

Newspaper Clips January 28, 2015

Uncertainty continues over IIT-D Director's resignation



Shevgaonkar continues to attend work as the government is yet to take a decision on either accepting or rejecting it.

<http://www.thehindu.com/news/cities/Delhi/uncertainty-continues-over-iitd-directors-resignation/article6829218.ece>

More than a month after he submitted his resignation, Indian Institute of Technology (IIT) Delhi's director Raghunath K. Shevgaonkar, continues to attend work as the government is yet to take a decision on either accepting or rejecting it.

“In his resignation, he had asked to be relieved on January 1. But he has not requested for any notice period and as things stand, he will continue as director until the President decides or his term expires, whichever is earlier,” an HRD official said. After his term expires in 2016 or he is relieved, he is expected to be repatriated to IITB. Another senior official clarified that no action is being contemplated on the Mauritius issue as the director has not been found guilty of any impropriety so far.

IITD Chairman VP Bhatkar told this paper that he had tried to convince Mr. Shevgaonkar to withdraw his resignation. “We requested him to reconsider when he put in his papers. He didn't say anything. He just smiled,” he told *The Hindu*.

On December 22, Mr. Shevgaonkar had submitted his resignation to the IIT's Board of Governors, which was forwarded through the Human Resource Development Ministry to President Pranab Mukherjee who holds the post of Visitor to IITD. Mr. Mukherjee has neither accepted nor rejected his resignation yet, official sources said.

The Director resigned a month after the HRD Ministry asked him to explain his role in the International Institute of Technology Research Academy (IITRA) in Mauritius, which was set up with Indian collaboration in 2013. When he resigned, the Ministry had clarified that neither did it pressurise him to pay back wages to BJP leader and former IITD teacher Subramanian Swamy nor did it ask him to allow a private cricket academy to be started on campus.

Mr. Shevgaonkar, an electrical engineering scientist on lien from IIT Bombay, has been attending work ever since he returned from leave on January 11. “When we asked him what’s happening, he said that he has put in his papers and now it is up to the government,” a senior IITD professor told this paper. The director has refused to speak to the press.

Currently, IITs in Bhubaneswar and Patna have acting heads and the director of IIT Ropar is on extension as the ministry is yet to appoint new directors for these institutes.

Mint ND 28/01/2015 p-15

GROWING FOCUS

IIT-B helps hone entrepreneurial skills, foster technology innovation

IIT-B's Society for Innovation and Entrepreneurship has incubated 55 firms since its inception

BY LESLIE D'MONTE & ASHNA AMBRE
MUMBAI

The Indian Institutes of Technology (IITs) are known for producing the best engineers and scientists. What is less well known is that they also breed world-class entrepreneurs.

Over the past five decades, IIT Bombay (IIT-B) alone has seen many of its alumni start and successfully run companies. They include Nandan Nilekani, co-founder of India's second largest information technology services firm Infosys Ltd.

To foster entrepreneurship, IIT-B has five interdisciplinary centres of development, a Society for Innovation and Entrepreneurship (SINE) that has incubated some 55 companies since its inception a decade ago, and even an under-construction research park modelled on the one at IIT Madras (IIT-M).

While all the premier technology institutes have a growing focus on entrepreneurship, IIT-B went a step ahead and launched the Desai Sethi Centre for Entrepreneurship (DSCE) in July to foster an entrepreneurial spirit and technology innovation.

Bharat Desai, founder of Syntel Inc. and also an IIT-B alumnus, helped build the centre by donating \$1 million in March.

Anand Kusre, who heads DSCE and is also a professor at the Shailesh J Mehta School of Management in the same institution, hopes these initiatives will enable IIT-B to "become a hub of entrepreneurship, similar to the role played by the Stanford University in the Silicon Valley."

"Most students have an idea, but don't have a business model in place. Also, they have no idea about operations, marketing, funding, scaling up—issues that play a key role in building a business," said Kusre, explaining the need for a dedicated entrepreneurship centre.

DSCE offers a three-year course, which allows students to get a minor in entrepreneurship along with their engineering degree, and a basic programme on entrepreneurship for six months. About 250 engineering students have already enrolled for the classes, most of them with the intention to start their own companies.

Shaping ideas

Saurabh Chatterjee, a second-year mechanical engineering student at IIT-B, who is part of the entrepreneurship cell at the institute, has also enrolled for a three-year entrepreneurship course at DSCE.

"At the moment, I have a few ideas and this course shall help me give concrete shape to the ideas. I am looking forward to the next semesters, which shall teach me about funding, building a prototype and other business aspects," he said.

The course also gives students an opportunity to do an internship with a private equity (PE) investor or venture capitalist (VC) in the second year, create a prototype and write a business plan, according to Kusre.

Moreover, founders of big and small companies, including those like Desai and Vishal



Leadership role: While all IITs have a focus on entrepreneurship, IIT Bombay is the only one with a dedicated centre.

TOP UNIVERSITIES FOR VC-BACKED ENTREPRENEURS

UNIVERSITY	ENTREPRENEURS	COMPANIES	CAPITAL RAISED (\$ billion)
Stanford	378	309	3.52
UC Berkeley	336	284	2.41
MIT	300	250	2.42
IITs	264	205	3.15
Harvard	253	229	3.24

1 January 2009 to 21 August 2014

Source: PitchBook Venture Capital Monthly (August/September 2014 Edition)

IIT-B ALUMNI WHO MADE A DIFFERENCE

- **Bharat Desai:** Founder, Syntel
- **Nandan Nilekani:** Co-founder, Infosys
- **Pranav Mistry:** VP, research, Samsung Electronics; developer of wearable gestural interface 'sixth sense'
- **Milind Borate:** Co-founder, Druva, a software solutions company
- **Udaya Kumar:** Assistant professor, IIT Guwahati; designer of the Indian rupee sign
- **Shallesh Gandhi:** Former information commissioner, Central Information Commission
- **Vikram Chopra:** Co-founder, FabFurnish.com
- **Bhavish Aggarwal and Ankit Bhatt:** Founders, Ola

Gondal, founder and chief executive (CEO) of GOQii Inc., come as guest lecturers.

Those like Kamal K. Kumawat, a fourth-year electrical engineering student, who has less time on hand before graduation, enrol for short-term courses.

Kumawat has opted for a six-month course at the centre. "I founded an e-commerce deals company (dealwithus.co.in) in January and this course has helped me validate the idea, put in place a better business model and given me an understanding of customer needs, marketing, and other aspects of business," said Kumawat, who hopes that by the end of the course, he would have learnt to address concerns like fund-raising, hiring talent and marketing.

DSCE, according to Kusre, is complementary to all the other entrepreneurship initiatives of IIT-B. The institute's five integrated development centres have students developing business ideas across various departments which include nanotechnology, biotechnology, mechanical engineering and environmental engineering.

IIT-B's incubation centre, SINE, operates as an independent body with a staff of 10 people and has been funded by the government's department of science and technology.

Knowledge to wealth

"Students at the institute learn technology even if it is across various sectors. We want to encourage students to start only technology ventures which don't include creating mobile applications and e-commerce sites.

Knowledge must be converted to wealth," said Milind D. Atrey, professor in-charge of SINE.

The incubator, he added, receives 25 applications every month, which are screened by a panel of entrepreneurs.

When a company is selected to be incubated at SINE, it is granted a soft loan of ₹20 lakh and is provided office space for a team of 8-10 at a monthly rental of ₹10,000. The incubation duration is typically three years, after which the company usually scales up and begins customer traction and revenue flow.

SINE has a 3-4% equity stake in the company till the latter raises its institutional round of funding.

PHOTOGRAPH BY S. KUMAR/MINT; GRAPHIC BY SUBBATA JANA/MINT

"We make an exit in the company as soon as VC and PE investors invest in the company," said Atrey.

SINE recently appointed Ajeet Khurana as its CEO. Khurana has been a Mumbai Angels investing member and an active personal (angel) investor.

SINE is currently incubating 16 companies and plans to expand its facility and provide support to incubate around 50 firms at any given time.

IIT-B will soon also have a research park that is being funded from a grant it received from the ministry of human resource development for the purpose. "The research park is estimated to be spread over 200,000 sq. ft area and is looking to house 200 research and development (R&D) units of private companies and corporates in the campus," said Atrey.

Supporting start-ups

The building at the research park is estimated to have 20-25 floors, where companies will set up their R&D units. These companies, whose founders need not necessarily be from an IIT, will also get an opportunity to interact with the IIT faculty. The research park will also provide space for incubators to support start-ups, according to Atrey.

IIT-B also has a Tata Centre for Technology and Design that was established in March and focuses on developing technologies, products and systems in energy, water, healthcare, food,

agriculture, education to serve low-income sections.

IIT-B also has an entrepreneurship cell—a student body that organizes, coordinates and initiates entrepreneurship-related activities on the campus. Its initiatives include Eureka—a business plan competition that is open to students and working professionals from all over the world.

A Eureka semi-finalist (2013), Bookpad Inc., for instance, became the first Indian tech start-up to be bought by Yahoo Inc.

IIT-B also has a deferred placement policy, whereby students can apply for job offers made by companies that come to the campus after three years in case the start-up of the student is working on falls.

Entrepreneurship in the DNA

IITs combined ranked fourth, ahead even of Harvard University, in a listing of the top 50 universities that have produced VC-backed founders, according to a September 2014 study compiled by PitchBook Data—a US-based PE and venture capital research firm.

The study showed that over a five-year period, from January 2009 to August 2014, 264 IIT founders launched 205 companies, and raised \$3.15 billion. Stanford University with 378 founders topped the list, followed by the University of Berkeley (336) and Massachusetts Institute of Technology, or MIT (300). Harvard had 253 entrepreneurs in the same period.

While all IITs do have a focus on entrepreneurship, IIT-B is the only one with a dedicated centre.

"At IIT Delhi, we have an entrepreneurship development cell (eDC) that carries out various initiatives to foster entrepreneurship. These include, Campus CEO, e-summit and social initiatives. We have a number of business plan competitions organized as well. However, as part of a curriculum, we have not offered any courses in entrepreneurship," said Ravish Ratan, president of eDC Delhi.

At IIT-M, the Cell for Technology Innovation, Development and Entrepreneurship Support (C-TIDES) organizes talks, workshops, entrepreneurship week and other events.

"There are a number of students who are working on their start-up ideas and we provide them resources in terms of networks, funding and mentorship," said Swapnil Bhirud, core member (events) at C-TIDES. He added that start-ups are incubated at IIT-M Incubation Cell.

About 60 companies have been incubated at IIT-M, with a majority of them situated at the IIT Madras Research Park. However, the institute has no dedicated courses on entrepreneurship.

According to Sharad Sharma, co-founder of iSpirt (Indian Software Product Industry Round Table), a software product lobby, IIT-B has "a unique sense of functioning when it comes to entrepreneurship, primarily because it is perhaps the first educational institute in India where professors have been successful entrepreneurs, hence leading to a strong trickle-down effect for the students". He added, "Today IIT-B is at an inflection point from where it is going to take off with full force when it comes to entrepreneurship."

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FT GLOBAL MBA RANKINGS

IIM-A, ISB improve position, IIM-B slips

KALPANA PATHAK
Mumbai, 27 January

The Indian Institute of Management, Ahmedabad (IIM-A), and Indian School of Business, Hyderabad (ISB), have improved their performance in the *Financial Times* Global MBA Rankings, 2015.

IIM-A has secured 26th position among 100 B-schools across the world. ISB is 33rd. For IIM-A, this is an improvement from 30th in 2014. ISB has climbed three places, from 36th spot last year.

IIM Bangalore which debuted on the rankings last year, securing 68th position, has slipped to 82nd this year.

Harvard Business School retains the top spot, third year in a row, with London Business School bagging the second position and the Wharton School of the University of Pennsylvania bagging the third. Stanford Graduate School of Business, which stood second last year, slipped to fourth position, sharing the space with Insead.

China's Fudan University School of Management and the UK's Lancaster University Management School recorded the strongest progress, climbing 28 and 27 places, respectively, to 55th and 50th. China has six institutions in the ranking.

On weighted salary, while

B-SCHOOL HALL OF FAME

Institutes	2013	2014	2015
Harvard Business School	1	1	1
London Business School	4	3	2
University of Pennsylvania: Wharton	3	4	3
Stanford Graduate School of Business	2	2	4
IIM-A	26	30	26
ISB	34	36	33
IIM-B	—	68	82

Source: FT Global MBA ranking 2015

IIM-A concludes summer placement

The Indian Institute of Management—Ahmedabad (IIM-A) has completed the summer placement process for its post graduate programme in management (PGP) and PGP in agri-business management (PGP-ABM) of the batch of 2014-16. In its summer placement report for 2014-15, prepared in line with the Indian Placement Reporting Standards, IIM-A said as many as 110 companies participated in the summer placement process in 2014 for the PGP batch.

Roles in consulting were offered by global strategy consulting and niche consulting firms, including Accenture Strategy, Alvarez & Marsal, A T Kearney, Bain & Company and The Boston Consulting Group, among others. The Boston Consulting Group with 16 offers emerged the largest recruiter. The total batch strength is 399 students, including five students who have come from international universities to pursue education at IIM-A. For its PGP-ABM programme, 46 students were placed from a batch size of 49. **BS REPORTER**

an IIM-A student is paid \$167,676 (88 per cent rise on 2014), an ISB student is paid \$126,544 (131 per cent rise). For an IIM-B student, the weighted salary was \$134,538,

an increase of 75 per cent on last year.

The ranking is based on surveys of the business schools and their graduates of 2011.

Visakhapatnam, Ajmer and Allahabad to be developed as smart cities

US to support and collaborate with one IIT

VJAJITA SINGH & RUHI TEWARI

NEW DELHI, JANUARY 27

INDIA and the US on Tuesday decided to set up three task forces to jointly develop Visakhapatnam, Ajmer and Allahabad as smart cities.

While Ajmer was chosen for its large Muslim population, Allahabad was picked for being a Hindu pilgrimage centre. Visakhapatnam was chosen as the state government was unable to reconstruct it after last year's Hud Hud cyclone, said officials.

After MoUs were signed between the US and the governments of Rajasthan, UP and Andhra Pradesh on Sunday, the two countries on Tuesday set up task forces for each city. They will submit reports in three months. Officials said the initiative was fast-tracked although the Centre's plan to develop 100 smart cities is yet to be finalised.

On Tuesday, issues relating to development of these cities were discussed at a 45-minute meeting between Naidu and visiting US Secretary of Commerce Penny Pritzker. Each

task force team will consist of three representatives each from central and state governments and the US Trade and Development Agency. Each task force will discuss city-specific features, project requirements and appropriate revenue models for enabling flow of investments before suggesting action plan to develop them as smart cities.

Referring to her meetings with Andhra Pradesh CM N Chandrababu Naidu and Rajasthan's Vasundhara Raje, Pritzker said she found them to be "go-getters" and was confident of making a success of the smart city plan.

Meanwhile, the two countries signed a Joint Declaration of Intent for collaborating in providing support to the Indian Institutes of Technology on Friday, furthering bilateral ties in higher education.

The US Agency for International Development (USAID) will support "at least one IIT in India with the broad aim of intensifying collaborations in Research and Development and entrepreneurship". The first IIT likely to be picked the collaboration is the relatively new IIT-Gandhinagar.

'UGC imposing the 3-yr system on varsities'

Gauri Kohli

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Even when Delhi and Mumbai universities have the semester system in place, academicians in other universities feel there are challenges in the UGC recommendations on the Choice-Based Credit System (CBCS).

Mumbai University started the CBCS system three years ago and the system is in place across the university except the law faculty. University officials believe that the UGC's move to bring in the credit system is aimed at benefiting the students, bringing the system at par with international education standards, and boosting the mobility of students within the university and outside.

"However, there are challenges such as drafting the entire new syllabus, defining the credit system, motivating and training staff for smoother implementation, encouraging students to stay involved throughout the term and improving attendance, and continuous evaluation. Our academic board has to play an important role to overcome these challenges and help in preparing the new syllabus in a definite time," says MA Khan, registrar, Mumbai University.

Down south, Bangalore University has introduced a similar scheme at the undergraduate and postgraduate levels, on the lines of the UGC notification.

Professor B Thimmegowda, vice-chancellor of the university says the scheme they have introduced enables undergraduate students to earn up to 104 credits with 100 credits being the minimum requirement. There are also courses based on co-curricular, cultural activities, sports subjects etc. Papers on skill development allow students to earn credits. "Though we are on track when it comes to implementing the UGC notification, I feel the UGC could have allowed an exit option (to students) after three years with the fourth year being similar to the first year of the master's programme. Universities should have been given the freedom to have their own degree structure. The UGC is virtually imposing a three-year degree system on us. Other challenges include transfer of the credits across universities, calculating grade point averages, modifying course content, shortage of faculty etc. The government is not giving us the permission to fill up vacancies and the finance department is not giving us the clearance to hire more teachers. The UGC should have worked this out," he adds. The university had proposed to offer a four-year undergraduate programme with CBCS last year.

Implementing the UGC notification is also likely to pose problems for Calcutta University (CU) which has 170 affiliated colleges, some in remote locations.



■ Both Mumbai and Bangalore universities are gearing up for the new choice-based credit system.

THINKSTOCK

Russia may create orbital station with India, China

Moscow: Russia is exploring the possibility of a joint manned orbital station with India and China as part of a common strategy to create technological alliances and may take up the matter with the two Asian space giants in July. "Moscow could propose to China and India to create a joint manned orbital station at the summit of the BRICS emerging economies in Russia's Ufa in

July," a document drafted by the expert council at Russia's military and industrial commission said.

The experts recommend "working out the possibilities of an international manned project with BRICS (Brazil, Russia, India, China, and South Africa) countries as part of a common strategy of creating technological alliances", 'Itar Tass reported. PTI

Asian Age ND 28/01/2015 P-11

Invisibility cloaks may soon be reality

Washington, Jan. 27: New metamaterials may take engineers one step closer to building invisibility cloaks or even shields that can conceal military aeroplanes, scientists say.

Metamaterials are artificial materials engineered to bend electromagnetic, acoustic and other types of waves in ways not possible in nature.

Hao Xin, a professor of electrical and computer engineering at the

University of Arizona, has made a discovery with these synthetic materials that may pave the way for microscopes with super-lenses that see molecular-level details, or shields that conceal military aeroplanes and even people.

In the UA's Millimetre Wave Circuits and Antennas Laboratory, Xin uses a 3-D printer to make metamaterials from metals, plastics and other sub-

stances.

Resembling porous plastic bowling balls and tiny copper wire circuit boards, these objects are configured in precise geometrical patterns to bend waves of energy in unnatural ways.

In particular, they exhibit a property called negative refraction, meaning they can bend a wave backwards.

Through a prism with negative refraction, a

straw leaning in a glass of water would appear inverted; the piece above the water's surface would appear below the water and leaning in the opposite direction.

In a more futuristic scenario, someone looking at a person wearing a cloak with artificially designed refraction properties would see part or none of the person, depending on the cloak's refractive index distribution and

whether the light bouncing off it reached the viewer's eye, researchers said.

"One of the biggest problems with metamaterials is that they produce energy loss," Xin said.

"The waves decay as they pass through the artificial material. We have designed a metamaterial that retains negative refraction but does not diminish energy," Xin added. —PTI

Planet with rings 200 times bigger than Saturn found

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London: Scientists have discovered a planet with a ring around it that is 200 times larger than that of Saturn.

Astronomers at the Leiden Observatory, The Netherlands, and the University of Rochester discovered the ring system 420 light years away. The system was spotted circling brown dwarf J1407b — a planet orbiting star J1407 — because of the unusual, unsteady light observed during a 52 day eclipse.

The ring system likely contains roughly an Earth's worth of mass in light-obscuring dust particles.

The light curve tells astronomers that the diameter of the ring system is nearly 120 million km, more than 200 times as large as the rings of Saturn. Astronomers estimate that the ringed companion J1407b has an orbital period roughly a decade in length. The mass of J1407b has been difficult to constrain, but it is most likely in the range of about 10 to 40 Jupiter masses. The new analysis led by Leiden's Matthew Kenworthy shows that the ring system consists of over 30 rings, each of them tens of millions of kilometers in diameter.

For the full report, log on to www.timesofindia.com



CHEAP TRAVEL: An astronaut prepares to enter Boeing's CST-100 spacecraft for a fit-check evaluation. The new craft being developed by Boeing and SpaceX will drastically cut the cost of flying astronauts to ISS. By 2017, it will cost Nasa \$58 million per seat. Currently, Russian space agency charges Nasa over \$70 million per seat

An asteroid that has its own moon

The first radar images of a huge asteroid that safely flew past Earth show that the space rock has its own small moon, Nasa scientists say. The asteroid 2004 BL86 made its closest approach on January 26 at a distance of about 1.2 million km, or three times the distance from Earth to the Moon. Scientists working with Nasa's 70-metre Deep Space Network antenna at Goldstone, California have released 20 images of the asteroid. The images show the primary body is approximately 325 metres across and has a small moon nearly 70 metres across. P71

'Education not just about learning'

SHALINI SAKSENA speaks with Prof Harry Brighouse on what is the philosophy of education and why is there need to develop independent thinking among students today

■ **What does philosophy of education mean?**

Usually we see education as learning, gathering knowledge. We hardly ever pay attention to the overall development of the child when it comes to education. As parents we send our child to a school that matches with our way of thinking that is within reasonable travel distance and the child can learn so that he can get a job that his parents want to take up. Philosophy of education has a much wider connotation. It means a way of thinking that teaches one values and gives the child the ability to think independently of his surroundings so that he is able to take decisions that are his own and not based on the thought process of the others.

■ **How does one teach a child independence of thought when the environmental influences, in his life, starts even before he goes to school?**

This is where the parents need to be more mature, take the back seat and let the child decide for himself what he wants to do in life. Usually parents will push their child into a particular stream or instill rigid religious views. What they should in fact do is to give the child an environment where he can learn about each and every religion so that he can respect it and become a better person. This is where the schools need to be more than just institutes which impart book knowledge. They are in the best position to teach the student values since a child spends so much time among children of his age from different background and religion. School is the only place where a child will get this kind of environment.

■ **If the parent is mature, what is the need for schools to give that environment to the children?**

Not all parents know when is the right time to back off and let the child decide. Almost every time, it is the parent who decides the child's schooling and what he should do or not do. What kind of friends he should make, whom he should vote for, what subject he should study and finally what profession he should take up. In such a scenario we need schools which will teach a child to have a thinking of his own. To know what is right and wrong and on the basis of that make a calculated decision.

■ **Do you think that private schools are a better option today?**

No, not at all. In fact, privatisation



Prof Harry Brighouse
Political philosopher at the University of Wisconsin, Madison

of education is not the solution to the problems that the education system is facing today. What we need a overhauling of the way we teach in schools and colleges. Education of our children is not the same as other market commodities, because it involves learning and the formation of a child into a human being, and cannot be changed like a mobile phone. We need to think very carefully before handing over education to market forces, because taking it back would be difficult, if not impossible.

■ **What do we do to make the education system better?**

There is no one solution to this. It has to be changes at various levels. The parents, the schools, Government guidance, how teachers teach and teacher training programmes for them, ensuring that the teachers impart knowledge keeping in mind the skill sets that are required by the industry to make them employable.

■ **Why is it that the industry doesn't want to impart skill sets today?**

Today, time is money. Companies want to hire people who can start working with them from day one. They don't want to spend the time, money and energy in teaching a person skills knowing that in a few years he will leave for better prospects. However, the way we teach has yet to change at the pace with which the business houses are adapting themselves and the technology. Hence, there is a gap that needs to be filled and that too fast.

लैंडिंग में अक्वल रोवर प्रोटोटाइप बनाया, टीम को मिला छह करोड़ रुपये का इनाम

गूगल प्रतियोगिता में छार भारतीय

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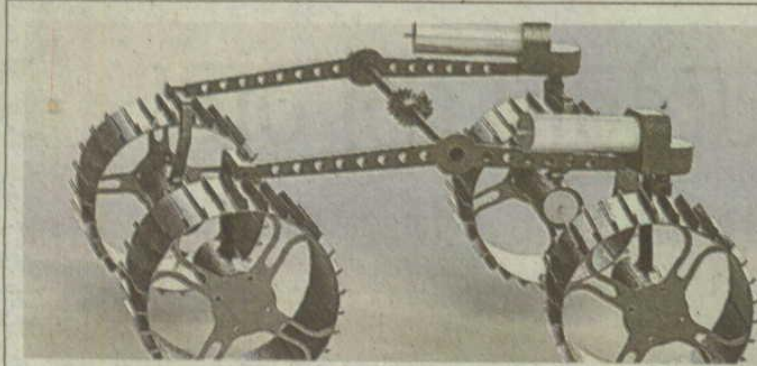
वाशिंगटन | एजेसिया

भारत की इंडस टीम गूगल की ओर से आयोजित लूनर एक्सप्राइज माइलस्टोन अवॉर्ड जीतने में कामयाब हुई है। इंडस को यह पुरस्कार रोवर के बेहतर लैंडिंग के लिए दिया गया है। पुरस्कार के तौर पर टीम को 10 लाख डॉलर (करीब 6.1 करोड़ रुपये) की राशि दी गई है। इंडस टीम प्रतियोगिता में प्रवेश पाने वाली एकमात्र भारतीय टीम थी।

इंडस टीम ने इस प्रतियोगिता को जीतने के लिए कड़ी मेहनत की थी। उसने लैंडर की प्रतिकृति बनाई थी। अल्यूमिनियम से बने इस हल्के ढांचे में चंद्रमा के सतह को छूने के दौरान झटके सहने की क्षमता है। दिसंबर 2014 में करीब दो सप्ताह तक इंडस टीम द्वारा तैयार इस रोवर को कई प्रयोगों से गुजारा गया। रोवर के झटके सहने की क्षमता का आंकलन करने के लिए भारतीय अंतरिक्ष अनुसंधान संगठन (इसरो) में प्रयोग किए गए। रोवर को शेकर टेबल (झटके देने वाली मेज) पर रखा गया।

यहां तक भारत के नेशनल एयरोस्पेस लेबोरेटरी (एनएएल) में रोवर की प्रतिकृति को एक मीटर की ऊंचाई से गिराया गया। ताकि लैंडिंग के समय रोवर पर पड़ने वाले प्रभावों की जांच की जा सके। एक्सप्राइज के जर्जों ने इसके अलावा लैंडर की अन्य उप प्रणालियों की भी जांच की।

राहुल नारायण कर रहे नेतृत्व : इंडस



इंडो-यूएस को तीन पुरस्कार

भारतीय मूल के अमेरिकी नवीन जैन की कंपनी मूनएक्सप्रेस द्वारा तैयार रोवर को लैंडिंग, मोबिलिटी और इमेजिंग की श्रेणी में पुरस्कृत किया गया। मून एक्सप्रेस की एमक्स 1 अंतरिक्ष यान में लगे इंजन में केरोसीन और हाइड्रोजन पैराऑक्साइड का बतौर ईंधन इस्तेमाल कर सकते हैं।

टीम का नेतृत्व राहुल नारायण कर रहे हैं। यह टीम परंपरागत पेशेवर अंतरिक्ष वैज्ञानिकों से अलग है। इसमें वायुसेना के सेवानिवृत्त पायलट, प्रबंधन गुरु, ब्रांड गुरु और एयरोस्पेस इंजीनियर हैं, जिनमें अंतरिक्ष को लेकर जुनून है। टीम के सलाहकार बोर्ड में कई उद्योगपति हैं, जिन्हें भरोसा है कि यह टीम कुछ कर दिखाने का मादा रखती है। वहीं, टीम के सदस्य भारत को अंतरिक्ष विज्ञान और तकनीक के मामले में बुलंदी पर पहुंचाने का इरादा रखते हैं। टीम का प्रबंधन एक्जोम रिसर्च लैब्स प्राइवेट लिमिटेड कंपनी के तहत किया जाता है। इसका मुख्यालय बेंगलुरु है।

2007 में प्रतियोगिता की घोषणा

वर्ष 2007 में इस पुरस्कार की स्थापना की गई थी। एक्सप्राइज फाउंडेशन इस पुरस्कार का आयोजन करता है, जबकि गूगल पुरस्कार को प्रायोजित करता है। पुरस्कार के तहत रोवर के चंद्रमा पर पहुंचने और तस्वीर भेजने पर तीन करोड़ डॉलर का पुरस्कार देने की घोषणा की गई है।

अवॉर्ड पाने वाले

10-10 लाख डॉलर एस्ट्रोबोटिक (अमेरिका), टीम इंडस (भारत), मून एक्सप्रेस (अमेरिका) को लैंडिंग की श्रेणी में

05-05 लाख डॉलर एस्ट्रोबोटिक (अमेरिका), हकूतो (जापान), पार्ट टाइम साइंटिस्ट्स (जर्मनी) को मोबिलिटी के लिए

2.5-2.5 लाख डॉलर एस्ट्रोबोटिक (अमेरिका), मून एक्सप्रेस (अमेरिका), पार्ट टाइम साइंटिस्ट्स (जर्मनी) को इमेजिंग के लिए

नासा के मार्स ऑपर्युनिटी ने मंगल ग्रह पर पूरे किए 11 साल

वाशिंगटन। नासा के मार्स ऑपर्युनिटी रोवर ने मंगल ग्रह पर 11 साल पूरे कर लिए हैं, जो अपने आप में एक बड़ी उपलब्धि है।

अमेरिकी अंतरिक्ष एजेंसी ने कहा कि इन 11 सालों में रोवर ने कई अचंभित करने वाली तस्वीरें भेजीं, जिसमें शिखर पर अमेरिकी झंडे की तस्वीर शामिल हैं।

ऑपर्युनिटी रोवर 25 जनवरी 2004 को मंगल ग्रह के मेरिडियानी प्लेनम क्षेत्र में उतरने के बाद से 41.7 किलोमीटर इलाके में गया, जो पृथ्वी से आकर मंगल की सतह पर उतरे किसी भी अन्य रोवर के सफर से ज्यादा है। रोवर को शुरुआत में तीन महीने के लिए मंगल ग्रह पर भेजा गया था। (एजेसिया)