



## NEWS CLIPS

**November 17-23, 2018**

### Highlights of the Week@IITD

#### **IIT Delhi establishes artificial intelligence chair in name of distinguished alumnus**

<https://www.timesnownews.com/education/article/iit-delhi-establishes-artificial-intelligence-chair-in-name-of-distinguished-alumnus/318054>

"I am very grateful to faculty of IIT Delhi for the valuable education they provided to me and I am glad to contribute to the future academic excellence of IIT Delhi," Soumitra Dutta said.

Indian Institute of Technology (IIT) here signed an MoU with professors Soumitra Dutta and Lourdes Casanova for the constitution of "The Soumitra Dutta Chair in Artificial Intelligence". The two academicians have pledged a support of Rs 1 crore for the purpose.

The Chair has been named after Soumitra Dutta, who is a distinguished alumnus of IIT Delhi, and it is envisaged to promote excellence and leadership in teaching, research and development in the field of artificial intelligence and to facilitate wider and deeper interaction between the industry and IIT Delhi faculty and students.

"I am very grateful to faculty of IIT Delhi for the valuable education they provided to me and I am glad to contribute to the future academic excellence of IIT Delhi," Dutta said.

Lourdes Casanova, a renowned academician working at Cornell University, said, "The chair recognises the important role of artificial intelligence in shaping the future of India and supports the aspirations of IIT Delhi for leadership in this important domain."

Dutta received a B.Tech degree in Electrical Engineering and Computer Science in 1985 from IIT Delhi and earned a Ph.D in Computer Science from the University of California in Berkeley. He is an authority on the impact of new technology on the business world with a special focus on strategies for driving growth and innovation in the digital economy.

Dutta is best known for being the architect of the Global Innovation Index, which now has become the global standard among innovation indices.

## **After eminence tag, IIT-Delhi doubles fee for masters and research courses**

<https://www.hindustantimes.com/delhi-news/after-eminence-tag-iit-delhi-doubles-fee-for-masters-and-research-courses/story-m7GQSSu2vFMGIImFGDeNSsO.html>

The fee structure for the foreign students has not changed as of now. The move comes at a time when the institute is taking measures to raise its funds for shoring up infrastructure and research after earning the Institution of Eminence (IoE) status.



Although the students who took admission in postgraduate and research courses in May had paid as per the existing fee structure for their first semester, they will now have to pay the revised fee for the second semester that will begin in January next year.

The Indian Institute of Technology, Delhi (IIT-D) has almost doubled the fee for its postgraduate and research courses for students enrolled in the academic session 2018-19. V Ramgopal Rao, IIT-D director, also said that they plan to revise the fee for these courses every year.

The move comes at a time when the institute is taking measures to raise its funds for shoring up infrastructure and research after earning the Institution of Eminence (IoE) status.

“We are beginning to increase the fee gradually for the new students who are joining these programmes. There will be no change in the fee structure for those who are already in the system. We have a plan to revise the fee for these courses every year now,” Rao said.

According to a fee circular issued by the institute on November 14, while the fee for the full-time PhD students, enrolled in 2017 or before that, is R10,000 for the January semester, it will now be R19,650 for those who have enrolled for the course in 2018.

Similarly, the fee for M Tech and Masters of Science (research) (MSR) has been increased from R27,100 to R53,650 for students enrolled in 2018. Fee has not been raised for foreign students as of now.

Although the students who took admission in postgraduate and research courses in May had paid as per the existing fee structure for their first semester, they will now have to pay the revised fee for the second semester that will begin in January next year. Students who will be enrolled in PhD and MSR, during the second round of admission to be held in December, will also be charged the hiked fee. The IIT-D holds second round of admission for these two courses only.

Rao said the revision in fee structure is part of the institute's drive to increase its "internal revenue generation".

"IITs are completely dependent on grants from the government. We do not have autonomy to change the fee structure of BTech courses. But in masters and research courses, we have the authority to change some amount of fee. Now, after the IoE tag, we will need funds for infrastructure projects and maintenance. We will have to look for all the revenue generation models for the institution. So, there is minimal revision in the fee structure," he said.

Associate Dean, PG Research, Shantanu Roy said the fee revision for postgraduate and research courses was decided in the senate meeting earlier this year. "The proposal for the revision in fee structure was passed by the IIT-D senate much ahead of the Institution of Eminence tag. We had not made the corrections for very long time," he said, adding that the revision in the fee structure of foreign students has not been approved as of now.

**November 22**

### **Driverless cars a possibility with IIT's simulator**

<https://timesofindia.indiatimes.com/city/chennai/driverless-cars-a-possibility-with-iits-simulator/articleshow/66741973.cms>



India may not yet be ready for a driverless or an autonomous car zipping along other vehicles in its bustling streets, but with a simulator developed by two IIT graduates, operating a car without driver in busy traffic conditions may not be far away.

The simulator called MADRaS (Multi-Agent Driving simulator) has the ability to test algorithms of many driverless or autonomous cars at one go with multiple traffic conditions. Each vehicle could be assigned a customised challenge or a real-world traffic scenario while testing.

AI researchers Abhishek Naik from IIT-M and Anirban Santara from IIT-Kharagpur, who developed the simulator, said MADRaS is a fully controllable multi-agent (multi vehicle) extension of Torcs, a simulator popularly used for autonomous driving research. According to the developers, MADRaS is the only open source multi-agent simulator at present.

Torcs allows to control the behaviour of only one car, while the rest of the vehicles follow pre-specified behaviour. You cannot control multiple cars to drive in a collaborative way which is crucial for a self-driving future. Most open-source autonomous driving simulators like Carla, Deepdrive and AirSim support only single agent behaviour and have preprogrammed behaviours for other agents, said Anirban. “You cannot train an autonomous car to coordinate with other autonomous cars on the road for safe driving in Torcs. MADRaS ameliorates this.”

For instance, Torcs has only one kind of traffic scenario where the opponent racing cars try to overtake the car being tested. Whereas, MADRaS allows to design custom traffic that is not necessarily limited to racing cars. It can look at a car driven rashly, a four-wheeler trying to cut across, another car suddenly slowing down and so on.

While there are several simulators, those that allow multi-agent training are either proprietary or do not allow custom traffic conditions. “That’s when we decided to develop MADRaS. We have open-sourced the simulator, as we believe getting self-driving vehicles on the roads particularly in countries like India could be made faster when researchers in the industry and the academia work together,” said Abhishek.

While India already has autonomous cars being tested and operated in controlled environment including those at IIT-Kharagpur campus, Balaraman Ravindran, head of Robert Bosch Centre for Data Science and Artificial Intelligence at IIT-Madras, said the country has a long way to go before driverless or autonomous cars make it to the roads. “We have the technology that allows autonomous vehicles in slightly more controlled conditions like a hospital, office building, an old age home or an IT Park. But even the hospitals are overcrowded and there is no space to run,” he said.

### **Chennai: IIT students conduct river Cooum research**

<https://www.deccanchronicle.com/nation/current-affairs/221118/iit-students-conduct-river-cooum-research.html>

Based on the recorded data, river swelling, flooding and other such details can be forecast, Balaji said.



Students of IIT Madras measure water flow in the Cooum river.

Students of the Hydrology and Water Resources Department, Indian Institute of Technology, on Wednesday conducted a measurement of water flow in river Cooum in light of recent rains.

Speaking to Deccan Chronicle, Balaji D, one of the students, who led the measurement said that the department conducted it as a commissioned exercise which was done to determine the increase in water levels of the river. “Right now we measured the amount of water flowing in the river, if or if it has not increased because of the recent rains,” he said.

Four teams, each consisting of four people, research associates and MTech students conducted the measurement with the help of associate professor Balaji Narasimhan.

Based on the recorded data, river swelling, flooding and other such details can be forecast, Balaji said. Since the rainfall isn't heavy right now, there isn't much difference, he added.

A similar exercise was also conducted in 2017, Balaji said, adding that the swelling of the river and thereby moving of encroachments along the Cooum were conducted.

### **November 21**

### **Researchers at India's top engineering college have built an algorithm to filter fake social media rumours during national disasters**

<https://www.businessinsider.in/researchers-at-indias-top-engineering-college-have-built-an-algorithm-to-filter-fake-social-media-rumours-during-national-disasters/articleshow/66734106.cms>



Researchers at The Indian Institute of Technology (IIT) Kharagpur along with the Centre for Urban Science & Engineering at IIT-Bombay have developed an algorithm that will use artificial intelligence to filter the critical information on social media platforms during natural disasters including whatsapp, Facebook and Twitter.

The solution is said to identify the rumours by mapping information sourced by the authorities, which will also help identify the users spreading misinformation.

The algorithm was first tested on pilots over Twitter and WhatsApp at the time of Nepal earthquake in 2015 and Chennai floods in 2016.

It is found that majority of tweets are a sympathetic content while only 2% is actually relevant.

Fake news via social media platforms has been a hotly debated topic for quite sometime now. Researchers at the Indian Institute of Technology (IIT) Kharagpur along with Centre for Urban Science & Engineering at IIT Bombay have developed an algorithm that will use artificial intelligence to filter the critical information during natural disasters on social media platforms including whatsapp, Facebook and Twitter, ET reported.

The algorithm can sort the social media posts and ensure that the data shared over the platforms is reliable and capable of being shared for relief operations. It is found that majority of tweets are a sympathetic content while only 2% is actually relevant.

With the help of this tool, the control room team will be able to fetch live updates about the resources needed and their availability. In addition, the rescue teams can be informed via phones.

Saptarshi Ghosh, who heads the tech team reportedly said that the algorithm, with the use of machine learning algorithm, can detect fake news and is able to alert the users during natural calamities. It is said to identify the rumours by mapping information sourced by the authorities, which will also help identify the users spreading misinformation.

However, the algorithm is limited to identifying disaster-related fake news only. It is able to provide upto 90% accuracy distinguishing real news and misinformation, Ghosh said.

If the proposal is passed, the team is expected to further collaborate with Microsoft Research and Qatar Computing Research Institute (QCRI) to develop the system.

#### **Here's what will happen when you tweet:**

When you tweet an update on those affected by an earthquake in English or Hindi, the algo is said to identify the empathetic posts and send only the relevant information to the nearby rescue teams.

The algo was first tested on pilots over Twitter and WhatsApp at the time of Nepal earthquake in 2015 and Chennai floods in 2016.

The project was jointly funded by IIT Kharagpur's Institute Scheme for Innovative Research and Development grant, Microsoft Research India and ITRA, Media Labs Asia and Department of Electronics and Information Technology.

### **This Innovative Idea by an IIT Jodhpur Team can Purify Contaminated Water at Low Cost**

<https://thelogicalindian.com/awareness/iit-jodhpur-innovation-clay-pots/>



Water contamination is a major problem in various parts of the country. Be it the addition of impurities from industrial effluents or fluoride contamination in bore wells, people have been suffering in search of clean water. While state and central governments have been working in tandem to provide clean drinking water, one professor and his team from IIT-Jodhpur have developed a process in which water can be purified by using a natural clay available in Rajasthan.

#### **Water Purification Using Natural Clay Pot**

“The motto of the project is to find a mechanism for purification of contaminated water at low cost using natural process without affecting the environment, and after eight years of research, we processed a mechanism to purify contaminated water using natural clay found here,” told Assistant Professor Rakesh Kumar Sharma of Chemistry department at IIT Jodhpur to The Logical Indian.

“This clay pots acts like ceramic filters. We have used the metal nanoparticles inside the galleries of the clay. When water travels through the galleries it absorbs on the metal surface which exists in the gallery. Since this metal is highly dispersed, they act as an isolated catalytic centre for the impurity and then it gets trapped inside. Roughly one clay pot can purify 100 liters of water. Once the filter gets saturated, it will be choked and we can cook the pot once again for reuse,” told Rakesh Sharma.

#### **Sand for Various Applications**

“The clay used in this is Quartz which is found in sand. We have developed a process to make the clay out of sand which is useful for this application. This clay is not only used for water treatment, but for multiple applications like; we have developed biofuel out of that by converting the algae floating on water into diesel grade hydrocarbon and making Lithium-ion batteries,” added Professor Rakesh. IIT Jodhpur has tested this process on clay from 16 different countries and it is successful. They have received appreciations from international conferences and the research got published in a global science journal.

He said that the process by which the clay is made useful is what is more crucial. The sand undergoes a treatment process. IIT-Jodhpur has patented the treatment, he informed. It took alone five-years for them to develop that treatment.

Presently for purifying water, we use Reverse Osmosis (RO) Purifiers which everyone cannot afford and it also utilises a lot of power energy to function. “This clay has been existing in the world since the

inception of the earth, but there is no report and ours is the first publication. In order to make our country energy dependent, we should look for solutions available in nature here itself, instead of depending on the western countries,” Rakesh said.

Presently, the clay pots are being used in the campus for drinking purposes. “We are testing on different concentration of water for purification treatment and the process is successful. We do not want to change the fundamental process of making pots. We have spoken to few potters for manufacturing this clay pot so that potters will also benefit financially,” Rakesh explained.

Rakesh, who has an expertise in catalytic agents and reaction said that he gets funds from various firms to work on his research.

“In India, we have only around two per cent of drinkable water, not everyone can afford RO purifier to drink purified water, the main motto and target behind this research are to make peoples life easy and for those who cannot afford money this innovation will be the solution,” he added.

Recently, IIT Jodhpur was in the news for creating hydrogen fuel using sunlight and water by reversing the method of “photosynthesis”.

#### **Lack of access to safe water**

More than two billion people lack access to safe water in the world, [says](#) United Nation Secretary General.

“In India, around 2 lakh people die every year due to inadequate access to safe water. The country is suffering from the worst water crisis in its history, and millions of lives and livelihood are under threat,” said a NITI Aayog report.

In North Karnataka, many health issues have been reported for drinking contaminated water. Dr Harshavardhan Patil, the Ortho physician at Lingasugur taluk, 90 km from Raichur, said, “Every month 10 to 15 people consult him for Fluorosis. Due to Fluorosis, back becomes stiff and bones turn fragile further leading to fracture.” He added, “The best and the only way to cure this disease is by preventing it.”

This technique of purifying can help many places like Raichur in the country which are affected by an abnormal mineral ratio in the drinking water.

#### **The Logical Indian Take**

We feel proud of our country saying we have achieved a lot, but at present millions of people in India have no access to clean drinking water. IIT-Jodhpur made a significant innovation for the well being of the people. The Logical Indian wholeheartedly applauds the IIT Jodhpur team and hopes that young Indian researchers and scholars will continue with their researches which can help in the benefit of the nation.

#### **IIT-Hyderabad team develops sensors to detect milk adulteration**

<https://timesofindia.indiatimes.com/city/hyderabad/iit-hyderabad-team-develops-sensors-to-detect-milk-adulteration/articleshow/66732402.cms>





Ever wished you could find out if the milk your family consumes is free of adulteration? Well, soon you may be able to do just that with the help of your smartphone as researchers at the Indian Institute of Technology Hyderabad (IIT-H) are working on developing smartphone-based sensors to detect milk adulteration.

To begin with, they have developed a sensor-chip based detector system to measure the pH levels of the milk through an indicator paper that changes colour according to the acidity of the milk.

The researchers used a process called 'electrospinning' to produce halochromic paper-like material made of nanosized nylon fibres and loaded it with a combination of three dyes.

The team, led by Prof Shiv Govind Singh of IIT-H's department of electrical engineering, also developed algorithms that can be incorporated on to a mobile phone to accurately detect the colour change.

The algorithm, in which the colours of the sensor strips after dipping in milk, are captured using the phone camera and the data is transformed into pH (acidity) ranges.

On testing with milk spiked with various combinations of contaminants, they found near-perfect classification with accuracy of 99.71%, IIT-H said. The research paper was published in the November 2018 issue of the Food Analytical Methods journal.

According to Prof Singh, while techniques such as chromatography and spectroscopy can be used to detect adulteration, "they generally require an expensive setup and are not amenable to miniaturization into low-cost easy-to-use devices, which is why they do not appeal to the vast majority of milk consumers in the developing world".

The team will now study the effects of mobile phone cameras and lighting on detection efficiency and, in the long run, hopes to develop sensors for other physical properties such as conductivity and refractive index, and integrate it with the pH detection unit to obtain comprehensive milk quality check systems that can be easily deployed by consumers using mobile phones and other hand-held devices.

## **Food Cafe: ‘Batteries are the new oil’, IIT Madras Director Bhaskar Ramamurthy explains how India needs to catch missed buses in technology**

<https://www.financialexpress.com/opinion/food-cafe-batteries-are-the-new-oil-iit-madras-director-bhaskar-ramamurthy-explains-how-india-needs-to-catch-missed-buses-in-technology/1385810/>

**The director of IIT Madras—which is entering the diamond jubilee year—shares with Sushila Ravindranath that, in this era of GST, it is easy to figure out where the value-added lies, and anything that is value-added should be made in India. He explains how, towards that, the IITs can contribute.**



Portrait: Shyam Kumar Prasad

The Indian Institute of Technology (IIT) Madras is entering its 60th year. It has been ranked the top among the engineering institutes in India for three consecutive years by the National Institutional Ranking Framework (NIRF). Bhaskar Ramamurthi, the director of IIT Madras, says, “We have taken great strides since our golden jubilee in 2008 in every parameter by which one may choose to measure our institute’s growth and performance. As we enter the diamond jubilee year, we are confident that we will accelerate even further and scale newer heights in research, teaching and innovation.”

Prof Ramamurthi is himself a product of IIT Madras from the year of 1980, with a BTech in electronics from the institute. He earned his MS and PhD in electrical engineering from the University of California, Santa Barbara. After working at AT&T Bell Laboratories for a couple of years, he returned to his alma mater as a faculty member in the Department of Electrical Engineering in 1986. He took over as the director of IIT Madras in September 2011. His areas of specialisation are communications and signal processing. Ramamurthi, in fact, is one of the pioneers of wireless telephony in the country.

“Let’s grab a bite at our food court,” says Prof Ramamurthi, when I suggest lunch to talk about the strides taken and the future course. It is very difficult to get anybody in IIT to come outside the very green campus for lunch or coffee.

The director’s office is about 2-km from the entrance and the spanking new food court is a five-minute walk from his office. Appropriately called Food for Thought, it has several eateries offering a variety of cuisines, ranging from Tibetan momos, Chinese and Italian to health food and fruit juices and milkshakes.

We serve ourselves orange juice and vegetarian momos, and take a table. “The mandate of the IITs, as stated in the Sarkar Committee report, is very clear. We are a research university. We do research

in the areas of engineering science and technology. We began with taking undergraduate students and research. IIT Madras is technology-oriented,” he says.

The institutes came out with good publications in the early years as well. “The papers were good, but the numbers modest. During my student days in the late 1970s, when I was assisting my professors in research, it was very expensive to send even five copies of the paper abroad. We have come a very long way since then. We had to evolve naturally. IIT Madras was the first one to set up a research wing, the Hans Wagner Industrial Consultancy and Sponsored Research, way back in 1973. The trend has continued over the decades,” Prof Ramamurthi adds.

We opt for pizza margherita from the Italian counter, and settle down again. IIT Madras’s achievements over the years are too many to recall here. All the IITs now are associated with institutions such as the Bhabha Atomic Research Centre (BARC), Indian Space Research Organisation (ISRO) and Defence Research and Development Organisation (DRDO). “We, too, have made significant contributions to the defence and space sectors. To give you an example, for GSLV launches, we have worked on dissipating heat, reduction of noise and vibration in a far more cost-effective way than what NASA does. IIT Madras has been a cog in the wheel for many new developments at ISRO,” he says.

Soon after he was appointed in September 2011, Prof Ramamurthi initiated the ‘IIT Madras Strategic Plan 2020’, where quantified targets for all key pillars of the institute were chalked out. These include a flexible curriculum suited to the aspirations of today’s youth, high-quality faculty, and a thriving research environment.

I ask Prof Ramamurthi about working with industry, and interaction between institutions. “We set up the country’s first university-based research park, and a highly active startup ecosystem with over 130 companies having been incubated. We started incubating startups and began mentoring aspiring entrepreneurs in the 1990s. The term ‘incubating’ wasn’t much heard of then. It’s a different story today,” he says.

He adds that, a few years ago, people were worried that the IITs are simply churning out programming machines which are going abroad. “The number of startups getting incubated in our cell has seen an increase of 18% during 2017-18, with the cumulative funds raised by these companies going up to `8 billion. It has generated a cumulative revenue of `1.35 billion during the year. Young people are willing to dirty their hands.”

The professor has to rush to another meeting. I persuade him to have coffee and tell me about the latest breakthroughs. IIT Madras researchers have designed and booted up India’s first indigenously-developed microprocessor that can be used in mobile computing devices, embedded low-power wireless systems and networking systems, besides reducing reliance on imported microprocessors in communications and defence sectors. The microprocessor developed here can be used by others, as it is on par with international standards. The ‘SHAKTI’ family of processors was fabricated at the Semiconductor Laboratory of ISRO.

“We have missed several buses in the field of electronics. Our electronic import bill is huge. It is now very difficult to catch up. We offer no particular advantage for big electronics fabrication units to come

up in the country. We have been wrapping our heads to find solutions to crack this issue. Developing a microprocessor is not impossible. But to use it, we need an ecosystem, which we sadly lack,” he says.

IIT Madras is a founding member of the open source foundation RISC-V. This is the first ‘RISC-V Microprocessor’ to be completely designed and made in India. Prof Ramamurthi adds: “We now get exposure to the global ecosystem and that opens up a lot of possibilities. We have to have a proper strategy. We have to figure out how to add value in India. We have to do what South Korea did with DRAM (dynamic random-access memory) chips.”

He says that India has to pull in skills in various fields to become a global power. “In this era of GST, it is easy to figure out where the value-added lies. Anything that is value-added should be made in India. China imports \$100 billion worth of electronics from Taiwan, and exports \$300 billion worth of goods. In electronics, traditional models don’t work. We have to find the next opportunity.”

As we are about to leave, I ask him where does that next opportunity lie? “Here is where startups fit in, to crack some intractable problems. Batteries are the next oil. We have to get in at the right moment. We are working on this. Also, the next ballgame is 5G. Millimetre technology is in its infancy. Let’s climb into the ground floor.”

“We will enter our diamond jubilee addressing technically-missed buses,” says Prof Ramamurthi, returning to his office brimming with optimism. I get back to the crowded.

## **November 20**

### **Artificial rain to unclog Delhi’s choked lungs as pollution shortens millions of lives**

<https://www.timesnownews.com/mirror-now/in-focus/article/artificial-rain-to-unclog-delhi-s-choked-lungs-pollution-shortening-millions-of-lives/317142>

**Scientists have been waiting for favourable weather conditions to induce artificial rain over the national capital to clear the toxic pollutants. The national capital is the second most polluted city in India.**



However, in order to combat the air pollution in the national capital, scientists are soon going to seed clouds to clear the toxic rain. Scientists from IIT (Kanpur) will attempt to mitigate the hazardous health situation in Delhi-NCR region by inducing artificial rain over the national capital. This is the first

time in India that artificial rain would be created over a big land mass to counter the damage done by air pollutants.

Delhi air pollution made global headlines when many of the areas in the national capital region turned up in the list of top 10 most-polluted places on earth. According to the Energy Policy Institute at the University of Chicago (EPIC), India is the world's second most polluted country. This has resulted in the shortening of an average Indian's life by more than four years.

According to a report in the Times of India, the idea of artificial rain is expected to materialise this week, with scientists just waiting for meteorological conditions to fall into place for the cloud seeding. In the study by the University, it calculated the effect of air quality on life expectancy. The air quality life expectancy (AQLE) is an index that translates particulate air pollution into its impact.

News agency IANS reported that the study mentioned that the loss of life expectancy is highest in Asia, exceeding six years in many parts of India and China. Professor Michael Greenstone, the Milton Friedman Professor in Economics and Director of the EPIC said, "Around the world today, people are breathing air that represents a serious risk to their health. But the way this risk is communicated is very often opaque and confusing, translating air pollution concentrations into colors, like red, brown, orange, and green. What those colors mean for people's wellbeing has always been unclear."

TOI reported, Ken Lee, executive director of EPIC India said that in Delhi the pollution concentration 2016 averaged 113 micrograms per cubic metre. Based on the research life expectancy would be more than 10 years longer for people in Delhi if the World Health Organisation standards had been met. However, Delhi's annual average PM2.5 concentration was 114 microns/cubic metre. WHO standard is 10 and the Indian standard is 40.

Seventy-five per cent of the global population, or 5.5 billion people, live in areas where particulate pollution exceeds the WHO guideline.

However, in order to combat the air pollution in the national capital, scientists are soon going to seed clouds to clear the toxic rain. Reportedly, the country has tested the technique on a very limited scale by using two aircraft in the rain shadow region of Solapur, Maharashtra.

### **IIT-Indore confers Honoris Causa on Piramal Group Chairman**

<https://news.careers360.com/iit-indore-confers-honoris-causa-piramal-group-chairman>



Ajay Piramal, Chairman, Piramal Group was conferred with an Honorary Doctor of Science (Honoris Causa) Degree by Indian Institute of Technology (IIT) – Indore at the institute's 6th annual convocation

ceremony held at the campus. The Degree recognizes Piramal's significant and continued contribution to excellence in education and research institutions.

Prof. Pradeep Mathur, Director, Indian Institute of Technology (IIT) – Indore said, "We are pleased to have been associated with Ajay Piramal, who was the Chairman of Board of Governors of IIT, Indore for 6 years, until March 2016. His guidance and active involvement in the development of IIT Indore in its formative years, has been crucial in creating a world-class institution that IIT Indore is today."

The Piramal Group, led by Ajay Piramal, is one of India's foremost business conglomerates with a global footprint. Valued at US\$ 10 Billion, with operations in 30 countries and brand presence in over 100 markets, the Group's turnover is ~\$2 billion in FY2018. The Group's diversified portfolio includes presence in industries like healthcare, financial services, healthcare information management, glass packaging and real estate.

Ajay Piramal, Chairman, Piramal Group said, "I am honored to receive the Honorary Doctorate Degree in Science, from IIT-Indore. Our corporate philosophy that Values create value, is built on the foundation of trusteeship, entrepreneurship and innovation. I believe that the youth of today are the flagbearers of change, and that access to education and cutting-edge research are going to be key drivers for India's growth story. I would encourage the youth to take the path less travelled, leverage opportunities along the way, and transform these into milestones and break-throughs with innovative solutions, that contribute to India's growth story."

Piramal is one of India's leading industrialists, philanthropists and social entrepreneurs. He holds several key positions on the boards of various prestigious regulatory, professional and academic institutions. He serves on the Harvard Business School's Board of Dean's Advisors, is co-Chair of the UK-India CEO Forum and Non-Executive Director of Tata Sons Ltd. Passionate about contributing to education in India, Mr. Piramal also serves as President and Chairman of Anant National University and Chairman of the Pratham Education Foundation.

## **November 18**

### **'India needs a strong research ecosystem'**

<https://ahmedabadmirror.indiatimes.com/ahmedabad/others/india-needs-a-strong-research-ecosystem/articleshow/66672566.cms>



Do we require an IIT graduate for sales or promotion of any detergent? Can that not be done with lesser education, former president Pranab Mukherjee asked his students at the Indian Institute of Management, Ahmedabad (IIMA). He was stressing on the need to have a strong research ecosystem that comes from “institutional collaborations, research parks and talented researchers”.

On Saturday, Mukherjee delivered his last lecture as guest faculty at IIMA on the topic ‘Articulating policy and institutional agenda for future transformation of India’ which was part of the ‘Public Policy for Inclusive Development of India’ course.

“The youthful character of our nation—600 million people in the age group of 25 years and below—has to become our asset in our surge for advancement. For that, we need to provide sound training to our youth to build capacity for undertaking skilled work. It will help prepare them for challenging job roles in the global economic community. They have to be inculcated with the aptitude to think ahead. For, lot of ideas which are capable of making an impact transmit faster than ever before today,” he said.

He also called for imparting quality education to prepare graduates for competitive global economy. He also talked about the need for women empowerment. “Women continue to battle stereotypes and prejudices. George Bernard Shaw had said, ‘Progress is impossible without change and those who cannot change their minds cannot change anything’. We have to mitigate the pressures, prejudices and inequitable systems which have prevailed for millennia against women,” he said.

He added, “We have to mitigate the roadblocks which deprive women from becoming agents of change. If women are inadequately represented in the productive efforts of our economy, it not only prevents them from contributing to the well-being of their own families but also hampers social progress and retards the overall economic progress in the country.”

Talking about the social landscape of the country, he said that the institutions of democracy in the country were facing issues of erosion of credibility and called for them to reinvent themselves by upholding constitutional principles and values. Mukherjee stressed on the need to understand the sustainability of the country’s economic development would depend on its social progress.



Mukherjee also spoke on issues plaguing democracy

### **'Disruption of Parl sessions hits policy-making'**

On the Indian polity and policy making, he said that policies have to address concerns of different stakeholders in the larger national interest. Taking a dig at disruptions during Parliamentary sessions, Mukherjee said, "Dissent is a recognised democratic expression, but it leads to loss of time and resources, and paralyses policy formation.

The cardinal principle of Parliamentary democracy is that the majority has the mandate to rule, while the opposition has the right to oppose, expose, and if the numbers permit, to dispose. But under no circumstances should there be disruption of the proceedings."

### **Extramarks launches online app for IIT-JEE aspirants**

<https://timesofindia.indiatimes.com/business/india-business/extramarks-launches-online-app-for-iit-jee-aspirants/articleshow/66678568.cms>

With the entrance examination for prestigious IITs set to go completely online, leading digital learning solutions provider Extramarks Education said on Sunday it has launched a new testing app for IIT aspirants.

The Joint Entrance Examination for IITs (Indian Institutes of Technology) is all set to go completely online from 2019, as announced by the National Testing Agency (NTA), which will also be conducting these admission tests.

The new IITJEE Test Prep app will cater to the IIT aspirants by providing exhaustive practice papers which will simulate the actual exam climate, Extramarks said.

"The technology platform developed by Extramarks identifies areas of strength and improvement in a student's performance, thus bridging learning gaps and ensuring mastery over concepts, and helping students crack an effective exam strategy," Extramarks Education's Chairman and Managing Director Atul Kulshrestha said.

Experts and educators with proven test records have been brought on board to create and curate practice and mock test papers, he added.

The new app will have a national-level weekly test series, which will give students an instant intelligence backed performance analysis, along with their national peer ranking.



It also contains a set of mock tests, previous years papers and completely customisable chapter-wise tests, through which students can further strengthen their exam preparedness.

The questions and exam papers available on the app have been specially curated by experts and educators from all over India who have a proven track record, with multiple students gaining high ranks in past JEEs, Extramarks said.

The company said its network encompasses more than 8,000 schools and students and it employs nearly 3,000 professionals engaged in implementation of digital education. It is present across India, South Africa, Indonesia and Singapore.

## **November 17**

### **IIT-R, CSIR-NCL jointly develop dyes to increase efficiency of solar cells**

<https://www.thehansindia.com/posts/index/Young-Hans/2018-11-17/IIT-R-CSIR-NCL-jointly-develop-dyes-to-increase-efficiency-of-solar-cells/443005>



IIT-R, CSIR-NCL jointly develop dyes to increase efficiency of solar cells

Researchers from IIT Roorkee have developed organic dyes in collaboration with CSIR-NCL Pune that can increase efficiency of Dye-Sensitised Solar Cells (DSSC). The team of researchers led by M Sankar, Associate Professor, Department of Chemistry, IIT Roorkee, have worked to improve the photovoltaic conversion efficiencies of an organic dye called porphyrin for DSSC applications. Their latest research results have been published in a journal of the American Chemical Society (ACS) called ACS Applied Energy Materials.

Solar cell technologies fall into three generations; the first and second generations comprise photovoltaic cells that use inorganic semiconducting materials such as single crystal silicon (Gen I) and thin film silicon and CdSe type semiconductors (Gen II). Inorganic semiconductors of both generations continue to be expensive and challenging for scale up.

The third generation, which is in the research stage, includes dye-sensitized solar cells or DSSC, which use a combination of cheap organic dyes and nanoparticles of titanium dioxide, to convert light into electricity. Although the cost of DSSC is much lower than the earlier generations of photovoltaic's, their conversion efficiencies are also very low, necessitating further research into dyes used in such cells.

Porphyrin is a complex organic molecule and is the building block of chlorophyll, the key chemical that allows plants to harvest light energy for photosynthesis. The first study on the use of porphyrins in DSSC dates back to 1993, in which, porphyrin containing copper, resulted in power conversion efficiencies of 2.6%, too low for practical applications. Since then, various modifications of porphyrin

have been studied for use in DSSC. Zinc-containing porphyrins have been found promising and the research team at IIT Roorkee uses this type of porphyrin for its studies.

One way of improving the efficiency of the dye is to add molecular pendants or groups to it, which can result in a “push-pull” architecture that involves the shuttle of electrons released in the molecule. Such push-pull mechanisms also improve the absorption of light in the red and infrared regions, thereby increasing the efficiency of the dye in photo-electric conversions. For dye molecules like porphyrin, these functional groups are introduced through reactions that involve many complex steps and need expensive palladium and platinum-based catalysts. Compounds made by these reactions have low efficiencies.

Sankar and the research team have developed a process to produce functionalized porphyrins, without the use of platinum and palladium catalysts. “Our continuous efforts to develop simple, efficient, stable, and cost-effective sensitizers involving fewer synthetic steps have resulted in five porphyrin Zn(II) complexes with a power conversion efficiency ranging from 5.3% to 7.1%”, explains Sankar on the results that have been recently published in the ACS journal.