

## Newspaper Clips

### March 29-30, 2015

March 29

Hindustan Times ND 29/03/2015 P-12

# Notice period over, but IIT-D director can't leave

HT Correspondent

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**NEW DELHI:** Three months after IIT Delhi director RK Shevgaonkar resigned, and nearly a week after his three month's notice period ended on March 22, the HRD ministry is yet to accept his resignation.

The ministry's inability to move the file to President Pranab Mukherjee — who will officially accept the resignation — has not only led to a delay in kicking off the process of appointing a new head of the institute but has raised questions over its motives. "The

ministry should have either accepted or rejected his resignation instead of sitting on it for over three months," said a senior IIT Delhi faculty member, adding that the delay has left faculty members and students wondering what the ministry was thinking.

The delay has forced Shevgaonkar to continue as the director as he will require a formal relieving letter from the ministry in order to go back to IIT Mumbai, where he is a faculty.

While Institute chairperson Vijay Bhatkar refused to comment on the issue, sources said the con-



■ IIT Delhi director RK Shevgaonkar

tinuing delay had forced the IIT to write to the ministry on March 16.

The letter, from the Institute's governing body, said Shevgaonkar had intimated that his December

22 resignation letter be treated as three month's notice and that the ministry needed to begin the appointment process soon. Ministry officials maintained the process of selecting directors of three IITs had led to the delay and that it would move Shevgaonkar's file to the President soon.

Shevgaonkar had resigned in December over what some reports claimed was pressure from the ministry to release nearly ₹70 lakh to former IIT-Delhi faculty and BJP functionary, Subramanian Swamy, as salary dues for the period between 1972 and 1991.

Deccan Herald ND 29/03/2015 P-4

# Do something different, C N R Rao tells students at IIT

**ROORKEE, IANS:** Eminent scientist C N R Rao has told students to take the less-travelled road to succeed and lamented the paucity of funds for science and education in India.

"First thing for success, take a lonely road," said Rao at IIT-Roorkee's annual Cognizance festival on Friday, quoting Robert Frost's "The road not taken".

He expressed disappointment over everybody flocking to the same information technology industry.

Rao, a recipient of the Bharat Ratna, India's highest

civilian honour, recounted his own successful experience that he was one of the very few people in the world who took up solid state chemistry back then and how people mocked at him for that.

The scientist also highlighted that Indian educational institutions and scientific departments are in dire need of money.

"IITs need more money, if IIT-Roorkee needs to be like MIT, it needs more money. I would like our Prime Minister and government to take interest in the working of the department. So many directors posts are vacant, large number



C N R Rao

of them are vacant, these have to be rectified," said Rao, reflecting on the state of scientific departments and educational institutions in India.

He underwent very testing times in his early days without equipment and when asked, how he managed in those difficult times, he said, "Nothing. I

used to build, every furnace. I had to borrow wire from friend in America. Everything I did was on a bootstrap operation. Building little, little equipment. I wanted to have a particular kind of balance, I made my own parts balance, making a spring and all. It took me 30 years in India before I could do the exact thing I wanted to do."

Rao said as a 26-year-old young scientist, he wrote a book on ultraviolet spectroscopy and a few years later, he wrote another book on infrared spectroscopy which changed everything and won applause from C V Raman.

He also said that though the national policy for education recommended six per cent of GDP for education only two per cent is dedicated.

In his message to researchers, he said, "I tell you don't give up. Whatever be the problem, don't give up. He advised them to practice the qualities of dedication, doggedness and tenacity."

Rao suggested the young people to suffer pain for success and do something different and work for India.

He inspired the audience to always remain students by saying: "I am an eternal student. I

am still a student."

Through Cognizance, IIT-Roorkee has thrown open a melange of events and competitions encompassing robotics, coding, biotechnology, chemical engineering, chemistry, civil engineering, architecture and planning, earth sciences, electronics and communication and quizzes among others.

This year's festival received UNESCO patronage and is aligned with the United Nations observance of 2015 as International Year of Light and Light based Technologies and Cognizance theme is Photonizing I.

## IIT BLUES

**H**uman resource development minister Smriti Irani is facing yet another crisis with chairman of IIT Bombay's board of governors Anil Kakodkar resigning. Mr Kakodkar reportedly resigned after a "disagreement" with the HRD ministry over the selection of an IIT director. Though the ministry claims that Mr Kakodkar withdrew his resignation after the minister's intervention, the matter is far from resolved. However, Mr Kakodkar and three other members of the panel did not turn up at the crucial meeting about the selection of three IIT directors. Apparently, Mr Kakodkar and his cohorts are upset with the ministry's decision to scrap the selection process and hold fresh interviews for the three positions.

For Ms Irani, another controversy is the last thing she needs. Whether it was the third language issue or the earlier resignation of R.K. Shevgaonkar as director of IIT Delhi or her constant run-ins with Delhi University's vice-chancellor Dinesh Singh, each new episode raises questions about why the ministry's new policies are at odds with India's top educational institutions. Meanwhile, Mr Kakodkar's status vis-à-vis his "resignation" remains unclear.

Hindustan ND 29/03/2015 P-1

# आईआईटी में नौकरीपेशा के लिए भी दो माह का कोर्स

## ख़ुशख़बरी-1

नई दिल्ली | रोहित पंतार

आईआईटी में अब नौकरीपेशा इंजीनियर भी दो माह के लिए पढ़ाई कर सकेंगे। इनके साथ ही अन्य कॉलेजों के इंजीनियरिंग छात्र भी इसका लाभ उठा सकेंगे। इसके लिए ऑनलाइन परीक्षा होगी।

सबसे पहले आईआईटी दिल्ली, मुंबई और रुड़की इस साल दिसंबर से प्रोग्राम की शुरुआत करेंगे। फाउंडेशन फॉर इनोवेशन एंड टेक्नोलॉजी ट्रांसफर

(फिट) इस प्रोग्राम का संचालन करेगी। फिट आईआईटी की इनोवेशन का काम देखने वाली अधिकारिक संस्था है। फिट के सूत्रों ने बताया कि शनिवार को इस फैसले पर मुहर लग गई है।

**क्या है नियम :** फिट के मुताबिक, इस प्रोग्राम में केवल वे इंजीनियर दाखिला ले सकते हैं जिनके पास न्यूनतम दो साल नौकरी का अनुभव है। वहीं छात्रों के लिए भी नियम तय किए गए हैं। बीटेक के पहले और दूसरे सेमेस्टर के छात्र इस प्रोग्राम का हिस्सा नहीं बन सकते। अन्य सेमेस्टर के छात्र आवेदन कर सकते हैं।

Business Standard ND 29/03/2015 P-12

# Isro launches India's 4th navigation satellite

Of the seven satellites in the system, three are working

TE NARASIMHAN  
Chennai, 28 March

The Indian Space Research Organisation (Isro) on Saturday successfully launched India's fourth navigation satellite. The Polar Satellite Launch Vehicle (PSLV), in its twenty-ninth flight (PSLV-C27), carried IRNSS-1D. This is the first launch after A S Kiran Kumar took over as chairman of Isro.

The rocket blasted off the second launch pad at Sriharikota space port, around 80 kms from Chennai, at 1729 hours as planned. The expected mission life is ten years. The launch was earlier scheduled for March 9, 2015, but was postponed to March 28, due to technical reasons.

Like in the previous three launches of IRNSS satellites, PSLV-C27 used 'XL' version of PSLV. This is the eighth time 'XL' configuration is being flown. The satellite has been realised in less than four months after the launch of its predecessor.

So far, three regional navigational satellites were placed in orbit as part of a constellation of seven satellites to provide accurate position information service to users across the country and the region, extending up to an area of 1,500 km. The entire constellation is planned to be completed this year.

An Isro source said position information on land, air and sea will be available and it will help in a wide variety of fields, including defence, farming, transport, tourism and more.

Two more navigation satellites are expected to be launched this year, and the seventh and the last one of the system is expected to be launched in early 2016. Three satellites launched earlier have all been integrated with the ground stations and are working well. The first satellite IRNSS-1A was launched in July 2013, the second IRNSS-1B in April 2014 and the third on

## Importance of IRNSS

Expert said, no country can afford to depend on a foreign country's constellations for navigation during war scenarios.

IRNSS will make Indian Armed Forces self-reliant. While advanced nations like US and Russia are having GPS and GLONASS, countries like China, European Union and Japan are trying to have their own full-fledged or partial constellations.

"Our own IRNSS is important for the country's sovereignty and strategic requirements," said an official.

IRNSS is an independent regional navigation satellite system being developed by India. It is designed to provide accurate position information service to users in India, as well as the region extending up to 1,500 km from its boundary, which is the primary service area of IRNSS.

It will provide two types of services, including Standard Positioning Service (SPS), which is provided to all the users, and Restricted Service (RS), which is encrypted service provided only to authorised users. The IRNSS system is expected to provide position accuracy of better than 20m in the primary

October 16, 2014.

Once all the seven starts operational, India can replace the US GPS with Indian system and India need not to depend on other platforms.

The full system comprises nine satellites, including seven in orbit and two on the ground as stand-by — the navigation services could be made operational with four satellites.

As reported earlier, each satellite costs around ₹150 crore and the PSLV-XL version rocket costs around ₹130 crore. The seven rockets would involve an outlay of around ₹910 crore.

## ABOUT IRNSS-1D

- LAUNCH DATE: **March 28, 2015**
- LAUNCH VEHICLE: **PSLV-C27**
- TYPE OF SATELLITE: **Navigation**
- MANUFACTURER: **ISRO**
- OWNER: **ISRO**
- APPLICATION: **Navigation**
- ORBIT TYPE: **GSO**

service area.

IRNSS comprises of space and ground segments. The space segment consists of seven satellites, with three in geostationary orbit and four in inclined geosynchronous orbit. IRNSS-1A, 1B and 1C, the first three satellites of the IRNSS constellation, have already started functioning from their designated orbital slot.

IRNSS ground segment is responsible for navigation parameter generation and transmission, satellite control, ranging and integrity monitoring, as well as time keeping.

IRNSS-1D has been launched into a sub-Geosynchronous Transfer Orbit (sub GTO) with a 284-km perigee (nearest point to Earth) and 20,650-km apogee (farthest point of Earth) with an inclination of 19.2 deg with respect to the equatorial plane.

After injection into this preliminary orbit, the two solar panels of IRNSS-1D are automatically deployed in quick succession and the Master Control Facility at Hassan, Karnataka, takes control of the satellite and performs the initial orbit raising manoeuvres.

## STEP FORWARD IN 1997, NISH WAS STARTED WITH SEVEN STUDENTS

# INDIA'S FIRST VARSITY FOR THE DIFFERENTLY ABLED

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As Union Finance Minister Arun Jaitley presented his budget in parliament, a young crowd cheered him all the way. But their ruckus never reached the world outside the campus. But they had enough reasons to cheer — their school, the National Institute of Speech and Hearing (NISH), situated on the outskirts of Thiruvananthapuram, has been elevated as the country's first university for disability studies and rehabilitation sciences.

G Vijayaraghavan, a technocrat who founded a small school 18 years ago, after his twin daughters were born with hearing and speech impairments, is set to scale new heights. Glued to the TV on action-packed budget day, he couldn't control his tears. His baby had come a long way. And for a change, the television stations in Kerala were not beaming his reactions to the budget but the glad news about NISH.

Indeed, NISH has showed how to overcome challenges. About three per cent of the population in the country is differently abled. I always say that these people don't need your sympathy. They want their due — better

opportunities," says Vijayaraghavan, who pioneered the information technology revolution in Kerala and was the first CEO of the IT park in Thiruvananthapuram. Interestingly, the honour has come to the proud father a year after his twin daughters (Lakshmy and Parvathy) graduated in fine arts from NISH, married grooms with the same challenges.

Vijayaraghavan's indomitable spirit has provided succour to many. "My husband and I were working in Dubai. We left our jobs and returned home after our daughter was born with hearing disabilities," says C Anu, the mother of preschooler Andrea (5). The child, who was enrolled in NISH four years ago, is now ready to join a mainstream school.

"Early intervention is critical in shaping a disabled child's life. After leaving my job, I had to stay in a rented house near the school for three years to help my six-year-old son," says another mother as she wipes her tears. For many parents, the economic burden of having a child with disabilities often outweighs the social stigma and the emotional stress. "I thought of committing suicide when my daughter was born mute. Thanks to NISH, we now lead a normal life," says a mother of two, who prefers not to reveal her name. Besides children, NISH offers training modules for parents on how to deal with

the situation. The institution's methods and success has meant that parents from places as far away as Punjab and the Andamans are now sending their children here.

"As we don't have a facility here, I often had to take my little daughters to Mysore for treatment. This was a big problem and really motivated me to think of an institution in my city," says Vijayaraghavan explaining how his school started on rented premises in 1997 with seven students. "Once my dream blossomed, successive governments helped it to stand on its own." Though the state government asked him to take over the school's administration, he chose to opt for experts in the area. The institution which functions under the state social welfare ministry also attracted many good Samaritans who loosened their purse strings. Soon after NISH was established, a batch of teachers was sent for training at the best institutes across the world. A UK-trained teacher Anu Kurian joined them on an honorary basis to take care of the preschool section. Former chief minister EK Nayanar also took a keen interest as did former defence minister AK Antony, who helped to set up a new building block.

Now, NISH offers a variety of courses including preschool training, parent guidance courses, audiological rehabilitation



Students at National Institute of Speech and Hearing



VIVEK NAIR / HT PHOTO

programme, vocational courses and summer programmes. It runs graduation programmes like BSc in Computer Science, BA in Fine Arts and Bachelor of Commerce and a course to groom professionals (both at the undergraduate and post graduate levels) in Audiology and Speech Language Pathology. NISH also offers a diploma course for those interested in teaching children with challenges. Besides the academic arena, the institution plays a major role in various social

service initiatives. Since rubella in mothers is a major cause for hearing ailments, it popularised the need for the rubella vaccine. Now, girl children in all government schools in the state are vaccinated against rubella. All government hospitals in the state also now have equipment to detect hearing ailments at birth. "Our immediate challenge is to start high-studies for children with autism, cerebral palsy and neurological disorders. They need to be educated, trained and assessed differ-

ently. We also need to have a robust research wing," said Dr Samuel N Mathew, executive director, who left an IT job in the US four years ago to take up this new challenge.

"We are happy that the central government is planning to develop NISH as an institute of excellence on the lines of IIT, IIM and AIIMS," said chief minister Oommen Chandy. It would seem that the country has finally realised the need for a centre of excellence for the differently abled.

## IISC, ADA experts watch UAVs developed by IIT-K

<http://timesofindia.indiatimes.com/city/kanpur/IISC-ADA-experts-watch-UAVs-developed-by-IIT-K/articleshow/46724666.cms>

KANPUR: The Indian Institute of Technology-Kanpur (IIT-K) on Friday demonstrated indigenously developed 11 unmanned aerial vehicles (UAVs), including six fixed wing Unmanned Aerial Systems (UAS) and two flapping wing unmanned air vehicles, before experts of IISc Bangalore and Aeronautical Development Agency (ADA), a unit of DRDO.

The UAVs have been developed by a team of institute's professors, project associates and students on the demand of the Indian military and Defence Research and Development Organisation (DRDO).

These UAVs of different kinds have been developed with a budget sum of Rs 2 crores. After takeoff, the Unmanned Aerial System (a UAV type) becomes autonomous and is guided by pre-fed instructions. With a mounted camera, these UAVs are capable of carrying a payload of 5-6 kg. Composite material, including fibre, reinforced plastic, Kevlar (bullet proof cloth) etc have been used for developing the UAS (UAVs) which keeps these UAVs light weight and cost-effective. The existing version of the unmanned aerial vehicle is operated through a ground control system and can operate on batteries, gasoline or jet turbine fuel.

Aeronautical Development Agency's Biju Uthup said that these fixed-wing UAVs deliver excellent performance and could be used in agriculture, surveillance and checking pollution levels. He further said that these UAVs were capable of carrying cameras, including electro optical camera and infra red camera, and could help keep tab on pollution in Ganga and traffic congestion.

March 30

Hindustan Times ND 30/03/2015 P-10

# IIT-Kanpur scholars build 3 hi-tech drones

**Vanita Srivastava**

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**NEW DELHI:** Researchers at IIT-Kanpur showcased three different types of unmanned aerial vehicle (UAV) that could be used for anything from patrolling the borders to traffic management, crowd monitoring to surveillance and disaster management.

The flapping wing UAV for surveillance and aerial photography, which was on a test trial on Friday, is perhaps one of its kind in the world, said an official associated with the project.

"The 1.5 m wing span flying bird will carry a small camera as the payload and will be able to record pictures for surveillance applications."

Two other flying models have



■ According to the researchers, these drones could be used for anything from surveillance to disaster management.

IIT-KANPUR

been constructed of wing span 1.6m with very distinct mechanisms and weight."

Another UAV — the small

sized fixed wing has an endurance of over nine hours, can go to a top speed of 100 kmph per hour and has a payload of six

kg. It also has a maximum take-off weight of 21 kg, in a pusher configuration. The platform is chosen specifically to accommodate future modifications to the design, including minimal radar cross section and vertical take-off and landing (VTOL) capabilities.

The engine can run on gasoline, jet fuel, or batteries. The system is also capable of taking-off from unpaved flat surfaces of 30 metres. It can be assembled within 20 minutes.

A test trial of the third UAV — visually guided autonomous quadrotors — also took place. These can be utilized in surveillance and disaster management. The four rotor design makes the quadrotors simple in design but it is highly reliable and agile.

Times of India ND 30/03/2015 P-13

# IITs were formed on the lines of Massachusetts Inst

## What was the idea behind establishing the Indian Institutes of Technology?

During the late 1940s, just before India's independence, it was realized that technology would play an important role in the country's development and so the Indian Institute of Technology (IIT) was conceptualized. In 1945, a 22-member committee headed by Nalini Ranjan Sarkar was constituted to prepare the proposal. In its report, the committee recommended establishing four higher technical institutes on the line of the Massachusetts Institute of Technology. The first IIT was established at Kharagpur, followed by Mumbai, Madras, Kanpur and Delhi by 1961. IIT Guwahati was established in 1994. In 2001, the University of Roorkee was converted into an IIT. At present there are 16 IITs. In the recent budget, ISM, Dhanbad was also turned into an IIT. The IITs are funded by the ministry of human resource and development.

## What are the discretionary powers of individual IITs?

The Institutes of Technology Act, 1961, under which the IITs were established, gives powers to the IITs to provide instructions and research as

they may think fit. They can hold exams and give academic as well as honorary degrees, fix fees, make academic appointments, receive donations, co-operate with educational and other institutes in any part of the world and award fellowships, scholarships and so on.

## How are the IITs governed?

There are four major administrative bodies in each Indian Institute of Technology—the board of governors, senate, finance committee and the building & works committee. The board of governors is responsible for supervising, directing and exercising all the powers of the institute. The senate is responsible for maintenance of educational and examination standards. These two bodies are aided by the finance committee, which examines the budget, while major capital works (construction etc.) are supervised by the building & works committee.

## How are the members of these administrative bodies selected?

The board of governors consists of chairman, director, one nominee from the government of the states, comprising the IIT's zone, four experts and two professors of the institute. The chairman is nom-

inated by the President of India, who is also the visitor of the institutes. The director and four experts are appointed by the council of IITs—the central body that coordinates the activities of all IITs. The professors are nominated by the senate. The director is also the chairman of the senate. Other members of the senate include the deputy director, professors appointed by the institute and three persons not employed by the institute who are nominated by the chairman in consultation with the director.

## Who are the members of the council of IITs?

The council, which is the governing body of all 16 IITs, is headed by the minister-in-charge of technical education in the government. It also has three members of parliament, chairman and directors of all IITs, chairman and director of the Indian Institute of Science, chairman of UGC, director general of CSIR and a joint secretary of the HRD ministry, who functions as the council's secretary. There are three government nominated members representing the ministry concerned with technical education, ministry of finance and any other ministry. Apart from them, one council member is nominated by AICTE and between three to five members by the visitor.



**LEARNING  
WITH  
THE TIMES**

# Success through skills

The government can minimise the skills gap by partnering the private sector and setting up institutes of higher learning



DEBDUL THAKUR

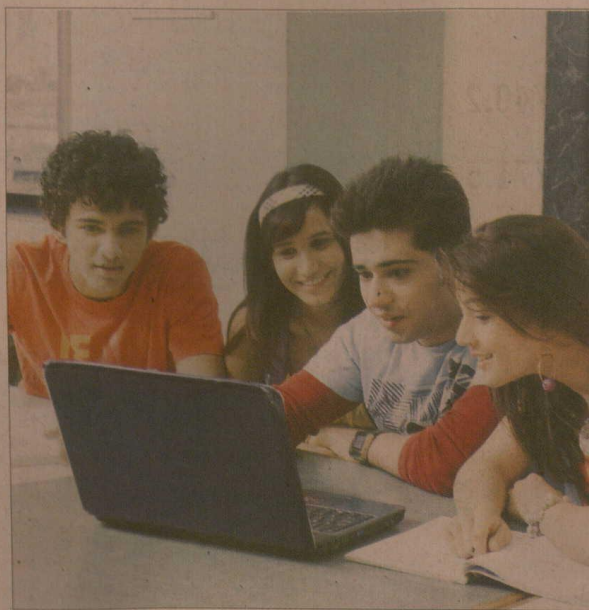
Opportunities are scarce, so it's important to reap them on time. Indeed, the World Bank (2013) had predicted that India is going to have its demographic dividend till 2040—a once-in-a-lifetime opportunity for any nation. But do we have the required skill-sets to combat the rising societal needs for providing access to information, primary health care, education to all, efficiently reduce carbon footprint, provide safe drinking water, mitigate natural and man-made disasters, and many alike hindrances to quality life? The government is focusing on setting up new institutes of higher learning (mostly technical) wherein it expects to train the human resource with the required skill-sets that could cater to this huge societal demand. But how prepared are we and can the government alone cater to this call of the hour?

As pointed out in the World Economic Forum (2010), the issue of skills gap is leading the world towards a global demographic shock, and in near future human capital is expected to surpass financial capital as the critical economic engine of growth. India is exception.

## Creating new institutions?

India is encouraging skill-based education at all levels, especially in the higher education sector. As per MHRD (2013), the enrolment in engineering and technology is around 19% of the total students opting for higher education and is growing. It needs to reap the benefit from a knowledge-based economy with employability characterised by demand and supply of highly skilled labour force. In India's case, skill nurtured in an interdisciplinary environment can respond to society's demands in a much efficient manner compared to a simple technician.

Many institutes of higher learning are being created by the government—tagged as institutes of national importance. They are of great importance to nation building. However, UNESCO (2012), mentioned that although India graduates 4.5 lakh engineers each year, only 25% are able to acquire the required skills to get employed. Employers' experience that most of these graduates do have a 'degree' but their communication skills, knowledge about the society and its dynamics are poor and these factors can be counter-productive in today's era of cut-throat competition. Of the 50 crore workforce in India, organised sector employment is around 9% and, of this, only about 5% have marketable skills. The flip-side of the story is that majority of new employments are going to be in the unorganised sector where, as per CII, only



The government is developing PPP models in higher and technical education. Such sharing (both cost and expertise) is expected to maximise equitable access to higher learning. The socio-economically disadvantaged groups can benefit from such schemes and the problem of skill shortage in terms of faculty and infrastructure can be minimised. Private players can also act as osmosizers in the domain of higher and technical education

2% have received formal vocational training and another 8% have received non-formal vocational training. So, what is really wrong with the approach?

Sources suggest that the preference pattern for students opting for technical education is much tilted towards private engineering colleges compared to government engineering colleges. There are examples of many such government institutions where seats remained unoccupied. One of the reasons for such skewed preferences is the dearth of infrastructure and limited placement opportunities in the 'new' or 'not so old/reputed' government engineering colleges. So, simply pumping money to create new institutions of higher learning would not really solve the skills gap—rather, it may be counter-productive and end up by producing only few more graduates and postgraduates, not 'skills'.

## A call for 'twin steps'

India has witnessed a steady migration of workforce from the agricultural sector to construction, manufacturing, etc. An estimate by Mehrotra et al (2013) showed that of the 42.1 crore workers in the age group of 15-59, around 30% are illiterate and among this the proportion of illiterate workers is maximum in agriculture and allied activities. Migration of these workers

will be trained in skills catering to the societal demand for a better tomorrow. There are two important factors that need to be cropped-in while estimating the demand for skills. One, even if the government makes it compulsory to impart some dose of vocational education during secondary education and above, the number of working population to be trained would be around 23 crore by 2022, as per conservative estimates. Two, first generation learners (as of date) who are engaged in some 'work' (work is defined as activities contributing to economic growth) need to get their skills replenished and acquire the then used skills to remain equally productive in the workforce. Naturally, to cater to this huge demand for trained professionals, India has no other alternative other than rely on the strategy of 'twin steps'—create new institutions of higher learning specific to the creation of skilled workers and simultaneously enable the already skilled to advice the unskilled for efficient production.

## Operating strategies

However, from where will the money and required expertise come? Successful governments have been instrumental to provide budgetary support for setting up institutes of higher learning catering to skills-based education. But the initiative has been supplemented by the private sector as well—at least to move towards a solution where both the public sector and the private sector would join hands and share the responsibility. However, with growing deficits and expenditure management policies, it is seen that, over time, the infrastructural growth of these institutions has suffered, and thus the quality of education. Further, in Budget FY16, the total allocation of the Department of School Education & Literacy and the Department of Higher Education together has been reduced by around 16.5% from FY15 (BE), which is sure to have its own scars on the outcomes in the days ahead. Therefore, for striking a balance between the rise in needs and expenditure management, though very slow, options are opening up for cost recovery in the public higher learning institutes as well. The government is developing PPP models in higher and technical education. Such sharing (both cost and expertise) is expected to maximise equitable access to higher learning. The socio-economically disadvantaged groups can also benefit from such schemes. Through PPP models the problem of skill shortage in terms of faculty and infrastructure can be minimised. Private players can also act as osmosizers in the domain of higher and technical education.

It is time for the government to re-think on the existing strategies and take a call. As prudent private players, we are always ready to cooperate for the growth and development of the nation.

*The author, a former economist at the National Institute of Public Finance and Policy, Delhi, is assistant professor, Dept of Economics, BITS Pilani (KK Birla Goa Campus). Views are personal*

## The linkage effect

Assuming that, by 2022, India's GDP will grow at a CAGR of about 8%, employment in the economy will rise by around 50 crore. Thus, it is equally important that this army of working popu-



## Times of India ND 30/03/2015 P-15

# Robo-astronaut sets two out-of-the-world records

**Washington:** A Japanese robot that acts as a friendly companion to astronauts onboard the International Space Station has set two Guinness World Records.

Kirobo, a small android able to have conversations in Japanese, has set records of being the first companion robot in space and highest altitude for a robot to have a conversation following an 18-month stay onboard the ISS.

Measuring 34 cm tall and weighing 1 kg, Kirobo

can recognize faces, and has a sophisticated voice recognition system.

The robot astronaut was developed as part of a five-year, joint research project carried out in collaboration between advertising agency Dentsu, the University of Tokyo's Research Center for Advanced Science and Technology, Robo Garage, Toyota Motor Corporation, and JAXA — the Japan Aerospace Exploration Agency.

One of the project's main

aims was to test if a robot could give psychological support to a human subject experiencing severe loneliness — such as an astronaut during an extended stay in space. Kirobo left Earth in August 2013 to serve as a companion robot to astronaut Koichi Wakata.

On February 10 this year, it came safely back to Earth aboard SpaceX's CRS-5 Dragon spacecraft which splashed down off California, arriving back in Japan on March 12. **PTI**

## Times of India ND 30/03/2015 P-15

# Physics scores with pupils, thanks to Gravity, Interstellar, LHC

Karen Attwood

Blockbuster films such as 'Gravity', 'Interstellar' and 'The Theory of Everything', combined with a huge interest in machines such as the Large Hadron Collider at Cern and the Mars Rover, are creating a buzz around physics and leading to higher numbers of students applying to study the subject.

The Institute of Physics said the number of UK students applying to study for a degree in physics had risen by 40% over four years, while numbers wishing to take physics at A-level had grown by 3% from 2012 to 2013.

Oxford University says it has seen applications for its physics undergraduate degree rise by a third over five years. And a new facility, the Oxford Centre for Astrophysical Surveys, opened last year with the help of a £1.5m grant from the Hintze Family Charitable Foundation, with the aim of funding a team of Oxford research fellows and graduate students hoping to answer the fundamental questions about the universe.

Undergraduate applications for physics and astronomy at Manchester rose by 37% between 2008 and 2014, while its post-graduate applications increased by 40% over the same period.

The university said it is extending its physics building to cope with the extra students.

Johanna Kieniewicz, from the Institute of Physics, said, "The cultural profile of physics has grown enormously in recent years, as can be seen through the popularity of films such as Interstellar and The Theory of Everything. The zeitgeist has been growing for a few years now, thanks to the mass-media impact of the LHC and the introduction of an array of physics-based TV programmes targeted at the general public, and not just viewers with a specialist interest."

Improvements in classroom



**NOT JUST ART:** A scene from the 2013 space thriller 'Gravity'

physics "underpin the increases in A-level entries and university applications", she said.

Laura Prichard, the first recipient of a Hintze Foundation grant and an astrophysics PhD student at Oxford, said although movies may "push the realm of reality", they are inspiring children she speaks to at outreach events, where she aims to encourage more pupils to take up the subject. "The easiest way to convey how cool a subject is, is to make it into a huge blockbuster," she said. "There is a buzz about physics and it's very exciting to be in this field when interest from the general public is increasing." **THE INDEPENDENT**

## Ganga basin under threat: IISc

<http://www.bangaloremirror.com/bangalore/others/Ganga-basin-under-threat-IISc/articleshow/46738436.cms>

*Availability of the river water may fall substantially in North India due to climate change, civil department's study reveals*  
Climate change will have a considerable impact on the dynamics of the river Ganga, an IISc study has predicted. This will directly affect a major portion of northern India, which depends on the river for meeting domestic, agricultural, and industrial water needs.

The study carried out by the researchers from the Department of Civil Engineering, Indian Institute of Science, Bengaluru, focused on how the streamflow in the Ganga basin would change under changing land use pattern and climate. Though both the factors affect streamflow, the effect of climate change was much more pronounced than that of land use change. Streamflow is a measure of how much water flows in a river or a stream, and at what rate. "Looking into the future, with respect to water management efforts, if we conclude that climate change has more implications, then our responses will be much different," explains Pradeep Mujumdar, the IISc civil engineering professor who led the study.

It's hard to imagine an India without Ganga, its longest river. The 2,500 km river, flowing through the states of Uttar Pradesh, Bihar, and West Bengal, touches 44 per cent of India's population, before flowing through Bangladesh, and emptying into the Bay of Bengal. Originating in the mighty Himalaya, the Ganga has a very fertile and large basin that accounts for 30 per cent of India's cultivable land. In addition to its social and economic relevance, it also has strong cultural presence among Indians. However, there is a dearth of efforts to understand how this massive river is responding to changes along its basin.

The researchers studied about one-eighth of the total catchment area, called the Upper Ganga Basin (which is as large as the country of Iceland). They divided the study region, that also contained the origin of the river, into three different parts depending on the topography, altitude and land use. This region was a natural choice for the study because any changes observed in the streamflow here are likely to be reflected in the entire river.

They studied changes in land use through satellite imagery. Their analysis revealed that, between 1973 and 2011, area under cultivation increased by more than 20 per cent. During the same period, the urban land had also expanded significantly, though it occupied a small area in the entire basin. They also noted an appreciable drop in the area under forest cover. Such changes are not at all surprising because, between 2001 and 2011, the population of the region has skyrocketed by 120 per cent. Their predictions of the future climate indicated changes in rainfall pattern and rise in average minimum and maximum temperatures.

The researchers ran a well-calibrated hydrological model to predict how streamflow would change under changing land use and climate. They found that, although the streamflow was sensitive to changes in land use (crop land, urban area, forest cover) it was mostly affected by climatic changes. Rainfall was found to have a strong influence on the streamflow. The changing climatic conditions were predicted to cause severe changes in water availability in the Upper Ganga Basin. The researchers also found the combined effects of land use and climate change to be more pronounced than their individual effects. "Climatic changes introduce a large uncertainty in future water situations. Because of this, we need to bring more resilience in our water management system - use more conservative methods. We need to base these methods on a worst-case scenario and prepare ourselves," says Mujumdar.

This study has paved a smoother path for future research as their approach can be applied to any river basin in the country. It also stresses on the effects of climatic conditions and our efforts to manage the same.

## Mandi IIT develops software to convert text into speech

<http://www.tribuneindia.com/news/himachal/mandi-iit-develops-software-to-convert-text-into-speech/60141.html>

Will be useful for visually challenged, in public announcement systems



Student Pulkit Sharma explains the Text-To-Speech project to Chief Minister Virbhadra Singh and Director Timothy A Gonsalves on the IIT campus at Kamand near Mandi during the second convocation held on March 15. A file photo

**Dushyant Singh Pundir**  
**Tribune News Service**  
**Mandi, March 29**

The Indian Institute of Technology (IIT) here has developed a software to convert written text into speech. Pulkit Sharma, a PhD scholar, said the software, Text-To-Speech (TTS) systems, would be a revolutionary step for visually challenged people.

It would enable them to use computers efficiently, as it would pronounce every word they would write, he said. “The system has numerous other applications. It can be used as a desktop assistant and can read out SMSs in mobile phone,” he said, adding that the system could also be used in public announcement systems, to read directions and destination in a GPS device.

Pulkit, who hails from Hamirpur district, has been working on the project under the guidance of Dr Anil Kumar Sao, Chairperson, School of Computing and Electrical Engineering, IIT-Mandi.

Others helping him out in the project include Sarvesh, Nivedita, Priyanka and Manav.

Dr Sao said the work on TTS systems was being carried out by a consortium of 12 institutes headed by Prof Hema A Murthy of IIT-Madras.

The other institutes of the group include CDAC-Mumbai, CDAC-Thiruvananthapuram, CDAC-Kolkata, IIT-Hyderabad, IISC-Bangalore, IIT-Guwahati, SSNCE-Chennai, PESIT-Bangalore, DA-IICT-Gujarat, IIT-Kharagpur and IIT-Mandi.

Dr Sao said each institute would build a TTS system for one Indian language using a common framework and the IIT-Mandi was working on developing a TTS system for Rajasthani language.

“Although the synthesised voice using the current TTS systems is quite intelligible, but research work is being carried out to make the voices more natural and human-like,” he said.

Dr Sao said it was a unique project where researchers from 12 different Indian institutes had come together to develop TTS systems for 12 different Indian languages.

It would largely help the visually challenged people, he said, adding: “If a visually challenged person wants to read news, the software will easily read it out if it is installed in his device.”

He said the project, which is sponsored by the Department of Electronics and Information Technology, was given to the institute in 2012 and the Centre for Development of Advanced Computing (C-DAC)-Pune was helping them out in evaluating the system.

Pulkit said: “The TTS systems are classified into two categories: Unit Selection Based (USS) and Statistical Parametric Based (SPS). Voice synthesised using USS systems is more natural, but such systems require more memory to be stored thus cannot be used in devices with less memory (e.g. mobile phones).”

IIT-Mandi was working on to reduce the memory required to store USS systems thus enabling the device with low memory to use them, he said.

The TTS system would be handed over to the C-DAC, Pune, by the end of the year and the centre would make it available in the market at a very nominal price, he added.

## **New education policy to be in place by coming academic session: HRD minister**

Hindustan Times (Chandigarh)

### **In Jalandhar for KMV convocation, Smriti Irani impressed by determination of state's women to get education**

I HAVE AWARDED A DEGREE TO A WOMAN WHO RETURNED TO COLLEGE AFTER HAVING TWO CHILDREN. THIS IS A SHINING EXAMPLE OF A NEW INDIA. Smriti Irani, union HRD minister

JALANDHAR: Union minister for human resource development Smriti Irani on Sunday said the central government was planning to amend the National Education Policy and a new policy would be implemented by the state of the next academic session.

In town to award degrees at the convocation of Kanya Maha Vidyalaya (KMV), the minister said state education ministers had been invited to give their suggestions by November, so that a uniform policy could be put in place.

“The policy is likely to give a new direction to our education system and take it to new heights. The HRD ministry has already invited suggestions from the public,” said Irani, claiming that she was not aware of any opposition to the formulation of a new policy.

The union minister said that under Under SWAYAM (Study Webs of Active -Learning for Young Aspiring Minds) Programme Professors of centrally-funded institutions like IITs, IIMs, and central universities will offer online courses.

“Under this programme, we have prepared a blue-print for starting more than 80 diploma and other courses that would be made available free. In case, the learner requires a Verified Certificate, a small fee will be applicable. Such a revolutionary measure is being taken for the first time in the history of education system of India,” said Irani.

She strongly refuted reports of differences with Bharatiya Janata Party (BJP) president Amit Shah as being responsible for her not being able to find a place in the party’s executive council.

“I already have so many responsibilities and enjoying my work,” she claimed.

She called upon girl students to take encouragement from and be motivated by Tessay Thomas, the missile woman of India, who is the project director for AgniIV Missile in the DRDO.

Meanwhile, KMV Principal, Mrs Atima Sharma presented the minister a draft of ` 4 lakh on the behalf of the college for the Prime Minister’s Relief Fund.