same applies to Indian science and its management. After all, the recently-concluded centenary session of the Indian Science Congress enjoyed an unprecedented level of visibility and political patronage with the president as its chief guest and the PM as its general president.

The overall theme was "shaping the future of India". The speeches of the political luminaries matched this noble if nebulous sentiment. The government initiatives in setting up 50 new academic and research institutes and the importance of a policy environment for greater private sector participation in research and innovation were mentioned. The president noted that a Nobel prize in Indian science was long overdue. Finally, the policy document unveiled at the congress, titled 'Science, Technology and Innovation Policy', indicated the government's awareness of the trendy i-word.

How science shapes the future of a country is not easy to answer. Progress in science does not necessarily result in ideas which significantly expand frontiers of knowledge. Nor does it mean an automatic step forward in the fight against superstition, bigotry and poverty. To attain these objectives, for which scientists, science managers, bureaucrats and politicians get paid by the taxpayers, the doing and teaching of science need to be innovation-focussed.

Innovation essentially means good, new ideas that lead to socio economic benefits for society as a whole. Science-based innovations work mainly through civilian technologies where new products and new processes deliver economic benefits. They also work through the spread of scientific temper in the classrooms. What is often not appreciated is that good science-based ideas originate in non-market amateur labs or in academic environments rather than in private industry. They provide platforms which could support commercial ventures to be initiated by entrepreneurs, or visionary industry captains, or the state.

> "What is often not appreciated is that good science-based ideas originate in non-market amateur labs or in academic environments rather than in private industry"

This is contrary to conventional wisdom which fails to differentiate between big or breakthrough innovations and incremental innovations. Science-based big innovations as opposed to the incremental ones do not result from market economics and individual efforts. Internet and the Web, two of the greatest innovations of our time, are not owned by anyone. Great innovations such as batteries, birth control pills, penicillin, DNA forensics, computers, the

Not just rocket science: For progress, India must motivate scientists

MRI scan to name just a few, all originated and flowered in non-market amateur labs or in academic environments. In these environments ideas are freely exchanged between creative individuals. Business development deals and patent lawyers come later.

In contrast, incremental innovations are largely guided by market forces. Industrial houses undertake research and development projects depending on customer feedback, or to cut down on manufacturing cost. They also undertake programmes to hedge against technical competition and obsolescence. Frantic patenting activity, a hallmark of the heydays of globalisation, mainly deals with incremental innovations of this type. The many recent court cases between Samsung, Google etc, as also between Indian pharmaceutical companies and multinationals, highlight the society-specific, complex definitions of incremental innovation.

Any policy that aims to couple science with innovation must take into account the specific problems of Indian science. Academic environments where ideas are free to flow and can be tested require not just well-equipped modern laboratories, but also small groups of motivated scientists willing to work together.

Individual scientists are too concerned about sharing credits, research funding and recognition. Collaboration between talented young scientists virtually does not exist. Individual recognition, awards etc have come to mean automatic access to the domain of science management, wherein science signifies administrative power and political patronage. Many competent Indian scientists aspire to be ineffectual administrators, rather than do the kind of science that makes a difference. It is no wonder that not a single Indian academic institute figures among the global top 200. Positioning India among the top five global scientific powers by 2020, has nothing to do with the realities of Indian science.

With respect to incremental, science-based innovations, barring the pharmaceutical sector the performance of the Indian industry over the last two decades has been disappointing. The number of granted patents in a given country is a gross measure of industry-driven innovative activity. Last year's figures show that the number of granted patents in India is about 2 to 3% of that in the US, China and Japan, and way behind South Korea, Canada, Russia etc. Industry-academia linkages, for all practical purposes, don't exist in India.

The challenges of turning Indian science into part of an innovation process are many. A beginning could perhaps be made by rewarding collaborative good science. Talk of India's long overdue Nobel prize for science may not lead to good collaborative science but more likely produce unethical scientific practices.

A mechanism must be found by which Indian industry is forced and tempted to think long-term. Greater private sector participation in promoting incremental innovation will only happen when their survival becomes dependent on technical competitiveness. The dialectics of "licence raj" and "crony capitalism" cannot produce incremental innovations. However, any public-private partnership, the PM's solution to bring in greater private sector participation, must subject itself to careful audit by civil society.

*The writer is a professor at IIT, Bombay.*

Indian Express ND 08/01/2013 P-5

# IITs raise tuition fee to Rs 90K per year, agree to peer review

**EXPRESS NEWS SERVICE**
NEW DELHI, JANUARY 7

THE IIT Council on Monday approved an 80 per cent increase in tuition fee at the Indian Institutes of Technology for the 2013-14 session. The fee, which was doubled to Rs 50,000 per annum in 2008-09, will now be Rs 90,000 per annum.

SC and ST students, who do not pay the tuition fee, will not be affected, Human Resource Development Minister Pallam Raju announced.

The Anil Kakodkar Committee had made a strong case for increasing tuition fees in 2011, arguing that it cost Rs 2.5 lakh to educate an undergraduate student at IIT. In November 2012, the Standing Committee of the IIT Council agreed to increase the fee.

Raju said the larger aim of increasing fees is to enable the 16 IITs to work on a self-sustainable basis like the IIMs. Fees would be reviewed every year, the minister said, while assuring that no qualified student would have to leave an IIT for financial reasons.

The IIT Council pitched for greater accountability at the institutes, and endorsed the ministry's proposal for a peer review every five years. The review will assess the institute's position against its charter and projections, as well as its future plans. The institute will be reviewed on teaching quality, research, governance quality, range of degrees on offer, environment for research, contribution to research and bottlenecks in the way.

New IITs will be eligible for the review on completion of five years of operation. Central universities and IIMs too have agreed to being peer reviewed, Raju told reporters.

Times Of India ND 08/01/2013 P-16

# IIT undergrad fee hiked by ₹40k

## Fee Structure To Be Reviewed Annually, Revised Rates Applicable For New Entrants

Manash Pratim Gohain | TNN

New Delhi: Studying at Indian Institutes of Technology (IITs) will be expensive by Rs 40,000 from this academic session. The Council of IITs decided to increase the annual tuition fees for undergraduate students to Rs 90,000 at a meeting in IIT-Delhi on Monday.

Announcing the decision, the minister for state for HRD, Pallam Raju said that the fee structure will be reviewed annually and that the revised rates will be applicable for the new entrants only and that the fee-waiver schemes for ST/ST and 25% of the students from economically disadvantaged background will continue.

At present, the annual fee is Rs 50,000. The last fee revision was done in the 2008-09 academic session when the tuition fee was increased from Rs 25,000 to Rs 50,000. An IIT spends Rs 2.25 lakh per annum per student.

**NEW ORDER:** An IIT annually spends Rs 2.25 lakh on a student

Announcing the hike, Raju cited the Anil Kakodkar Committee's recommendation to make IITs financially independent on non-plan (operation) budgetary support to meet their operating expenditure. "We have enhanced the tuition fee to Rs 90,000 per annum from 2013. Revised rate will be applicable to new entrants of UG programmes and fee will be reviewed every year, but if doesn't mean that it will be hiked every year. Like the IIMs, we want the IITs to be sustainable and fee is one of the ways. Barely 20% of the entire budget comes from fees in IITs," said Raju.

The minister, however, said that no qualified student will be turned away because of financial constraints and "SC, ST students don't have to pay any hostel or tuition fees. Also 25% of the students whose annual household income is Rs 4.5 lakh or less will continue to get 100% scholarships."

Among other decisions taken at the meeting are that IITs will train graduates from National Institutes of Technology (NITs) to teach as they pursue their masters or PhDs at IIT. The IITs also resolved to ramp up their Ph.Ds from 3,000 to 10,000 by 2020.

The Council decided to enable top 15% students from NITs for a joint IIT-NIT trainee teacher scheme, whereby the NIT graduates will get teacher training at IITs and simultaneously pursue their master or Ph.D programmes to salvage the shortage of teaching faculty in the country.

Comparing technical research environment in the country, Raju said, "We are third compared to the United States and China in terms of technical PhDs. To boost PhD programmes, we want to increase the number of Ph.Ds in the IITs to 10,000 by 2020 from the present 3,000. We are preparing an enabling framework so that more PhD scholars can join."

Mail Today, ND 8/01/2013 p-6

# IITs to increase fee by 80 per cent in 2013

By **Ritika Chopra**
In New Delhi

ON MONDAY, M.M. Pallam Raju made a decision which is probably the biggest since he took over as the minister for human resource development (HRD) in October last year.

He approved an interim, but substantial fee hike, proposed by the Indian Institutes of Technology (IITs) at a meeting of the IIT Council.

**Annual fee to be ₹90K instead of current ₹50K**

All IIT aspirants seeking admission to undergraduate programmes from this year will have to pay ₹90,000 per annum as against the current fee of ₹50,000 per annum. The fee was last revised from ₹25,000 per annum to ₹50,000 per annum in 2008-09.

This latest increase of almost 80 per cent was endorsed by Raju on the ground that the IITs, like the IIMs, should now start striving for self-sufficiency. Currently, almost three-fourth of the non-plan (operational) expenditure of the IITs is borne by the HRD ministry.

However, this increase in the annual fee will not affect students from the reserved SC/ST category and also students from disadvantaged backgrounds whose education is being funded via scholarships and freeships. So in effect, this hike is meant for 50 per cent of the student population that will take admission in 16 IITs this year.

"The fee structure will be reviewed every year but that does not mean that it will be increased every year. But let me also say that no qualified student has ever had to leave his or her programme incomplete because of economic constraints. IITs are committed to their cause," Raju told reporters immediately after the Council meeting.

"If you look at the IIMs, financially they have been come fairly independent. We want the IITs to also be sustainable and increasing fee is one of the ways in which it can happen," he added.

Raju's support for the IIT's longstanding demand is interesting as his predecessor Kapil Sibal wasn't in favour of a fee hike. Last year, he along with all IIT directors had agreed "in principle" on an alternative by which all IIT graduates would have to reimburse their alma mater the expenditure incurred on them after having found a job. According to ministry estimates, the government spends about ₹2.25 lakh every year on educating each IITian, but a student only pays ₹50,000.

However, the minister assured that plan has not been scrapped. "The intention is still there, he said.

### IMPORTANT DECISIONS TAKEN

- **Annual fee for UG courses hiked by 80 per cent from ₹50,000 to ₹90,000 per annum**
- **IITs to be peer reviewed once in every 5 years**
- **To boost number of research scholars from 3,000 to 10,000 by 2020**
- **Relax entry norms for enrolling into Ph.D at IITs**
- **Resolve to use green technology, reduce carbon footprint and establish a 'Green Office' to monitor green initiatives**
- **Allow bright students (top 15 per cent at the centrally funded technical institutions) to be engaged as trainee teachers immediately after graduation**

Hindustan Times ND 8/01/2013 P1

# IITs HIKE FEES BY 80%, AGREE TO EXTERNAL REVIEW

**Charu Sudan Kasturi**
charu.kasturi@hindustantimes.com

**NEW DELHI:** The Indian Institutes of Technology (IITs) have decided to raise their annual tuition fees for both undergraduate and postgraduate courses by 80% — from ₹50,000 to ₹90,000 — to achieve financial autonomy from the government.

The IIT Council — the apex decision-making body of the institutes — in return, have agreed on Monday to submit to a five-yearly external review of performance for the first time.

The council, chaired by HRD minister MM Pallam Raju, also decided to exempt students from the IITs and National Institutes of Technology from clearing the GATE, a national-level test, for PhD admissions.

HT was the first to report on October 23, 2012 on this plan, aimed at encouraging scientists and engineers to pursue research.

There is nothing in the move to show that the fee hike will hurt economically weak students.

**CONTINUED ON PAGE 6**

# IITs hike fees by 80%, agree to external review

**CONTINUED FROM PAGE 1**

About 25% of all students who clear the test typically come from families with incomes less than ₹4.5 lakh a year — and they do not need to pay any tuition fee.

All scheduled caste and scheduled tribe students —another 22.5% of those admitted — are also exempt from paying.

"We stand committed to ensuring that no student who clears the IIT Joint Entrance Examination (IIT-JEE) will have to give up his or her IIT seat because of financial reasons," Pallam Raju said. A panel of external experts — including international academicians — will review the performance of IITs once every five years, benchmarking them against global standards.

The IITs will also allow the top 15% of students from the NITs to directly join their PhD programmes under a special project to train them as potential teachers at the IITs.

*(For the full story, go to hindustantimes.com/iitfee)*

Business Standard ND 8/01/2013 P8

# IIT council bites the bullet

## Annual fee at IITs to rise 80%; fee revision to be carried out periodically

BS REPORTER
Mumbai, 7 January

Now, an engineering degree from India's most coveted engineering institutes would come at a higher price.

The premier Indian Institutes of Technology (IITs) council on Monday decided to raise academic fee from ₹50,000 to ₹90,000 a year, a rise of 80 per cent. This means students would have to spend about ₹3.6 lakh for the four-year bachelor-of-technology programme, against ₹2 lakh now.

The fee could be revised every year. A decision on this may be taken at another IIT council meeting.

"The fee hike would be applicable to students who would come in from the 2013 academic year," said an IIT director, on condition of anonymity. IIT directors said operating expenses for campuses had risen, thanks to the high inflation. The rise in fees would provide the institutions a much-needed cushion, they added.

A fourth of the students whose parental income is less than ₹4.5 lakh a year are given 100 per cent scholarships. Also, no tuition is charged from Scheduled Caste (SC) and Scheduled Tribe (ST) students. Free mess, free hostel and book bank are also provided to SC and ST students.

### EXPENSIVE ENGINEERING

- ₹90,000 annual academic fee, compared with current ₹50,000
- ₹3.6 lakh for a 4-year B Tech, against ₹2 lakh now
- 2013 academic year tuition fee to be under new structure
- ₹4 lakh annual programme fee sought by the IITs
- 70% rise in faculty costs of IITs after Sixth Pay Commission

IITs have been considering increasing the programme fee to ₹4 lakh a year. But given the resistance, this may be done in a staggered manner.

"After the Sixth Pay Commission, IITs' faculty costs have risen about 70 per cent. As salaries have risen, the money realised through a fee rise would partly go towards meeting the increasing burden of salaries and scholarships," M Ananda Krishnan, chairman of the board of governors, IIT Kanpur, had told *Business Standard*.

The IITs acknowledged a substantial rise in fees would burden students — the number of students from the upper middle class had declined and that from lower classes had risen. Such students said the fee at IITs is high. They are reluctant to take loans. IIT officials said once the National Academic Depository Bill is passed, it would enable a shift to "demat" degrees. Then, the degrees of IIT graduates would reflect an obligation to repay the institution and money would come through the employer.

If one compares the fee to those in engineering and technology institutions in the West, the difference is stark. For instance, at the US-based Massachusetts Institute of Technology, consistently ranked among the world's top 10 engineering institutions, the annual tuition is ₹22.55 lakh ($41,770). At Carnegie Mellon, the annual tuition for the graduate engineering programme is ₹24.23 lakh ($44,880). After factoring in other costs, the fee stands at ₹27.54-31.86 lakh ($51,000-59,000).

### Peer review

The IIT council also said peer reviews of each IIT would be carried out once every five years. The review committee would comprise five eminent people from industry and academia. For new IITs, a similar exercise would be carried out on the completion of five years.

Hindustan ND 08/01/2013 p-5

# आईआईटी में तिगुनी होंगी पीएचडी सीटें

नई दिल्ली | वरिष्ठ संवाददाता

आईआईटी में पीएचडी सीटें तीन गुनी हो जाएगी। आईआईटी में पीएचडी की सीटों की संख्या को वर्तमान 3,000 से बढ़ाकर 2020 तक 10 हजार करने की कवायद के तहत परिषद ने काकोदकर समिति की पीएचडी प्रणाली को मजबूत बनाने की सिफारिश को भी मंजूरी दे दी है।

इसके तहत आईआईटी में पीएचडी में दाखिले के लिए शर्तों में छूट प्रदान करने का प्रावधान है। इसके तहत पीएचडी में बिना गेट स्कोर के दाखिला दिया जा सकता है बशर्ते तीसरे वर्ष में उसका सीजीपीए 7 हो। लेकिन छात्रवत्ति प्राप्त करने के लिए गेट स्कोर जरूरी होगा। पठन पाठन की गुणवत्ता को और बेहतर बनाने के लिए आईआईटी परिषद ने रविवार को अपने प्रत्येक संस्थान के शिक्षकों की प्रत्येक पांच वर्ष पर समीक्षा करने का निर्णय किया है। अधिकारी ने बताया कि प्रस्तावित समीक्षा समिति में पांच सदस्य होंगे जिसमें जाने माने शिक्षाविद और उद्योग क्षेत्र के प्रमुख लोग शामिल हैं।

## पहल

- सीटों की संख्या तीन हजार से बढ़कर 10 हजार तक हो जाएगी
- बिना गेट स्कोर के दाखिला दिया जा सकता है

उन्होंने कहा कि संबंधित संस्थाओं के संचालक मंडल द्वारा प्रस्तावित दस नामों की सूची में से आईआईटी परिषद के अध्यक्ष समिति के सदस्यों का चयन करेंगे।

नए आईआईटी में यह कवायद पांच वर्ष पूरा होने के बाद शुरू होगी। शिक्षकों की समीक्षा विश्व स्तरीय संस्थाओं में समीक्षा के स्थापित मापदंडों के अनुरूप होगी और यह आगे की ओर बढ़ने वाली कवायद होगी। आईआईटी परिषद की 46वीं बैठक में यह भी तय किया गया कि शिक्षकों की समीक्षा करने से पूर्व विभागीय स्तर पर आंतरिक समीक्षा भी की जायेगी। उन्होंने कहा कि 25 प्रतिशत ऐसे छात्र जिनके अभिभावकों की आय प्रति वर्ष 4.5 लाख रुपये से कम है, उन्हें 100 प्रतिशत छात्रवृत्ति प्रदान की जाएगी।

आईआईटी परिषद के सदस्यों ने जोर दिया कि छात्रों को ऋण की सुविधा प्रदान की जाएगी और जेईई उत्तीर्ण किसी छात्र को धन के अभाव में दाखिला देने से मना नहीं किया जायेगा। गौरतलब है कि काकोदकर समिति की एक प्रमुख सिफारिश थी कि आईआईटी को गैर योजना समर्थन से इतर वित्तीय रूप से आत्मनिर्भर होना चाहिए और अपना परिचालन संबंधी खर्च जुटाना चाहिए। छात्रवत्ति, सहयोग और आधारभूत संरचना का विस्तार सरकार के योजना मद में सरकारी बजटीय सहयोग के तहत प्रदान किया जाता है।

Financial Express ND 08/01/2013 P-1

# IIT annual fees up 80% to ₹90k, external peer review every 5 yrs

**fe Bureau**
New Delhi, Jan 7

STUDENTS wishing to enter the premier Indian Institutes of Technology (IITs) will have to shell out more after the government on Monday decided to increase the tuition fee for undergraduate B-Tech courses from ₹50,000 to ₹90,000 per year from 2013.

The IIT Council which met on Monday agreed to an 80% hike in tuition fees apart from an external peer review of IITs every five years.

"The revised rates will be applicable and the fee may be revised periodically," human resource development minister Pallam Raju said after the council meeting here.

Though the hike in fees is not to the tune of ₹2 lakh or a four-fold increase as suggested by the Anil Kakodkar committee two years ago, the panel had suggested a peer review, which the government has accepted. The last fee hike was in 2008-09 when it was doubled from ₹25,000 to ₹50,000.

**COURSE CORRECTION**

- The last IIT fee hike was in 2008-09 when it was doubled from ₹25,000 to ₹50,000
- PhD aspirants at IITs, other select engineering institutes exempted from GATE
- Reputed academics from other countries can apply for the post of director at IITs
- Kakodkar committee had suggested institution review by a globally-eminent group

Significantly, the Kakodkar committee had suggested that each institute subject itself to a comprehensive institutional review by an internationally eminent group every five years. "Such reviews, which will be overseen by the IIT Council, will focus on quality, programmes, their direction and size, working of the institutions and suggestions for change, including new initiatives," the panel report said.

The council also exempted PhD aspirants at IITs and other central and state engineering institutes from taking the Graduate Aptitude Test in Engineering (GATE) to apply for a PhD in IITs. Students with a CGPA score of 7 out of 10 would be eligible for a PhD.

As per the committee's report, around 500,000 lakh engineering students graduate from India's engineering colleges, which will cross 1 million in three to four years. Only about 1% of IIT BTechs pursue a PhD at IITs.

The committee had suggested a minimum of 0.6 PhDs per faculty annually, eventually reaching 1 PhD per faculty. On this basis, the committee was aiming at scaling up the IIT system to 16,000 faculty and a 160,000 total student strength (with 40,000 at the PhD level, 40,000 at the master's level and 80,000 UG students) by around the year 2020. Each year, then, the IIT system will admit 10,000 PhDs.

Moreover, the council also allowed 15% students from IITs, National Institutes of Technology (NITs) and engineering departments of central universities to pursue PhD in the IITs and simultaneously teach at the NITs.

■ Continued on Page 2

## IIT annual...

"Once they complete their PhD, they would be eligible to become a permanent faculty member at the NITs," said an official. In another significant decision, the council said reputed academics from other countries can apply for the post of director and that attendance and contribution of IIT directors would be reviewed by the institutes themselves.

The IIT Standing Council had met in November to approve an 80% hike in the annual tuition fee at IITs ? from Rs 50,000 to Rs 90,000 per annum ? with an exemption for SC/ST category students.

Another interesting proposal approved earlier by the Standing Council of IITs is introduction of green programmes in the curriculum, work on 'green' technology, management practice. As part of this initiative, 'green offices' will also be set up on campus.

The recommendations of the Kakodkar panel were being considered by an empowered task force and the standing committee of the IIT Council had met in Mumbai on November 2011, where it had recommended the increase in the tuition fee.

Times Of India ND 08/01/2013 P-16

# IITs, IIMs to be put to peer review test

Himanshi Dhawan | TNN

**New Delhi:** India's premier technical institutes, including IITs and IIMs, will be put to test soon. All centrally funded technical institutions, Indian Institutes of Technology (IITs) and Indian Institutes of Management (IIMs) will conduct internal departmental reviews and be assessed by an external panel every five years. This peer review by academia and industry according to international benchmarks is expected to bring about transparency and accountability to the institutes and could start from next year.

On Monday, the IIT Council gave the nod for all IITs to be subjected to a peer review. Elaborating on the decision minister for state in the HRD ministry M M Pallam Raju said, "The Council of IITs decided that the peer review of each institute would be carried out on a periodic basis, once in every five years. IITs need to review themselves in terms of what is happening academically, in terms of research, in terms of evolutions towards meeting world standards."

The minister added that the IIMs were already in an advanced stage of discussion regarding the review, while CFTIs had also agreed to the process. The move comes at a time when only a handful of India's tech institutes have made a mark globally.

The peer review will be based on similar well-established review systems in world-class institutions and would be rigorous and forward looking. Besides periodic review of the institutions, each IIT will similarly undertake an in-house, department-wise review before any external peer review is carried out, the minister said.

The review committee would consist of five eminent persons from the industry and the academia. The committee members would be selected by the Chairman of the Council of IITs from a panel of 10 names given by the Board of Governors of respective institutes, Raju said.

Hindu ND 08/01/2013 P-11

# IITs to enrol more PhD candidates

Special Correspondent

**NEW DELHI:** The IIT Council that decided to increase the tuition fee for undergraduate students also decided that the peer review of each institute would be carried out every five years.

The review committee would consist of five eminent academics from academia and industry.

The committee members would be selected by the Board of Governors of respective Institutes from a panel of 10 names. For the new IITs, a similar exercise would be based on well-established review systems in world-class institutions. Besides a periodic review of the institution, each IIT will similarly undertake an in-house, department-wise review before any external peer review is carried out.

With a view to increasing the number of PhDs from 3,000 at present to 10,000 by 2020, the Council of IITs also decided to relax the conditions for enrolment into Ph.D Programme in the IITs. The admission would be given without GATE (Graduate Aptitude Test in Engineering) score to students with CGPA (cumulative grade point average) of more than 7.0 at the end of the 3rd year but GATE score would be required for scholarship.

However, students from Centrally Funded Technical Institutions with CGPA of less than 7.0 would be eligible for Ph.D programmes and fellowships without GATE scores.

The Council also approved the Trainee teacher Award National Institute of technology/IIT Joint Scheme with an aim to enhance the teaching quality and to address the faculty shortage.

The scheme is open to all graduating candidates who are in the top 15 per cent in the Centrally Funded Technical Institutes. All other candidates who are in the top 15 per cent from other AICTE/UGC approved institutions and universities and having a valid GATE score would also be eligible.

HRD Minister Pallam Raju said they would be engaged as trainee teachers at NITs. While initially they would assist in teaching, they would simultaneously go through the part-time M.Tech and Ph.D programmes of the IITs to acquire higher academic qualification, which is a prerequisite for faculty at NITs.

Navbharat Times ND 08/01/2013 P-7

# आईआईटी का जोर अब रिसर्च पर

विशेष संवाददाता ॥ नई दिल्ली

**आने वाले** समय में देश के प्रीमियम इंजीनियरिंग इंस्टीट्यूट आईआईटी में न सिर्फ पीएच.डी. और रिसर्च को बढ़ावा दिया जाएगा, बल्कि आईआईटी अपने संस्थानों की समीक्षा भी करेगा।

ये फैसले सोमवार को यहां मानव संसाधन विकास मंत्री एम. एम. पल्लमराजू की अध्यक्षता में आयोजित आईआईटी काउंसिल की बैठक में लिए गए। कांउसिल ने जनरल कैटिगरी के स्टूडेंट के लिए फीस बढ़ाने का भी फैसला किया।

आईआईटी ने अपनी नियमित समीक्षा की फैसला किया है। इसके तहत एक रिव्यू कमिटी बनेगी, जो हर पांच साल में सभी इंस्टीट्यूट की समीक्षा करेगी। यह समीक्षा उसके पांच साल के काम, उपलब्धियों, करिकुलम के साथ-साथ अंतरराष्ट्रीय मानकों पर उसक ी उपलब्धियों के आधार पर किया जाएगा। आईआईटी की समीक्षा के लिए 10-


- वर्ष 2010 तक सालाना 10,000 पीएच.डी. का लक्ष्य
- आईआईटी संस्थानों की हर पांच साल पर समीक्षा की जाएगी
- एनआईटी, आईआईटी के टॉप 15 पर्सेंट स्टूडेंट को फैकल्टी में लेंगे

सदस्यीय एक कमिटी बनेगी, जिसमें पांच सदस्य आईआईटी से और पांच इंडस्ट्री से होंगे। इस रिव्यू के अलावा हर आईआईटी बीच-बीच में अपनी समीक्षा भी करती रहेगी। आईआईटी की समीक्षा के नतीजे उनकी वेबसाइट पर लोड किए जाएंगे जिससे लोगों को उनके बारे में सही जानकारी मिल सके।

आईआईटी काउंसिल ने अपने यहां होने वाले रिसर्च व पीएच.डी. की तादाद में इजाफा करने का फैसला किया है। इसके लिए साल 2020 तक 10,000 सालाना पीएच.डी. का लक्ष्य रखा गया है। मौजूदा दौर में यह सिर्फ 3000 सालाना है। आईआईटी में पीएच.डी. को बढ़ावा देने के लिए डॉ. अनिल काकोडकर की अध्यक्षता में एक टास्क फोर्स का गठन भी किया गया है। इसके तहत आईआईटी से पीएच.डी. करने वाले स्टूडेंट के लिए नियमों को लचीला बनाया जा रहा है।

बढ़िया टीचर व फैकल्टी की कमी को देखते हुए एनआईटी व आईआईटी से बी.टेक. कर रहे टॉप 15 फीसदी स्टूडेंट की पहचान कर उन्हें फैकल्टी के तौर पर तैयार किया जाएगा। कांउसिल ने देश की सभी आईआईटी को ग्रीन बनाने का फैसला किया है। इसके तहत ग्रीन टेक्नालॉजी पर जोर दिया जाएगा।

Deccan Hedrald ND 8/01/2013 P7

# IIT aspirants selectively exempted from GATE

**NEW DELHI:** Students of centrally-funded technical institutes, who have scored over 70 per cent marks in semester examination, can now pursue post-doctoral programmes at the Indian Institutes of Technology (IITs) without appearing for the Graduate Aptitude Test Examination (GATE).

They will also be eligible for assistantship or fellowship at the IITs without a GATE score, the Council of the premier institute decided in a meeting headed by Human Resource Development Minister M M Pallam Raju here on Monday.

Students pursing BTech from institutes which are not centrally-funded, will also be eligible for admission to the PhD programmes at the IITs without a GATE score, if their cumulative grade point average (CGPA) is over 7.0 after third year. If such students want to avail scholarship to pursue post-doctoral programmes at the IITs, GATE score will be required, Raju said.

"All others will have to appear for GATE to get into MTech and PhD programs in IITs," he added.

The Council decided to relax conditions for enrolment to increase the number of post-doctorates from the present 3,000 per year to 10,000 by 2020, he added. The Council also decided to introduce a PhD programme at the IITs for working persons or teachers in engineering colleges. "The course requirement will be fulfilled through courses to be delivered remotely using the National Knowledge Network (NKN)," the minister said.

In view of the faculty crunch in technical institutes, the council also approved a scheme to train graduating engineers as teachers, jointly with the National Institute of Technology. Under this scheme, the top 15 per cent students from technical institutes, either funded by the Centre or approved by the AICTE and the UGC, will be eligible to take up the training programme.

The National Institutes of Technology will identify and implement the initial screening criteria for selection of potential candidates, which is being worked out.

"They will be engaged as trainee teachers at NITs. Initially they will assist in teaching. They will simultaneously go through part-time MTech and PhD programs of IITs to acquire higher academic qualifications, which is a prerequisite for being a faculty at the NITs," Raju said.

**DH News Service**

Times Of India ND 08/01/2013 P-16

# UGC plans two degrees at a time

Isha Jain | TNN

**Lucknow:** Pursuing two degrees simultaneously may become a reality in the near future. The University Grants Commission (UGC) is thinking of introducing a system under which students enrolled in a regular degree course can pursue an additional degree at the same time under open, distance, or part-time basis from the same or different university.

The UGC had constituted an expert committee under Prof Furqan Qamar, vice-chancellor, Central University of Himachal Pradesh to look into the feasibility of such a course. The panel has also suggested that similar rule should apply if a student doing a regular course wanted to do a certificate, diploma, advanced diploma or PG diploma programme as an additional course simultaneously either in regular or open and distance mode in the same or other institutions. The committee, however, suggested that the views of the vice-chancellors of all universities in the country should be taken before taking a final decision on implementation of dual degree in the country.

Talking to TOI, former vice-chancellor of Lucknow University and member of the expert committee Prof Manoj Kumar Mishra said, "The dual degree programme is the need of the hour. It is very common in western countries and in India, IITs already offer such dual degree programmes. To implement it, universities will have to make statutory provisions. Therefore, we have sought the opinions of the VCs across the country."

UGC is thinking of introducing a system under which students enrolled in a regular degree course can pursue an additional degree from the same or different university

When asked whether the dual degree programme will be offered at undergraduate (UG) or PG level, Prof Mishra said, "It can be anything. It can be UG with a PG like integrated BSc with MSc or two PGs or two UGs together, though there are complexities in its implementation." But allowing two degrees in regular mode will not be possible due to academic and administrative problems.

Times Of India ND 08/01/2013 P-19

# Next on Mars, a city for veggie space explorers

## Tycoon Planning A Settlement For 80,000 People

**London:** Private space entrepreneur and billionaire co-founder of PayPal, Elon Musk is planning to build a small city on Mars for 80,000 space explorers — but only vegetarians are invited!

Musk, whose Falcon 9 rocket delivers Nasa cargo to the International Space Station, wants to construct a futuristic settlement on the red planet. The new civilization would run off sustainable technology and cater only to vegetarians, The Sun reported.

Speaking to the Royal Aeronautical Society, Musk, 41, revealed he had been waiting for 10 years to share his vision.

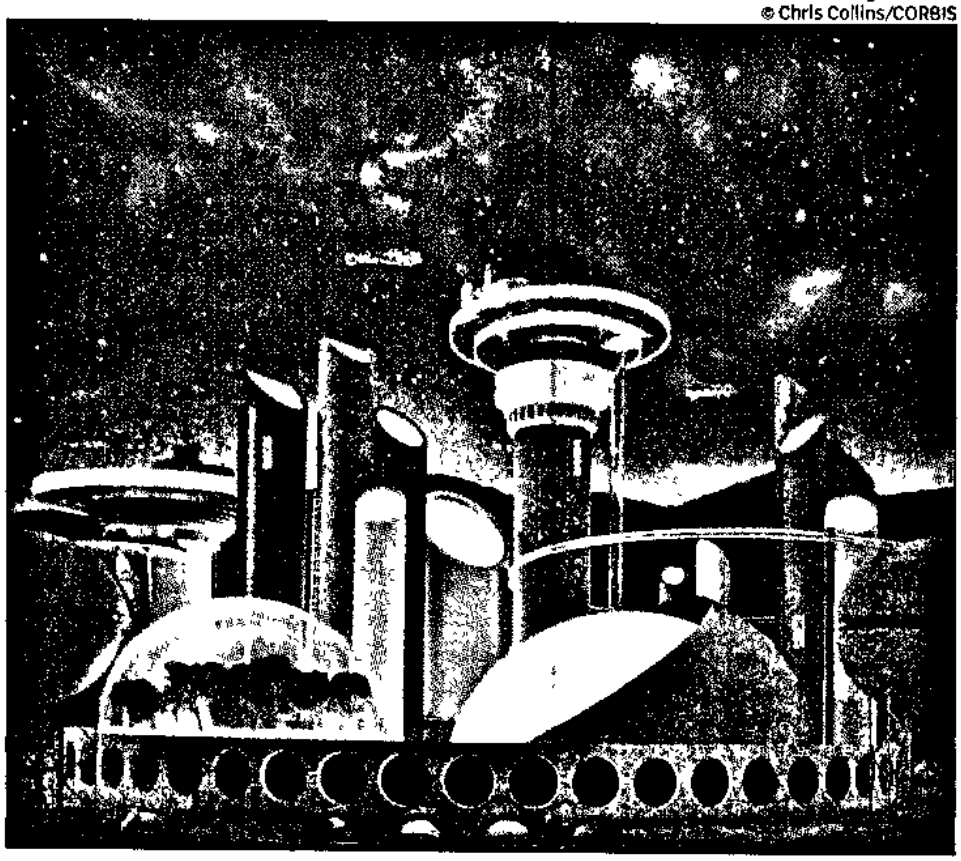
"Then it seemed ridiculous because there were no rockets, no infrastructure and Nasa was the only game in town — and it had no schedule for exploring Mars," said the co-founder of Paypal, a global e-commerce business.

"But with my work, and many others working in the private sector, the mission is coming closer to reality," he added.

"On Mars you can start a self-sustaining civilization and grow it into something really big," he said.

The 146-year-old Royal Aeronautical Society last November awarded Musk, who founded his third company SpaceX in 2002, a gold medal for his contribution to space exploration.





**BLUEPRINT OF THE FUTURE?**

The California-based engineer has previously talked about sending the Mass Cargo Transport rocket — powered by liquid oxygen and methane, to Mars — carrying volunteers for about £300,000 a person.

One of America's most respected private space entrepreneurs, Musk — worth about £1.25 billion — has admitted the challenges remain daunting.

These include the dangers of deep-space radiation, bone-rot and toxic dust. He recommends the size of the new society should be around 80,000 people.

"Too few, and the gene and culture pool dries up. Too many and you risk civil war," he said. PTI

Hindustan Times ND 8/01/2013 P11

BLOOMING TALES

# 'Flower on Mars' report is baseless: Nasa scientist

**Vanita Srivastava**
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**NEW DELHI:** Amitabha Ghosh, chairman, Science Operations Working Group — Mission Operations at the Nasa Mars Exploration Rover Mission, says that reports on spotting a 'Martian flower' is nothing but frivolous.

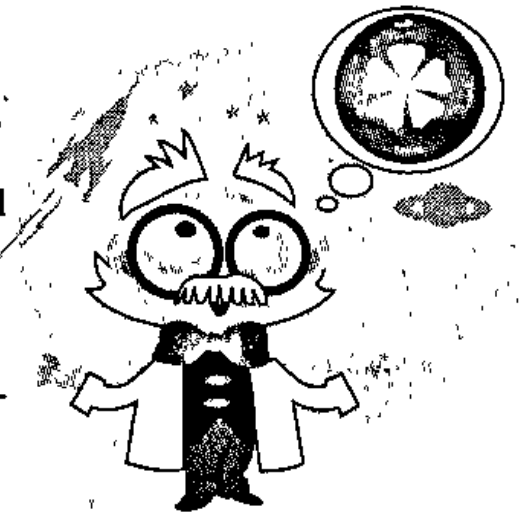
"Earlier also, while we were working on Opportunity Rover, there were pictures which triggered speculative reports of a mermaid being on Mars," the Nasa geologist told Hindustan Times over phone.

The comment on a flower being on Mars, he said was not from a scientist involved in the mission and is not an official statement of the Nasa.

"I think the report is an offshoot of an online conversation and I guess the flower is some blogger's description of its appearance. This does not really mean that flowers exist on Mars."

On Sunday, there were reports that a peculiar petal-shaped cluster spotted on Mars by Nasa scientists had sparked speculation that flowers might be blooming on the red planet.

"The so-called "Martian flower" is seen in an image captured by Nasa's Curiosity Rover in December 2012. In the image, pearl-coloured petals appear to sprout from a rock's surface," the report said.



> **Earlier also, while we were working on Opportunity Rover, there were pictures which triggered speculative reports of a mermaid being on Mars.**
> AMITABHA GHOSH
> Nasa geologist

Space fans on online discussion forums remarked that it might be quartz embedded in the rock. One optimistic commenter suggested it might be the pistils of a blooming flower, the New York Daily News had reported.

Mars exploration has become one of the hot topics for research and study space explorers. India's mission to Mars is scheduled for November this year.

Hindustan Times ND 8/01/2013 P17

# Online varsities look for profits

**EXPERTSPEAK** No guarantee that online courses will keep their position in exploding education technology marketplace

Tamar Lewin
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**NEW YORK:** In August, four months after Daphne Koller and Andrew Ng started the online education company Coursera, its free college courses had drawn in a million users, a faster launching than either Facebook or Twitter.

The co-founders, computer professors at Stanford University, watched with amazement as enrollment passed 2 million last month, with 70,000 new students a week signing up for over 200 courses, including Human-Computer Interaction, Songwriting and Gamification, taught by faculty members at the company's partners, 33 elite universities.

In less than a year, Coursera has attracted $22 million in venture capital and has created so much buzz that some universities sound a bit defensive about not leaping onto the bandwagon.

Other approaches to online courses are emerging as well. Universities nationwide are increasing their online offerings, hoping to attract students around the world. New ventures like Udemy help individual professors put their courses online. Harvard and the Massachusetts Institute of Technology have each provided $30 million to create edX. Another Stanford spinoff, Udacity, has attracted more than a million students to its menu of massive open online courses, or MOOCs, along with $15 million in financing.

All of this could well add up to the future of higher education – if anyone can figure out how to make money.

Coursera has grown at warp speed to emerge as the current leader of the pack, striving to support its business by creating revenue streams through licensing, certification fees and recruitment data provided to employers, among other efforts. But there is no guarantee that it will keep its position in the exploding education technology marketplace.

"No one's got the model that's going to work yet," said James Grimmelmann, a New York Law School professor who specializes in computer and Internet law. "I expect all the current ventures to fail, because the expectations are too high. People think something will catch on like wildfire. But more likely, it's maybe a decade later that somebody figures out how to do it and make money."

For their part, Koller and Ng proclaim a desire to keep courses freely available to poor students worldwide. Education, they have said repeatedly, should be a right, not a privilege. And even their venture backers say profits can wait.

Says Scott Sandell, a Coursera financier who is a general partner at New Enterprise Associates: "What is important is that Coursera is rapidly accumulating a body of high-quality content that could be very attractive to universities that want to license it for their own use. We invest with a very long mindset, and the gestation period of the very best companies is at least 10 years."

But with the first trickles of revenue now coming in, Coursera's partners expect to see some revenue sooner.

"We'll make money when Coursera makes money," said Peter Lange, the provost of Duke University, one of Coursera's partners. "I don't think it will be too long down the road. We don't want to make the mistake the newspaper industry did, of giving our product away free online for too long."

Right now, the most promising source of revenue for Coursera is the payment of licensing fees from other educational institutions that want to use the Coursera classes, either as a ready-made "course in a box" or as video lectures students can watch before going to class to work with a faculty member.

Koller has plenty of other ideas, as well. She is planning to charge $20, or maybe $50, for certificates of completion. And her company, like Udacity, has begun to charge corporate employers, including Facebook and Twitter, for access to high-performing students, starting with those studying software engineering.

This fall, Koller was excited about news she was about to announce: Antioch University's Los Angeles campus had agreed to offer its students credit for successfully completing two Coursera courses, Modern and Contemporary American Poetry and Greek and Roman Mythology, both taught by professors from the University of Pennsylvania. Antioch would be the first college to pay a licensing fee – Koller would not say how much – to offer the courses to its students at a tuition lower than any four-year public campus in the state.

Why would colleges pay licensing fees for material available free on the Web? Because, Koller said crisply, Coursera's terms of use require that anyone using the courses commercially get a license, and because licensing would give colleges their own course website, including access to grades.

Under Coursera's contracts, the company gets most of the revenue; the universities keep 6 percent to 15% of the revenue, and 20 % of gross profits.

One tiny revenue stream has begun flowing into the nondescript Silicon Valley office building where Coursera's 35 employees work to keep up with the demand for their courses: The company is an Amazon affiliate, getting a sliver of the money each time Coursera students click through the site to buy recommended textbooks or any other products on Amazon.

Other possibilities around the edges include charging a subscription fee, after a class is over, to continue the discussion forum as a Web community, or perhaps offering follow-up courses, again for a fee.

## TOP 10 FREE COURSES BY ELITE US VARSITIES

**Varsities across the US are offering several online courses, hoping to lure students across the world. Their new ventures help individual professors put their courses online:**

1. **Udemy free courses:** A site that allows anyone to build or take online courses. Its co-founder, Gagen Biyani, says the site has more than 100,000 students and has faculty and classes from many of the best US universities.
2. **ITunesU free courses:** Apple's free app "gives students access to materials for courses in a single place."
3. **Stanford Free Courses-** From Quantum mechanics to fFuture of the Internet, Stanford offers a variety of free courses. Its Introduction to Artifical Intelligence signed up 160,000 students.
4. **UC Berkeley free course:** From General Biology to Human Emotion, Berkley offers a variety of courses.
5. **MIT free courses:** Prestigious Massachusetts Institute of Technology offers online courses to millions across the globe.
6. **Duke free courses:** Duke University courses are on ITunesU.
7. **Harvard free course:** From Computer Science to Shakespeare, millions of students across the world may now get free Harvard education.
8. **UCLA free courses:** The second most famous University of California campus offers 220 online course in writing alone. It offers other courses too.
9. **Yale free courses:** Open Yale offers "free and open access to a selection of introductory courses taught by distinguished teachers and scholars at Yale University.
10. **Carnegie Mellon free courses:** Boasts "No instructors, no credits, no charge.

PHOTO: THINKSTOCK

Business Standard ND 8/01/2013 P3

# Tepid growth in jobs and salaries ahead

KALPANA PATHAK & M SARASWATHY
Mumbai, 7 January

Information technology giants Samsung Electronics and Google may have made big pre-placement offers at two Indian Institutes of Technology (IITs) in 2012, but this may not be the case for prospective graduates in other institutes in the coming year. Human resource (HR) consultants predict a cautious year ahead for hiring, with salary hikes being lower in some cases.

Hay Group, a global management consultancy, in its annual General Industry Compensation Report covering all levels of management, expects a pay increases of an average 11.2 per cent across job roles in 2013. The amount represents a slight fall against an actual average salary increase of 12 per cent across companies in 2012.

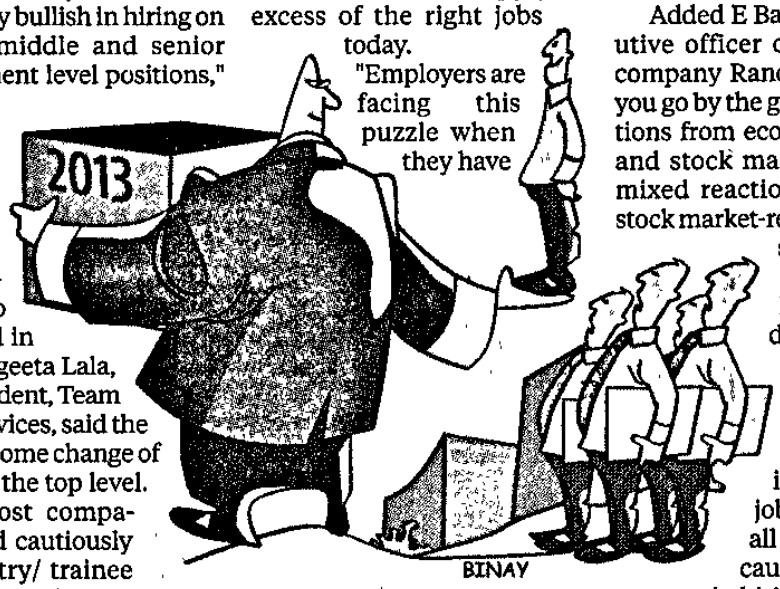
The year 2012 was a slow year in terms of job creation and salary hikes. Double-digit salary hikes were rare and the sentiment was gloomy across sectors. "I would like to believe that it was more the play of negative sentiment in the job market than the actual dearth of jobs. However, facts state otherwise. The fall in GDP (gross domestic product) growth to an average of just 5.4 per cent in the first six months of 2012 may have cost jobs. There is a massive difference in the number of new jobs created at five per cent and at seven per cent (growth rate in 2011-12). That number is 3 million," said Ganesh Shermon, partner and head of human capital at KPMG.

He added sectors such as healthcare, media and entertainment witnessed more-than-expected hiring in 2012. Similarly, the education sector also saw growth in overall salaries. "Also, it's interesting to note that even though companies hired cautiously at the entry level, many of them were reasonably bullish in hiring on the key middle and senior management level positions," Shermon said.

Churn in the senior management level was also witnessed in 2012. Sangeeta Lala, vice-president, Team Lease Services, said the year saw some change of guards at the top level. While most companies hired cautiously at the entry/ trainee levels (given the continued shade of uncertainty), they were reasonably bullish in hiring the skilled workforce at the middle management and the senior management levels.

Looking at 2013, HR consultants expect employability of graduates to be a crucial issue. In India, according to Shermon, there is always a difference between the number of fresh graduates and the number of new jobs. "The skills acquired by the fresh graduates are not in alignment with the marketplace requirements."

Endorsing this view, Lala said there was a supply in excess of the right jobs today. "Employers are facing this puzzle when they have jobs to offer, but they continue to search for the good-old-days when students were willing to work hard and come up with genuine effort, learning and earning along the way," she said.

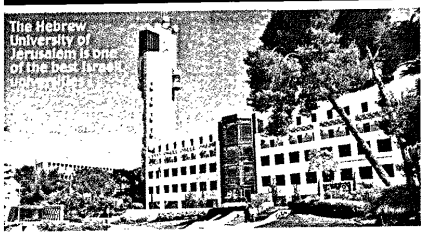



The TeamLease- IIJT Employment Outlook Report for the January-March 2013 quarter said both the net employment and the business outlook had registered a drop in their indexes, indicating stagnant hiring outlook in the forthcoming quarter. "IT/ ITeS and Infrastructure are the laggards dragging the index down while other sectors report flat outlook," said the report.

Added E Balaji, chief executive officer of HR services company Randstad India: "If you go by the general expectations from economic reforms and stock market, there are mixed reactions. We expect stock market-related sectors to show recovery in 2013. With FDI (foreign direct investment) coming in, retail will be a sector to watch out for, in terms of new jobs. So, the overall the mood is of cautious optimism in hiring."

Mail Today ND 8/01/2013 P20

# Israel invites 66 Indian researchers to its universities




By Nikita Das

THE Government of Israel has granted 66 scholarships to Indian Post-Doctorate researchers. This first of its kind scholarship programme will take advanced Indian scholars to Israel for conducting studies in fields such as life sciences, computer science, chemistry, botany, bio technology, engineering and genetics.

The scholarships are a part of the initiative taken by Israel's Finance Minister Dr Yuval Steinitz and HRD Minister Kapil Sibal to strengthen Indo-Israel academic cooperation.

The fellowship programme has invited scholars from IIT-Delhi, Osmania University, University of Delhi, Lucknow, Calcutta, Mumbai, Birla Institute of Technology and Science, Pilani and other leading Indian institutions. The popular fields of research include physical natural sciences, biology and environment and Mathematics. Interestingly, engineering has attracted minimum number of researchers.

**Three Israeli universities figure in the top 100 varsities of the world**

"The research fields have been decided mutually by the University of Israel and scholars. In order to be a part of the scholarship programme, the researcher has to apply to Israel universities directly, after which the proposal will take its defined course of action. The university approaches the government for the funding of the research only after the former approves of the same," said Shimon Mercer-Wood, Political affairs secretary at Embassy of Israel. "The Government of Israel has shelled out ₹14.7 lakh per year per scholarship, out of which 1/3rd has been funded by the government funded universities and the rest by the government," Shimon informed.

The leading universities in Israel which are participating in this scholarship programme are the Hebrew University of Jerusalem, the Technion - Israel Institute of Technology, Tel Aviv University, Haifa University, Ben-Gurion University of the Negev, the Weizmann Institute of Science and the Open University of Israel.

Last year, universities in Israel have figured highly in global rankings, with three of them included in the top 100 universities of the world.

Hari Bhumi ND 8/01/2013 p-4

विज्ञान
शशांक द्विवेदी

सरकार ने भारत को 2020 तक दुनिया की पांच सबसे बड़ी वैज्ञानिक शक्तियों में शामिल करने का लक्ष्य रखा है। लेकिन वर्तमान नीतियों और सरकारी लालफीताशाही के इस दौर में इस लक्ष्य को पाना बहुत मुश्किल लग रहा है ।

# बातें नहीं क्रियान्वयन जरूरी

कोलकाता में 100 वें विज्ञान कांग्रेस समारोह में राष्ट्रपति प्रणब मुखर्जी ने देश के वैज्ञानिकों से विज्ञान के क्षेत्र में नोबेल पुरस्कार पाने की दिशा में काम करने का आह्वान किया है। राष्ट्रपति का आह्वान एक सकारात्मक सन्देश है लेकिन देश में विज्ञान का मौजूदा बुनियादी ढाँचा ही बेहद कमजोर है। पिछले कई सालों से हर बार भारतीय विज्ञान कांग्रेस के अधिवेशन में सरकार के जिम्मेदार लोगों के द्वारा इस तरह की बातें, घोषणाओं आदि का आह्वान किया जाता रहा है लेकिन बाद में वास्तविक धरातल पर वह क्रियान्वित नहीं हो पाता। यह सब हर बार सिर्फ रस्मी तौर पर ही होता आया है। जबकि यथार्थ के धरातल पर देश में वैज्ञानिक अनुसंधान और शोधों की दशा अत्यंत दयनीय है। अगर ध्यान से देखें तो तकनीक के मामले में हम सिर्फ पश्चिम की नकल करते हैं। आजादी के बाद भी आज तक ऐसा कोई बुनियादी ढांचा विकसित नहीं हो पाया जिससे देश में बड़े पैमाने पर अनुसंधान को प्रोत्साहित किया जा सके। इस बात का प्रमाण हमें अपने समाज में मिल जाएगा जहां अधिकांश युवा शोध और अनुसंधान के क्षेत्र में नहीं जाना चाहते, अगर वो जाना भी चाहते हैं तो बहुराष्ट्रीय कंपनियों में जहां उनको ऊंचा पैकेज मिलता है। आज देश में यही तो हो रहा है कोई भी युवा आईआईटी, आईआईएम में सिर्फ इसलिए जाना चाहता है जिससे उसको मोटा पैकेज मिले,वो बड़ी कंपनियों में जा सके। सरकार के लिए ये सबसे बड़ा सवाल है कि इन संस्थानों से निकलने वाले अधिकांश ग्रेजुएट क्यों अनुसंधान और शोध की तरफ

आकर्षित नहीं होते। जाहिर सी बात इसकी सबसे बड़ी वजह आर्थिक सुरक्षा है, जो सरकार उपलब्ध करा नहीं सकती। देश में पढ़े हजारों उच्च शिक्षित काबिल वैज्ञानिक आज अपनी सेवाएं विदेशों में दे रहे हैं, उनके लिए जी जान से काम कर रहे हैं। ऐसा नहीं है कि इन लोगों को अपने देश से, समाज से प्यार नहीं है बल्कि ये वो लोग हैं जिनको हमारा देश, यहां की सरकारी मशीनरी लगभग नकार चुकी होती है। इन होनहार लोगों को सरकार अनुसंधान के लिए बुनियादी सुविधाएं और आर्थिक सुरक्षा प्रदान करने में हमेशा नाकाम रहती है। डॉ. हरगोविंद खुराना जैसे वैज्ञानिक को भी इस देश ने भुला दिया जिन्होंने विश्व को जीन के क्षेत्र में नयी दिशा दी। उनके जैसे व्यक्ति को भी हम अपने देश में काम नहीं दे सके। ऐसे कई उदाहरण हैं जिन्होंने भारत के बाहर अपनी योग्यता और क्षमता का लोहा पूरे विश्व को मनवाया। ऐसे लोगों के युगांतकारी कामों के बाद, प्रसिद्धि के बाद हम कहते हैं ये भारतीय मूल के हैं। लेकिन सच बात तो यह है कि अब उनकी सेवाएं दूसरे देश ले रहे हैं। कभी दुनिया भर में होने वाले शोध कार्य में भारत का नौ फीसद योगदान था जो आज घटकर महज 23 फीसद रह गया है। सृजन के क्षेत्र में हमारी बढ़ती दरिद्रता का आलम क्या है इस पर भी एक नजर डालें। देश में इस्तेमाल की जाने वाली तकनीक को लें तो तकरीबन पूरी टेक्नोलॉजी आयातित है। इनमें 50 फीसद तो बिना किसी बदलाव के ज्यों की त्यों इस्तेमाल होती है और 45 फीसद थोड़ा-बहुत हेर-फेर के साथ इस्तेमाल होती है। इस तरह विकसित तकनीक के लिए हमारी निर्भरता आयात पर है। कहा तो जा रहा है कि देश में प्रतिभाओं की कमी नहीं है लेकिन ये प्रतिभा क्या केवल विदेशों में नौकरी या मजदूरी करने वाली हैं? दूसरे पहलू से भी इस बढ़ती दरिद्रता को देखने की जरूरत है। देश की जनसंख्या का मात्र 10 फीसद हिस्सा ही उच्च शिक्षा ले पाता है। इसके विपरीत जापान में 70 प्रतिशत, यूरोप में 50 कनाडा और अमेरिका में 80 फीसद लोग उच्च शिक्षा लेते हैं। अमेरिका बुनियादी विज्ञान विषयों की प्रगति का पूरा ध्यान रखता है। उसकी नीति है कि वैज्ञानिक मजदूर तो वह भारत से लेगा, पर विज्ञान और टेक्नोलॉजी के ज्ञान पर कड़ा नियत्रंण रखेगा। चीन में भी शिक्षा का व्यावसायीकरण हुआ है, पर बुनियादी विज्ञान और टेक्नोलॉजी की प्रगति का उसने पूरा ध्यान रखा है। भारत को चीन से शिक्षा लेनी चाहिए। 'वर्ल्ड क्लास' बनने के लिए बुनियादी विज्ञान का विकास जरूरी है।

दुनिया के कई छोटे देश तक वैज्ञानिक शोध के मामले में हमसे आगे निकल चुके हैं। सन् 1930 में सी.वी.रमन को उनकी खोज के लिए नोबेल पुरस्कार से सम्मानित किया गया, लेकिन रमन स्कैनर का विकास किया दूसरे देशों ने। यह हमारी नाकामी नहीं तो और क्या है। आज देश में प्रति 10 लाख भारतीयों पर मात्र 112 व्यक्ति ही वैज्ञानिक शोध में लगे हुए हैं।

दुनिया के ज्यादातर विकसित देश वैज्ञानिक शोध को बढ़ावा देने के लिए अपने रिसर्च फंड का 30 प्रतिशत तक यूनिवर्सिटीज को देते हैं, मगर अपने देश में यह प्रतिशत सिर्फ छह है। उस पर ज्यादातर यूनिवर्सिटीज के अंदरूनी हालात ऐसे हो गए हैं कि वहां शोध के लिए स्पेस काफी कम रह गया है। शोध के साथ ही पढ़ाई के मामले में भी काफी कुछ किए जाने की जरूरत है, ताकि यूनिवर्सिटी सिर्फ डिग्री बांटने वाली दुकानें न बनकर रह जाएं। देश में अकादमिक शोध करने-कराने की एक बड़ी जिम्मेदारी विश्वविद्यालय अनुदान आयोग यानी यूजीसी पर है। यूजीसी देश में उच्च शिक्षा के मापदंड तय करने के साथ ही विश्वविद्यालयों, कलेजों और अन्य संस्थाओं को शिक्षा और शोध के लिए अनुदान भी उपलब्ध कराता है। शोध के नियमों को भी तय करता है और शोध के लिए जरूरी सहायता भी देता है। इसलिए देश में इस समय जैसे भी शोध हो रहे हैं, एक तरह से उसकी जिम्मेदारी यूजीसी की बनती है। लेकिन भारत के विश्वविद्यालयों और उच्च शैक्षणिक संस्थानों में गंभीर शोधों का पूरी तरह से अभाव है। भारत में वैसे भी उच्च शिक्षा में आने वाले छात्रों की संख्या बहुत कम है। यूजीसी की उच्च शिक्षा पर आधारित एक रिपोर्ट के मुताबिक 86 प्रतिशत छात्र स्नातक की पढ़ाई करते हैं और इसमें से केवल 12 प्रतिशत परास्नातक या पोस्ट ग्रेजुएशन की पढ़ाई पूरी कर पाते हैं। शोध का हाल तो और भी बुरा है। उच्च शिक्षा पाने वालों में से केवल एक प्रतिशत छात्र ही शोध करते हैं। दिसंबर 2011 तक भारत में करीब 81 हजार छात्र और केवल 56 हजार छात्राएं शोध से जुड़े हैं। बहरहाल किन विषयों पर शोध हो रहा है और समाज के लिए उसकी क्या उपयोगिता है, इसका मूल्यांकन करने वाला कोई नहीं है। इसके उलट यूजीसी के कई सारे ऐसे प्रावधान हैं, जो गंभीर शोधपरक संस्कृति के विकास में रुकावट डालते हैं।

सरकार ने भारत को 2020 तक दुनिया की पांच सबसे बड़ी वैज्ञानिक शक्तियों में शामिल करने का लक्ष्य रखा है। लेकिन वर्तमान नीतियों और सरकारी लालफीताशाही के इस दौर में इस लक्ष्य को पाना बहुत मुश्किल लग रहा है। देश में वैज्ञानिक शोध और आविष्कार का माहौल बनाना होगा। विज्ञान को आम आदमी से जोड़ना होगा। विज्ञान के क्षेत्र में अब समस्याओं को ध्यान में रखकर ठोस और बुनियादी समाधान करने का है, तभी भारत एक वैज्ञानिक शक्ति संपन्न राष्ट्र के रूप में उभरेगा।