NEWS CLIPS

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Highlights of the Week@IITD

IIT-Delhi, AIIMS to jointly set up biomedical research park

August 31, 2018 https://timesofindia.indiatimes.com/home/education/news/iit-delhi-aiims-to-jointly-set-up-biomedical-research-park/articleshow/65616767.cms

The Indian Institute of Technology-Delhi (IIT-D) and All India Institute of Medical Sciences (AIIMS) on Thursday entered into a pact for setting up a Biomedical Research Park in Jhajjar, Haryana, and embark on interdisciplinary research for a "robust health care".

The agreement will include a joint Ph.D. supervision programme and provision for adjunct faculty for the two institutes.

The institutes have already started on 20 projects. Their mandate extends to development of a drug delivery system, Artificial Intelligence, machine learning, robotics, advanced materials etc, B. R. Mehta, Dean Research and Development, IIT-D, said.

"The work on research park is yet to start, but the work on 20 projects is already underway. Both institutes will be using their own funds for research. We didn't apply for special grants from government since we wanted to begin as early as possible," Mehta told IANS.

IIT-Delhi director V. Ramgopal Rao called the event a "historic day" for both the institutes.

"While the MoU will provide a detailed structure to all the collaborations, it will also open a plethora of opportunities to work together on a larger scale," a statement by IIT-D said quoting the director.

AIIMS Director Randeep Guleria said: "Technology has become an integral part of health care. There is a need to see how this technology can be used."
The two institutes have called for joint proposals, the last date for which is September 30.

International collaboration seen as incubator for health care startups and leaders

August 29, 2018 http://newsstand.clemson.edu/mediarelations/international-collaboration-seen-as-incubator-for-health-care-startups-and-leaders/

CLEMSON, South Carolina — Clemson University researchers said a new partnership with one of India's top engineering universities will lead to new medical devices, sensors and startup companies while helping educate leaders and entrepreneurs for the global health care industry.

Clemson is joining with the Indian Institute of Technology Delhi to create the Center for Innovative Medical Devices and Sensors.

Delphine Dean (right) demonstrates for Brij Khorana some of the research that will be done as part of the Center for Innovative Medical Devices and Sensors.

The long-term vision for the center includes exchanges of faculty members, students and post-doctoral researchers, and to eventually establish joint courses. Some of the first projects will focus on solutions for diabetes and other chronic health issues common to both countries.

The first exchanges could begin as soon as next summer.

Researchers plan to focus on technology that is close to going from the lab to the marketplace, a concept that scholars call translational research. The devices that researchers develop could lead to biomedical startups — and the lucrative jobs that come with them — in South Carolina and India, they said.

An advantage to cross-border research is that new technology will be designed to meet regulatory requirements in multiple countries, smoothing the transition to markets around the globe, said Delphine Dean, who is the Gregg-Graniteville Associate Professor of Bioengineering at Clemson.

The collaboration is the latest in a growing number of links between South Carolina and India, a connection that could help build both economies, she said.

"If a company wants to have a landing base to do FDA testing, South Carolina is a great area to do it in," she said. "We have a lot of resources at the state level, and I think it will help drive economic development. When you go visit IIT Delhi, they know Clemson and they know South Carolina."

Dean is coordinating the center with Sandeep K. Jha, an assistant professor in the Centre for Biomedical Engineering at IIT Delhi.

Jha said the joint center with Clemson will be a win-win for both institutions and that they will develop several vital technologies by working together.

“The research and continual development in the field of medical sensors and devices is the need of the hour,” he said. “Most of the conventional technology related to health care and diagnostics have gradually been shifted towards automation, miniaturization and cost-effectiveness.

“In this regard, a research collaboration with Clemson University to develop cutting-edge medical technology would be beneficial for India, as it imports the majority of its medical devices and technologies. Medical devices and sensors could also help to meet several critical needs of South Carolina.”

For Clemson students, the opportunity to visit labs and do research in India will encourage global-scale thinking.

“If I were an undergrad, I’d think this was a great opportunity,” Dean said. “You go enjoy an experience in India and then you get your engineering degree. Then you’re a hot commodity for a job.”

IIT Delhi students will be visiting Clemson primarily for research, graduate studies and specialized bioengineering programs. Those programs include the Master of Engineering program and Green MD, an initiative focused on medical device recycling and reprocessing.

One of the attractions for IIT Delhi students is that they will have a chance to work with Clemson faculty who have extensive experience in translational research, said Brij Khorana, the chief scientific adviser for the College of Engineering, Computing and Applied Sciences at Clemson.

“By working with these Clemson faculty members, they will have the opportunity to gain entrepreneurial skills and participate in startup businesses here, and then perhaps some of these students can go back to India and help with the health care industry there,” Khorana said. “Over time, this collaboration can just grow and grow.”

Some of the students’ work will be on the main campus and some will be in Greenville at the Clemson University Biomedical Engineering Innovation Campus. The campus, called CUBEInC, is at Greenville Health System’s Patewood campus.

Clemson’s close connection with clinicians at GHS and the Medical University of South Carolina will be appealing to IIT Delhi students, Dean said. Clinicians play a crucial role in guiding research, ensuring that it reflects what happens in real-world hospitals and clinics.

Martine LaBerge, chair of the department of bioengineering at Clemson, said the new center will create a unique environment for health care education and research.

“The Center for Innovative Medical Devices and Sensors sets the stage for integrative learning and inventing experiences,” LaBerge said. “Students will learn the leadership, entrepreneurial and technical skills they will need to support and enhance a knowledge-based economy.”

The collaboration between Clemson and IIT Delhi brings together two institutions noted for their work in engineering and health care.

IIT Delhi was the third highest-ranked Indian university in the latest QS World University Rankings. The institute also tied for No. 1 in engineering among Indian universities in the annual "Performance Ranking of Scientific Papers for World Universities" by National Taiwan University.

Clemson is renowned as the birthplace of the field of biomaterials and was among the first universities in the United States to start a bioengineering program, awarding its first Ph.D. in 1963. The university played a central role in creating the Society for Biomaterials.

Anand Gramopadhye, dean of Clemson's College of Engineering, Computing and Applied Sciences, said the center will enable transformative research and deepen the talent pool for the healthcare industry.

"By coming together, Clemson and IIT Delhi will be able to accomplish much more than we could apart," he said. "We are creating the conditions for a wider pipeline between academia and industry, as well as a healthier global society."

IIT-Delhi receives over 200 offers in the first weekend of the placement season

August 27, 2018 https://economictimes.indiatimes.com/industry/services/education/iit-delhi-receives-over-200-offers-in-the-first-weekend-of-the-placement-season/articleshow/65562418.cms

Indian Institute of Technology (IIT) Delhi received over 200 offers including 15 international in the first weekend of the placement season itself.

The students at the institute received international offers from companies in Singapore, US and South Korea. Among the international offers, a maximum of 9 offers were made by Samsung, South Korea. Among the national recruiters, a maximum number of offers of 21 came from Samsung Research India (Bangalore) according to a release. American Express, Goldman Sachs, ITC and Microsoft made over 10 offers each. Intern hiring processes consider undergraduate students only.

"Intern hirings have started on a very optimistic note this year. We hope that this trend continues for the rest of the season and it is an indication of the coming placement season," I N Kar, Professor-in-charge of placement at IIT Delhi said.

Anishya Madan, placement officer at the Training and Placement Cell of IIT Delhi maintains that this year the students had multiple high value intern offers – giving students ample choice. "The robust start of this process, we hope, is an indication of a healthy placement season as well. Today, many companies also prefer this route as a feeder to final placement as it gives them a chance to evaluate students before offering a PPO and the students also get to evaluate the company culture and work being done to see if it fits their personal career plans."

Students also bagged over 115 PPOs. PPOs are still coming in.

Aug 30

IIT-D, AIIMS to come up with economical medical solutions

https://www.biospectrumindia.com/news/68/11574/iit-d-aiims-to-come-up-with-economical-medical-solutions.html

The programme targets to come out with technology driven low cost medical solutions.

All India Institute of Medical Science (AIIMS) and Indian Institute of Technology-Delhi (IIT-D) are planning to come together for exchanging research proposals to develop technology driven health care solution.

The programme targets to come out with technology driven low cost medical solutions along with developing new items and equipment which can be used for conducting diagnosis and other medical tests.

A memorandum of understanding (MoU) has been signed between the directors of the two institutes, Randeep Guleria of AIIMS and V. Ramgopal Rao of IIT-Delhi.

The main aim of this collaboration is to promote joint research wherein the technological expertise of IIT-Delhi can be combined with the medical expertise to promote research in the field of academics, product development and human resource development.

IIT-Indore, French institutes to team up for research

https://www.nyoooz.com/news/indore/1200665/iitindore-french-institutes-to-team-up-for-research/

We are exploring ways to collaborate with other IITs of the country."He was speaking on the sidelines of the first day of the three-day Indo-French research workshop at IIT, Indore. We have intentions of funding at IIT, Indore as lots of fantastic research ideas are coming from India."Kaveri said a lot of interactions for basic scientific projects and workshops are planned for over the next coming years.Professor Ahuja said there has been an increase in French related activities at IIT, Indore and we are collaborating with a dozen French institutes in multiple research areas. INDORE: Aiming larger penetration into collaborative research and exchange programmes, Indian Institute of Technology (IIT), Indore has collaborated with institutes of France for research in multiple areas.The institute is collaborating with about ten different French institutes in multiple areas for research.IIT, Indore has signed five Memorandum of Understanding (MoU) with Université de Strasbourg, Institut Mines-

Télécom (IMT) Atlantique, IMT, École catholique d'arts et métiers (ECAM) Lyon, and Alliance Française (AF) Bhopal till date.Université de Strasbourg's deputy VP of International Relations Dr Philippe Turek said, "There is a high quality research at IIT, Indore. Artificial intelligence, IOT and genome sequencing are the three main pillars on which India can collaborate with France."Institutes of France jointly with IIT, Indore have already initiated research work on various areas such as space weather and space dynamics, amino acid based hybrid peptides among others.Dr Srini V Kaveri, Director, CNRS Office, Embassy of France in India said, "France is looking towards India as a most important scientific strategic partners. IIT-I director professor Pradeep Mathur said, "Interdisciplinary research and multi institutional collaboration are very important."Mathur said the institute will submit joint research proposals for funding to enable exchange visits for students and professors.Atlantique IMT's professor Yann Busnel is collaborating with IIT-I's computer science and engineering, IIT, Indore in developing an advanced drought and cold resistant species of soybean suitable under adverse conditions in India and France.Busnel said, "We are looking forward to increase research with India in future on different grains.

Aug 29

New council formed to advise PM on science and technology

https://www.theweek.in/news/sci-tech/2018/08/29/New-council-formed-to-advise-PM-on-science-and-technology.html

Principal scientific adviser to government of India, K. VijayRaghavan

The Prime Minister's Office has set up the Prime Minister's Science, Technology and Innovation Advisory Council (PM-STIAC), headed by principal scientific advisor to the government of India, K. VijayRaghavan. The new panel will advise the PM on all matters related to science, tecnology and innovation, and would also monitor the implementation of the PM's vision.

Modi is an enthusiast of scientific and technological solutions to developmental problems. His scientific vision also encompasses big ticket, eyeball grabbing initiatives like space missions and participation in international collaborative researches like the LIGO accelerator. Critics of the prime minister, however, point out that under the present dispensation, the scientific temper has gone lacking in the establishment. During the March for Science rally in April, Breakthrough Science, and several other organisations and individuals had sought that the government should develop a scientific temper and not peddle half-baked mumbo jumbo under the name of ancient science.

The PM's vision has encompassed initiatives like research on the benefits of cow urine. In fact, IIT Delhi recently had a conference on Panchgavya, following which there were 40 research proposals on the benefits of cow urine. Many scientific organisations have pointed out that a predetermined result towards which a research is oriented, is not the way science works. The PM and his ministers' utterances on science have also been rather embarrassing, with them painting a picture of ancient India as a time and place where almost every scientific theory and achievement that exists today, was discovered or invented.

PM-STIAC will also be tasked with facilitating the formulation and implementation of science, technology and innovation related policies and decisions, and with providing action oriented and future preparedness advice to the government on these matters. It will also assist the goverment in using, science, technology and innovation for solving socio-economic problems in the country.

The other members of the council include former DRDO Chief V.K. Sarswat; former ISRO Chairperson A.S. Kiran Kumar; IISc Bangalore professor Ajay Kumar Sood; Armed Forces Medical College Dean, Maj Gen Madhuri Kantikar; director of Indian Statistical Institute, Kolkata, Sanghamitra Bandopadhyay; US-based mathematician and Fields Medal winner Manjul Bhargava and Subhash Kak, professor at Oklahoma University along with Baba Kalyani, managing director of Bharat Forge are part of the council.

The council also includes secretaries from the departments/ministries of atomic energy, science and technology, space, defence research and development, biotechnology, scientific and industrial research, agricultural research and education, health research, higher education, environment, forests and climate change, and new and renewable energy, as special invitees.

PM-STIAC will replace two scientific advisory committees for the prime minister and the cabinet, and is aimed to streamline as well as cut down the number of committees and councils.

आईआईटी की छात्रा का फेलोशिप प्रोग्राम के लिए चयन

https://www.livehindustan.com/uttarakhand/roorki/story-selection-for-iit-s-fellowship-program-2147394.html

भारतीय प्रौद्योगिकी संस्थान रुड़की की एक शोधकर्ता का भारत में विशिष्ट स्थान रखने वाले एक फेलोशिप प्रोग्राम के लिए चयन किया गया है। उन्हें अमेरिका में वायरस विज्ञान में आधुनिक शोध करने का अवसर मिलेगा।पड्यु युनिवर्सिटी, अमेरिका के लिए साइंस एण्ड इंजीनियरिंग रिसर्च बोर्ड के तहत ओवरसीज विजिटिंग डॉक्टोरल फेलोशिप के लिए चुनी गई वेदिता आनंद सिंह मोलेक्युलर वॉयरोलॉजी लैबरोटरी, जैव तकनीकी विभाग, आईआईटी रुड़की में डॉक्टरेट की छात्रा हैं। जैव तकनीकी विभाग, आईआईटी रुड़की की एसोसिएट प्रोफेसर डॉ़ शैली तोमर ने छात्रा की उपलब्धि पर प्रसन्नता जाहिर करते हुए कहा कि एसईआरबी के इस फेलोशिप से वेदिता के शोध को बढ़ावा मिलेगा जिसका मकसद भारत में वाहक माध्यम से होने वाली संक्रामक बीमारियों के भारी प्रकोप को दूर करना है। वेदिता आनंद सिंह ने कहा मुझे इस फेलोशिप का मेरे पीएचडी थीसिस की सशक्त संरचना में बहुत लाभ मिलेगा। पड्यु युनिवर्सीटी का शिक्षा जगत में बड़ा नाम है और इसके जाने-माने फैकल्टी मुझे शोध की मजबूत नींव रखने में मदद देंगे और मैं अपने अनुभव का लाभ लेते हुए एक एक बड़ी व्यवस्था में सार्थक योगदान दूंगी।

खुशखबरी: सभी कॉलेज के छात्र प्रधानमंत्री फेलोशिप के लिए आवेदन कर सकेंगे

https://www.livehindustan.com/national/story-students-from-all-the-colleges-may-apply-for-prime-minister-fellowship-2146640.html

इंजीनियरिंग और विज्ञान की पढ़ाई कर रहे छात्र-छात्राओं के लिए अच्छी खबर है। अगले साल से किसी भी कॉलेज से इंजीनियरिंग या एमएससी कर रहे छात्र प्रधानमंत्री रिसर्च फेलोशिप (पीएमआरएफ) के लिए आवेदन कर सकेंगे। इसी साल शुरू हुई इस फेलोशिप के लिए अब तक सिर्फ राष्ट्रीय महत्व के संस्थानों- आईआईएससी, आईआईटी, एनआईटी और आईआईएसईआर से पढ़ाई करने वाले छात्र ही आवेदन कर सकते थे।

केंद्रीय मानव संसाधन विकास मंत्रालय से मिली जानकारी के मुताबिक, पीएमआरएफ के पहले वर्ष उम्मीद से कहीं कम आवेदन मिलने के बाद अब कार्यक्रम की समन्वयक संस्था आईआईटी हैदराबाद ने इसे सभी इंजीनियरिंग एवं एमएससी छात्रों के लिए ओपन करने का प्रस्ताव भेजा है। 'हिन्दुस्तान' ने इस प्रस्ताव को देखा है। इसमें राष्ट्रीय महत्व के संस्थानों के अलावा किसी अन्य कॉलेज से इंजीनियरिंग या एमएससी करने वाले छात्रों के लिए न्यूनतम गेट स्कोर 750 रखने का प्रस्ताव दिया गया है। राष्ट्रीय महत्व के संस्थानों के छात्रों के लिए पीएमआरएफ में आवेदन करने के लिए सीजीपीए 8.0 होना जरूरी होता है। सूत्रों के मुताबिक, मंत्रालय इस प्रस्ताव से सहमत है। मानव संसाधन विकास मंत्री प्रकाश जावड़ेकर से मंजूरी मिलने के बाद इन प्रस्तावों को लागू कर दिया जाएगा।

देश में उच्चस्तरीय शोध को बढ़ावा देने के लिए शुरू की गई फेलोशिप के तहत चुने गए बीटेक, एमटेक या एमएससी के छात्रों को आईआईटी और आईआईएससी में पीएचडी कार्यक्रम में सीधा प्रवेश दिया जाता है।

80 हजार रुपये तक प्रति माह मानदेय

शोधार्थियों को पहले 2 वर्ष 70,000 रुपये प्रति माह, तीसरे वर्ष 75,000 रुपये प्रति माह और चौथे-पांचवें वर्ष 80,000 रुपये प्रति माह मानदेय मिलता है। इसके अलावा, शोधार्थी को अंतरराष्ट्रीय सम्मेलनों और सेमिनारों में शोध पत्र प्रस्तुत करने के लिए प्रति वर्ष 2 लाख रुपये का शोध अनुदान भी दिया जाता है।

पहले साल मात्र 135 छात्रों का चयन

हालांकि, इतने आकर्षक मानेदयों के बावजूद पहले साल ये योजना अधिक छात्रों को आकर्षित करने में कामयाब नहीं हो सकी। करीब एक हजार छात्रों को फेलोशिप देने के लक्ष्य के साथ शुरू हुई इस योजना के लिए पहले साल मात्र 135 छात्रों का ही चुनाव किया जा सका।

Drying up of Ganga river may lead to food scarcity for 115 million people, says study

https://www.indiatoday.in/education-today/gk-current-affairs/story/drying-up-of-ganga-river-may-lead-to-food-scarcity-for-115-million-people-says-study-1326709-2018-08-29

The drying of river Ganga may possibly be related to groundwater depletion in the Gangetic aquifers.

According to a recent study undertaken by IIT-Kharagpur, river Ganga, the 2,600-km-long trans-boundary river of Asia, has witnessed unprecedented low levels of water in several lower reaches in the last few summer seasons.

The study, published in the magazine Scientific Reports, was carried out under IIT-KGP Science and Heritage Initiative (SANDHI). It focused on river systems and its relationship with the settlement system.

According to a statement issued by IIT-Kharagpur on August 20, 2018, the study used a combination of satellite images of groundwater levels of Ganga, numerical simulations, and chemical analyses to draw the conclusion.

WHAT IS THE REASON BEHIND THE DRYING UP OF GANGARIVER?

Abhijit Mukherjee, Associate Professor of Geology in IIT-Kharapur, along with researchers Soumendra Nath Bhanja from Canada and Yoshihide Wada from IIASA Austria, found out that the drying of the river in the recent years during the summer seasons was "possibly related to the groundwater depletion in the Gangetic aquifers."

The study also asserted that the decline of groundwater inflow (base flow) is also impacting the health of the river.

The present-day base flow to the Ganga from the adjoining aquifers may be a third or more of the total river water volume in pre-monsoon months.
"The base flow might have dipped by 50 per cent from the beginning of an irrigation-pumping phase in 1970s," said Mukherjee.

IMPACT IN THE FORTHCOMING SUMMERS
In the forthcoming summers, for the next 30 years -- groundwater contribution to river Ganga will continue decreasing.
"The trend can lead to a disastrous effect on the riverine ecology and lead to food scarcity for 115 million people in the Ganga basin," Bhanja said.
WHAT WILL BE THE IMPLICATIONS OF THIS RESEARCH?
As the study is of interest to hydrology, global change community, and policymakers, it can help the general public understand the wider implications of groundwater depletion, Joy Sen, the coordinator of the SANDHI, explained.
Dhrubojyoti Sen, a professor at IIT-Kharagpur, said the research brings out the scientific reasons for the decreased flows of the river Ganga, especially in the lower reaches.
"The findings would be extremely helpful in providing quantitative data for future planning of water resources projects in the basin," he added.

IIT Kharagpur Introduces New Course for Artificial Intelligence in Law

https://www.analyticsindiamag.com/iit-kgp-ai-law-course/

Indian Institute of Technology, Kharagpur announced the launch of a new course titled Artificial Intelligence and Law this week. The one-semester inter-disciplinary course has been developed at the Rajiv Gandhi School of Intellectual Property Rights (RGSOIPL) and aims to start a discourse on the modes of societal governance and law by using the new era hybrid sociology.

Padmavati Manchikanti, the Dean of RGSOIPL, told a newswire, “This course addresses the paradigm shifts that are occurring due to the intense involvement of AI as autonomous systems that can possibly invent, participate in inventions with humans, create new expressions like music, paintings, and raising sensitive questions on inventorship, authorship, ownership of patents, copyright and designs.”

The RGSOIPL is one of the first law schools in the country that focuses on technology. Set up in 2006, the basis of the school has been to cater to the need for lawyers with technical expertise. It is a part of their global endeavour to integrate technology and law to build technical lawyers with the expertise to deal with the legal issues in the interface of technology and law.

Reportedly, Partha Pratim Chakrabarti, Shreya Matilal and Prabuddha Ganguli of RGSOIPL have been instrumental in initiating and formulating the cutting-edge syllabus for the course. 56 students have already enrolled for the same, said the official statement.

Earlier this March, IIT KGP had announced a Center of Excellence in Artificial Intelligence Research with seed funding from Capillary Technologies Limited. With a funding of ₹5.64 crores, the centre was to focus on key areas in AI and its kindred such as training, research, education, projects, entrepreneurship and incubation. The funding is to be utilised for establishing coursework design, computing infrastructure, software and hardware simulation platforms.

IIT KGP already boasts of AI specialist in areas such as financial analytics, industrial automation, digital healthcare, intelligent transportation system, agricultural internet of things and analytics, big data analytics for rural development, intelligent urban infrastructure, and safety-critical cyber-physical systems, among others.

IIT Madras signs MoU with the Continental company for Joint research

https://www.brainbuxa.com/education-news/iit-madras-signs-mou-with-the-continental-company-for-joint-research-8639

Indian Institute of Technology (IIT) Madras has signed a Memorandum of Understanding (MoU) with the Continental company to conduct joint research in fields of high computing platform and cybersecurity for the powertrain applications.

The primary focus of the research will be on intrusion detection and reporting on powertrain applications, a statement from IIT Madras said.

"Vehicles of tomorrow are computers on wheels, opening up areas of research hitherto unaddressed. Continental is implementing a sustainable growth strategy with a high level of investment in R&D and in capacities for future technologies. India is an important market and R&D location for Continental, and we will drive innovation from India," Soorajith Radhakrishnan, who heads Continental's Powertrain business in India, said.

"For Continental, cybersecurity is at the heart of the development of products and services. We have a proactive approach that considers cybersecurity right from day one in product development, so that potential security loopholes do not arise. Cybersecurity for powertrains is still at its infancy for the industry, and as a technology company that focuses on the mobility of tomorrow, this topic is important to address right now," he added.

"Our research team from IIT Madras involved in this project has made several research contributions in the inter-disciplinary area of Cyber-Physical Systems (CPS), specifically in the design of fault-tolerant, secure, and reliable systems. This project with Continental is an excellent opportunity to innovate further, focusing on the powertrain of a modern car - an area in which Continental brings industry-leading expertise," Pratyush K Panda, Assistant Professor, Computer Science and Engineering, IIT Madras, said.

Earlier, Continental has also signed a MoU with IIT Madras for research in machine learning and bio-inspired neural networks for Continental's ADAS (Advanced Driver Assistance Systems) business.

Saving Lives through Technology a Real-time Dehazing Solution by IIT Kanpur

https://www.theweek.in/wire-updates/business/2018/08/29/pwr15-indian%20institute%20of%20technology,%20kanpur.html

Researchers at IIT Kanpur have developed a real-time dehazing method that allows increased visibility in hazy/foggy weather conditions, potentially solving a major problem faced by the Indian Railways - ensuring timely and accident-free running of trains during dense fogs.

This new method, that allows better visibility from a single view without using any prior knowledge about the outdoor scene, has been developed at the Computer Vision Lab by Saumik Bhattacharya and Himanshu Kumar, former PhD students under the guidance of Dr. K. S. Venkatesh and Dr. Sumana Gupta, at the Department of Electrical Engineering at Indian Institute of Technology, Kanpur.

Although other dehazing methods exist, the one developed by IITK researchers is more effective and less time-consuming. The existing methods increase the contrast of an image but remove many details of structural information after processing. Those methods also introduce severe color range suppression in the processed image and show a drop in performance in conditions of dense fog. The IITK research team claims that their method outperforms the existing methods in most of the cases.

For online, real-time processing of flawed images, processing time plays a key factor. The proposed dehazing model gives a low time complexity compared to other state-of-the-art methods. The team observed after comparing the time lapse with other methods that the proposed method provides a speed approximately 6 times faster than existing methods in commodity hardware. Besides, unlike certain multispectral solutions available in the market that are enormously expensive, this will be available at a very low cost.

This new method can be critical in vision-assisted vehicle navigation in hazy/foggy weather, surveillance in bad weather conditions and can play an important role in aviation, biomedical processes like MRI and CT scan, and computer vision applications.

How the Proposed Dehazing Method Works

Dehazing is a typical image enhancement technique. Image enhancement is a basic pre-processing step in different applications that require visual input. Hazing and fogging introduces a tint to the image of a scene. A tint can be explained as an addition of white light which varies in intensity across the image. And this intensity variation depends on how far the object lies from the camera. To tackle this issue of non-uniform tint across the image, the team applied a Color Uniformity Principle (CUP). CUP is asymptotic behavior of texture with respect to distance. Utilizing this asymptotic behavior, we estimate the transmission map which corresponds to visibility range of the scene. Utilizing estimated transmission map, scattered light component is estimated, which eventually leads to recovery of the scene. Figure shows some examples of such recovery utilizing proposed method.

The complete process involves three main stages namely (a) transmission map estimation (b) atmosphere scattering parameter estimation (c) equalization and dehazing. By applying CUP, a transmission map is estimated which is then refined with a fast-guided filter. The refined transmission map helps in estimating the atmospheric scattering parameter. Then estimation of radiance leads to the dehazing of the image using the model equation developed by the team.

The present work is addition over the previous work 'Method and System for Expansion of Visibility Range of an Image', for which original patent was filed in 2016. The research team has also filed a patent for the new method 'Method and System for Dehazing Videos and Images in Real-time' developed by them.

Aug 28

IIT-Delhi organises intern-hiring weekend

https://www.thehindu.com/news/cities/Delhi/iit-delhi-organises-intern-hiring-weekend/article24795996.ece

The Indian Institute of Technology-Delhi organised its first intern-hiring weekend, that was held on campus on August 18 during which over 200 students bagged internship offers.

“Among national recruiters, a maximum number of offers [21] came from Samsung Research India, Bengaluru. American Express, Goldman Sachs, ITC, and Microsoft made over 10 offers each,” said the IIT Registrar. Fifteen international offers came from companies in Singapore, the US, and South Korea, he said. “Intern hirings have started on an optimistic note this year. We hope this trend continues. It is an indication of the coming placement season,” said the professor incharge of placement.

JEE Revamp: IIT Directors Take a U-Turn on Coaching Institutes

https://swarajyamag.com/insta/jee-revamp-iit-directors-take-a-u-turn-on-coaching-institutes

Moving away from the traditional stance of antagonistic approach towards coaching institutes, IIT council meeting on 20 August witnessed the IIT directors terming coaching institutes as 'constructive', marking a significant shift in their stance, reports The Economic Times.

IIT directors and many in the faculty had consistently held that JEE coaching is a bane as it compromises the whole admission system sending in heavily tutored students, instead of genuine "raw intelligence".

In a meeting chaired by Human Resource Development Minister Prakash Javadekar, IIT directors held that an antagonistic approach against coaching is unwarranted as they at least keep students academically engaged. They even went overboard calling coaching centres as 'constructive' enterprises which will lead students professional advancement of some form.

All directors were reported to have unequivocally rejected the proposal mooted with government support to revamp JEE Advanced to make it more 'scientific' and 'reduce dependence on coaching centres'.

"There is no point in blaming coaching centres. In the 80s and 90s, very bright students made it to IITs without any coaching, but we have to accept that times have changed, competition levels are high as are the number of aspirants. This is how society has turned out with a clear issue of demand and supply. All this brought about changes in question papers from subjective to objective MCQ based ones, and that's where the coaching industry stepped in to prepare students. So it is not black or white but in between," Economic Times quoted IIT Delhi director saying.

Preparing for JEE Advanced 2018? 10 ways how IIT-PAL, now on available on your mobile, can help you

https://www.indiatoday.in/education-today/featurephilia/story/jee-advanced-iit-pal-swayam-prabha-1325369-2018-08-28

IIT-PAL videos and TV channels function under the name 'Swayam Prabha'.

What comes as a big help at this crucial point for students bracing for the JEE Advanced 2018 exams, IIT-PAL lectures will now be available on the 'SWAYAM' platform of the HRD Ministry which offers students online courses to crack central exams.

With this, the IIT-PAL (Indian Institute of Technology- Professor Assisted Learning) can be accessed on mobile phones anytime.

The decision of making IIT-PAL more easily accessible

The decision was taken at the 52nd Indian Institute of Technology (IIT) Council meet under the chairmanship of HRD Minister Prakash Javadekar in Delhi on August 20.

"**IIT-PAL has more than 600 lectures in physics, chemistry, biology, and maths... They will now be available on Swayam platform in handheld form so that in coming years the dependence of students on coaching classes can be reduced**," Javadekar told reporters, as per IANS.

10 ways IIT-PAL can benefit you

1. IIT-PAL videos and TV channels function under the name 'Swayam Prabha'.
2. There are four channels under IIT-PAL -- one for Mathematics, Physics, Chemistry and Biology each.
3. Biology, being an essential ingredient of the IIT foundation courses, can be easily reached and learned by watching these lectures -- even if you're sitting in a remote village.
4. The videos under these channels were recorded mainly by IIT Delhi professors, but now also include other faculties like some Kendriya Vidyalaya teachers.
5. Aspirants who cannot afford coaching classes can avoid the menace, as one only needs internet connectivity or a DTH (direct-to-home) setup for television to access this facility.
6. Now, even that hassle has been reduced as the lectures have been made available through an app.
7. The initiative is mainly headed by IIT-Delhi, but is partnered with IITs of Mumbai, Kanpur, Chennai, Kharagapur and Guwahati.
8. Apart from just online interactions, consultation and queries can be provided and answered through e-mails and even phone calls!
9. Each subject has its own channel that delivers fresh content as per the fixed course schedule for four hours every single day, two for class 11 and two for class 12.
10. The lectures are broadcasted six times a day so that any slot can be picked by a student as per his/her own convenience.

"**This is a great initiative to help senior secondary students... We need to help children from the rural backgrounds and from disadvantaged sections to enter the IITs**," IIT-D director V Ramgopal Rao told TOI.

These are the TV channels you need to switch on for your subject to watch IIT-PAL video lectures:

- Channel 19: IIT PAL: Biology
- Channel 20: IIT PAL: Chemistry
- Channel 21: IIT PAL: Mathematics
- Channel 22: IIT PAL: Physics

SWAYAM portal

Study Webs of Active -Learning for Young Aspiring Minds (SWAYAM) portal was launched by the govt as a website, and then as a mobile app as well.

National Coordinators that have been appointed to ensure best quality content is produced and delivered. (Image: swayam.gov.in)

The biggest benefit of this portal is that if a student is studying in any college, he/she can transfer the credits earned by taking SWAYAM courses into their academic record.

The courses hosted on SWAYAM are in 4 quadrants:

- Video lecture
- Specially prepared reading material that can be downloaded/printed
- Self-assessment tests through tests and quizzes and
- An online discussion forum for clearing the doubts

How to get IIT-PAL on your SWAYAM portal

- In order to get the app, go to your Apple Store/ Google Play Store and type 'Swayam' in the search bar
- Further, download the app that looks like this:

SWAYAM app looks like this on your Android Play Store! (Screenshot)

- Now that you have it on your phone, open it and watch it transform your educational experience!

In volte-face, IIT directors now say coaching not bad

https://economictimes.indiatimes.com/industry/services/education/in-volte-face-iit-directors-say-coaching-not-bad/articleshow/65556009.cms

The IIT directors and many in the faculty have for years held that the thriving JEE coaching industry is a menace, it undermines the IIT admission system and sends in heavily tutored students to the country's top engineering institutes instead of those with genuine 'raw intelligence'. At the August 20 IIT Council meeting, however, some IIT directors expressed a different opinion on coaching, marking a big shift in stand. Directors of some prominent IITs said at the meeting, chaired by HRD minister Prakash Javadekar, that a strongly antagonistic approach to coaching may be misplaced as coaching centres at least keep students engaged in 'constructive' and 'academic' enterprises which will ultimately yield them professional advancement in some form or the other. Highly placed officials in the ministry told ET that at least three directors from prominent IITs made this point while strongly advising against any tinkering with the JEE exam.

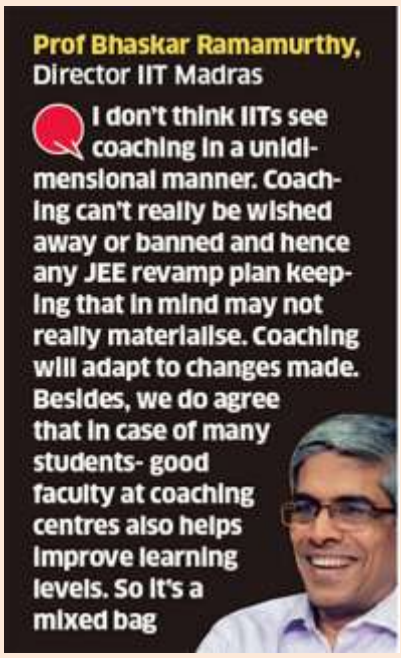
A proposal—which had government support— was mooted at the IIT Council meeting to 'reform' the JEE Advanced to make it 'more scientific' and to 'reduce dependence on coaching centres'. All I IT directors unanimously rejected the proposal.

The point was made that it may be better to have young students preoccupied in academic pursuits at a coaching centre rather than be aimless and drifting away in times of high unemployment. All IIT directors are learnt to have largely agreed with the view.

"While there are concerns around the impact of coaching, IITs do recognise that it does provide a service. There is good faculty in many coaching centres as well. The one issue that does rankle is the huge fee charged and the unaffordability factor for many students," V Ramgopal Rao, director, IIT Delhi, said.

The advantage with coaching, it was pointed out by some, was that students would make it to some other institute if not an IIT and hence move on the road to academics and employment.

“This was a view expressed by some IIT directors. It was observed that there is high unemployment and youngsters can be adrift and distracted at such times but if they are enrolled in a coaching centres to sharpen academic skills, it keeps them focussed. Of course, they all want to come to an IIT but even if some don’t make it, they will at least still land a seat in some other good institute. So while no one is advising coaching, it is also true that we cannot really stop the coaching industry and they may be serving a purpose as well,” says Gautam Biswas, director, IIT Guwahati.



While several committees earlier recommended various measures to check the impact of ‘coaching’ and to bring back students with ‘raw intelligence’ to the IIT system, the latest reading by IIT directors looks at the larger social picture.

“There is no point in blaming coaching centres. In the 80s and 90s, very bright students made it to IITs without any coaching but we have to accept that times have changed, competition levels are high as are the number of aspirants. This is how society has turned out with a clear issue of demand and

supply. All this brought about changes in question papers from subjective to objective MCQ based ones and that's where the coaching industry stepped in to prepare students. So it is not black or white at all but in between," the IIT Delhi director added.

IIT Madras students launched E21 campaign to promote entrepreneurship skills in schools

https://www.jagranjosh.com/news/iit-madras-students-launched-e21-campaign-to-promote-entrepreneurship-skills-in-schools-146584

The Entrepreneur Cell (E-Cell) of the Indian Institute Technology (IIT) Madras has launched the 'E21' campaign to focus on skills such as innovation, creativity, entrepreneurship, leadership, and risk-taking among 150 students from various schools in Chennai. The main motive behind launching the initiative is to provide students with the skills to handle the challenges of the 21st Century. This year-long initiative was launched by Indian Institute of Technology (IIT) Madras students and focusing on preparing Government and Private school students for the challenges of 21st century.

Educators from different sectors will celebrate examples of successful 21st-century learning and illustrate how entrepreneurship empowers all learners to gain the skills they need. During the workshops cum lecture series, educators will teach students about how to think creatively and make innovations happen. Raghavendra Hunasgi, Global Shaper, World Economic Forum (WEF), and Founder and CEO, ThoughtFolks Digital, during the launch of the initiative said, "this was an apt platform and event hosted by the e-cell at IIT Madras covered the most crucial aspects. It's high time we reconsider our style of education and tailor the courses that will create entrepreneurs and innovators."

Raghavendra, who is a Harvard Business School Alumni further added, "the curriculum build a decade ago will no longer hold any relevance unless we couple it with new age technology courses and frameworks."

It is believed that The Entrepreneur Cell (E-Cell) will further support the schools in making meaningful and sustainable improvements in education quality and help students to obtain a competitive advantage vis a vis their peers. Speaking about the importance of this initiative, Prof Ashwin Mahalingam, Faculty Advisor, E-Cell, IIT Madras, said, " This is a fantastic initiative. I am particularly happy that IIT-M's students are taking the lead on this and I hope that their entrepreneurial zeal and academic excellence can be passed on to students from schools across the country."

Are old IITs still a preferred choice of students over the new ones

https://timesofindia.indiatimes.com/home/education/news/are-old-iits-still-a-preferred-choice-of-students-over-the-new-ones/articleshow/65578600.cms

Lack of infrastructure, less-experienced faculty, and doubt over placement make students choose older IITs over new ones

The admission process for 23 Indian Institutes of Technology (IIT) in the country is now complete and the latest figures reveal that the five old IITs, including IIT Kharagpur, Mumbai, Madras, Kanpur and

Delhi, established between 1951-63, continue to be on the top of the wish list of most aspirants.

The first cut-off list revealed that crème de crème students in the top 100 list opt for IIT Bombay and Delhi, because of the popularity of computer science course. The lab facilities and the faculties in these institutes are equally advanced.

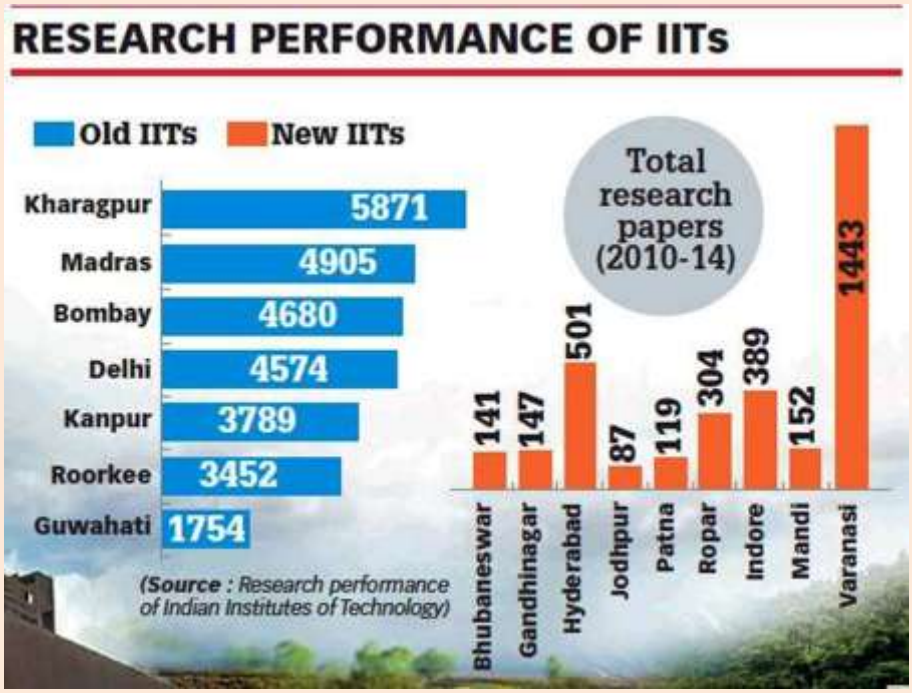
Among the new ones, IIT Hyderabad has seen a rise in students enrolment with admissions opening at all India rank (AIR) 445 in Computer Science, which has increased from AIR 522, in 2017.

Deputy Director of IIT Kanpur, Manindra Agrawal said, "It will be unfair to compare older IITs with the new ones. Old IITs are more than 50 years old, while the new ones are still establishing. The lack of infrastructure, paucity of faculty could be some of the reasons that students prefer studying in old IITs."

"The new IITs are doing their best to make a mark, like researchers from IIT Gandhinagar, recently developed a nanoparticle that can convert carbon monoxide into carbon dioxide, which can help in reducing pollution," he added.

A report in March 2018 revealed that IITs have a faculty shortage of 34% with IIT Goa topping the list with over 60% faculty shortage. Lack of basic facilities, limited connectivity, under construction college building and limited foreign collaborations are some of the reasons that new IITs are struggling for an identity.

A student of IIT Goa, seeking anonymity, said, "There is a lack of infrastructure and construction of new buildings is still underway. We have poor WiFi connectivity, labs are not fully equipped and the hostel rooms are not enough to accommodate new students." The student even claimed that the teaching staff consists of visiting faculties, who usually travel from Mumbai.



A research by Sumit Kumar Banshal and Pranab Kumar Muhuri from South Asian University (Delhi), and Vivek Kumar Singh of Banaras Hindu University on 'Research performance of Indian Institutes of Technology' showed quality of researches carried out in old and new institutes are one of the main reasons that new IITs have not found space in any global ranking list. Bansal claims that the numbers of research papers released by old IITs are far more than what is released by old IITs.

IIT Bombay released 4680 research papers between 2010-14, while IIT Gandhinagar in the same period released only 147 papers, revealed the research.

The campus culture and lifestyle of old IITs is also different from the new ones. Old IITs have cultural clubs and hold youth festivals that help in the overall development of students.

IIT Delhi director V Ramgopal Rao said, "The campus culture of old IITs gives them an edge over the new ones. Old IITs have clubs dedicated to robotics and journalism to create a well-rounded personality."

"Alumni connect in old IITs is strong. In IIT Delhi, new students connect with alumni via a website dedicated for one-on-one interaction. They mentor them and help them with internships and placements," said Rao, adding that the new IITs will eventually make a mark globally, but it will take some time.

Meanwhile, Timothy Gonsalves, director, IIT Mandi, said, "With 23 IITs up from the original five, each IIT is carving its own unique identity. Students and faculty can choose an IIT that matches their interests. This competition between IITs for best students and faculty is resulting in improvement of all IITs. Starting from a clean slate, new IITs have an opportunity to experiment in innovative ways that are difficult in an old IIT with decades of legacy. At IIT Mandi, we have a pervasive inter-disciplinary culture in research. Our BTech programme has a unique Design and Innovation Stream that emphasises projects and learn-by-doing throughout the four years."

Sudhir K Jain, director, IIT Gandhinagar, said, "IITs are at different stages of life and comparing the older ones with new ones is healthy. I worked with IIT Kanpur for over 20 years and after I came to IIT Gandhinagar with a motive to make new generation IIT better than the older ones."

He added, "Though new IITs still need time to establish globally, we have an advantage over the older ones. The faculty here has studied from the best universities in the world and they are willing to accept new technologies and innovations."

RESEARCH PERFORMANCE OF IITS

Institute Total research paper (2010-2014)

Old IITs

IIT Kharagpur	5,871
IIT Bombay	4,680

IIT Madras	4,905
IIT Kanpur	3,789
IIT Delhi	4,574
IIT Guwahati	1,754
IIT Roorkee	3,452

New IITs

IIT Bhubaneswar	141
IIT Gandhinagar	147
IIT Hyderabad	501
IIT Jodhpur	87
IIT Patna	119
IIT Ropar	304
IIT Indore	389
IIT Mandi	152
IIT Varanasi	1,443

Prosthetics with bioactive nanofibers show better bone integration and growth

https://researchmatters.in/news/prosthetics-bioactive-nanofibers-show-better-bone-integration-and-growth

Nanotechnology has become commonplace in the field of medicine in today's world. On the one side, there are targeted drug delivery techniques that use nanomaterials, and nano-sized robots that wander inside our bodies. On the other, there is an evolving application of nanomaterials focused on prosthetic metal implants. Typically, when one suffers from fractures or needs prosthetic implants, the process of osseointegration—where the bone is integrated with titanium implants—is followed. An emerging area of research is the application of nanomaterials on these implants.

In a recent study, researchers from the Indian Institute of Technology Bombay (IIT Bombay), the Tata Memorial Centre and the Advanced Centre for Treatment, Research and Education in Cancer, Navi Mumbai, have used such metallic implants coated with nanofibres that enhances the formation and growth of new bone tissue on the surface compared to implants without the coating.

The preclinical study, tested on rabbits, was published in the journal Tissue Engineering and Regenerative Medicine.

"Over the years, implants manufacturers have developed a wide variety of surfaces with different surface topography exhibiting a range of roughness. However, it remains a matter of debate regarding the precise modification of specific parameter for which the implant would display optimal dynamics of osseointegration", say the researchers.

The prosthetic implants interact with their surrounding extracellular matrix, proteins and cells followed by the blood clot initiating the synthesis of new blood vessels and bones. Sometimes, this process could lead to complications where the implants either do not support the regrowth of bones or are not biologically compatible. Hence, the need is to have implants with suitable coatings that accelerate the growth of bones. This study addresses the need by coating titanium implants with unique osteogenic nanofibres that enhance the rate of bone growth and integration.

The researchers developed unique osteogenic nanofibres from osteogenic chemicals including polycaprolactone (a biodegradable polyester), gelatin, dexamethasone (a steroid), beta-glycerophosphate, ascorbic acid, and hydroxyapatite (a calcium-based mineral). "These nanofibres, when coated on the titanium implant, are presumed to create interconnected pores resembling the extracellular matrix, resulting in better infiltration of cells and subsequent regeneration of intended tissues", say the researchers.

The researchers used rabbit tissues to test the mechanical and biological properties of the titanium implants coated with osteogenic nanofibres. When viewed under an electron microscope, they could see a layer of nanofibres creating series of uniform pores around the implant. The modified implants also have increased thermal stability and tensile strength that not only support the bone but also provide adequate stiffness by mimicking the extracellular matrix in the alveolar bone to regenerate tissue.

The surface of the nanofibres-coated implants was rough with more crests and troughs as compared to the relatively smooth surface of the bare implants. Does this help in cell growth? "There are conflicting reports of an increase in cell adhesion and proliferation with an increase in roughness while other indicates existence of an optimum range of roughness to evoke a favourable biological response", remark the authors. Although the researchers observed successful bone integration in both coated and non-coated implants, the coated implants showed similar and uniform contact suggesting enhanced osteogenesis as compared to non-coated implants.

The study demonstrates that the new osteogenic nanofibre coatings on the implants, coupled with pore size distribution and surface properties, could be a game changer in the future of prosthetic implants. Although the study needs an in-depth analysis of its use in humans, it is still a promising step. "Bioactive implants with osteogenic nanofibre coatings are expected to surpass the conventional titanium implant in the future. The findings of the study shows them as an efficient alternative to commercially available metallic implants", conclude the authors.

Aug 26

IIT-Delhi students are coaching engineering aspirants, details here

https://www.newsbytesapp.com/timeline/India/30473/136068/know-about-iit-delhi-s-aarohan-engineering-coaching-program

In a bid to help engineering aspirants from low income families, some IIT-Delhi students are providing free coaching to students who cannot afford to spend fortunes on established coaching centers.

The project, dubbed 'Aarohan' was launched by a bunch of students in 2014, but couldn't get much traction owing to shortage of funds and publicity.

Now, however, they've started making a mark.

Here's more.

In context: Know about IIT-Delhi's Aarohan engineering coaching program

26 Aug 2018 IIT-Delhi students are coaching engineering aspirants, details here

In a bid to help engineering aspirants from low income families, some IIT-Delhi students are providing free coaching to students who cannot afford to spend fortunes on established coaching centers.

The project, dubbed 'Aarohan' was launched by a bunch of students in 2014, but couldn't get much traction owing to shortage of funds and publicity.

Now, however, they've started making a mark.

Here's more.

Aarohan The program has been recognized by IIT-Delhi management

Owing to problems in promoting the program, enrolment had never exceeded 10-12.

However, this year, since IIT-Delhi management officially recognized the program, the volunteers were able to promote it more.

Besides using social media and word-of-mouth promotion, they visited fifteen government schools to hand out pamphlets and make the program known.

Notably, their efforts saw enrolment numbers drastically rise to 127.

The secretary of Aarohan talks about their approach

"Most students we get are from the underprivileged background. They do not even have their basic concepts clear. We start with NCERT level and then go by their feedback," said Ujjwal Tater, the secretary of Aarohan and a third-year chemical engineering student.

Recognition Official recognition from IIT-Delhi will expand Aarohan's outreach

On the issue of recognition, IIT-Delhi director V Ramgopal Rao said that through the recognition, the Aarohan project could reach more students and have a "far-reaching impact on the lives of many".

He added that only a few students from low income families succeed in cracking exams because most can't afford expensive coaching.

Rao said he hoped the program would benefit such aspirants.

Classes Details of classes being held by Aarohan

This time, a group of 30 volunteers have taken the responsibility of coaching students of classes XI and XII for the Joint Entrance Examination.

Classes started Sunday, August 26.

Class timings are between 4pm and 7pm, and they take place five days a week.

When the Hindustan Times asked these students how they get time, they said they have a roster, and take turns.

Despite being very small, Aarohan has had some success

Among earlier enrolments, so far, two students who had enrolled in Aarohan succeeded in cracking the National Institute of Technology (NIT) test, while some others were able to get through DU.

Researchers from IIT-Delhi develop cheaper drug for snakebites

https://www.hindustantimes.com/health/researchers-from-iit-delhi-develop-cheaper-drug-for-snakebites/story-7AXOpmrXKYvIuj5e6WFDAI.html

The antivenom has been developed in collaboration with San Jose University in the US.

The IIT campus in New Delhi.

Researchers from Indian Institutes of Technology, Delhi have developed, in collaboration with San Jose University in the US, an antivenom using an artificially designed peptide that effectively neutralises the poison of several snakes, including the four common in India -- Indian cobra, common krait, Russell's viper and saw-scaled viper.

The antivenom currently in use is a serum derived from horses immunised with snake venom. It is used against all four venomous snakes and costs around Rs 500 per vial. With the new anti-venom, IIT Delhi is aiming for a cost of $1 (about Rs 70) per dose. In India, an estimated 2.8 million people are bitten by snakes and 46,900 die of snakebite every year.
"This is a polyvalent anti-venom, which will be effective against a bunch of snake bites, unlike the ones currently available that are effective against only the big four. We have already shown its efficacy in two of the four snakes in mice model and the other two are underway," said professor Anurag Rathore, department of chemical engineering in IIT Delhi.

The polyvalency of the single molecule will lower reactions to the other venoms present in the serum. "If the single molecule negates the effect of multiple venoms, it is a very important discovery. The serums in the market contain traces of all four venoms and carry the inherent possibility of reaction to venoms other than the one against which it is needed," said Dr YK Gupta, former head of the department of pharmacology, All India Institute of Medical Sciences, which runs the National Poison Centre.

The peptide-based treatment will also remove the risk of an allergic reaction to horse serum.

Another advantage is its stability. "Serums are not very heat-stable and need to be stored in the correct cold-chain conditions for them to work. This makes transport and storage a problem in semi-urban and rural areas, where most of the snake bites occur," said Rathore.

The maintenance of cold storage also drives up the cost of delivery. "The peptide-based treatment will most likely be in a powdered form, which is more stable than the serum and does not need cold storage. It can be mixed with saline at the point of administration. This, coupled with the method of production using DNA modified E coli bacteria, will result in the final product costing just one-tenth of the current anti-venoms," he said.

"The availability of anti-venoms at the village or primary healthcare centre level is a problem because, at best, serums have a shelf life of eight months, leading to wastage. There are, of course,

lyfolised antivenoms that have a shelf life of two to three years, but they are more expensive," said Dr Gupta.

Aug 25

IIT-D plans to turn sewage waste into bricks soon

https://www.indiatoday.in/mail-today/story/iit-d-plans-to-turn-sewage-waste-into-bricks-soon-1322821-2018-08-25

HIGHLIGHTS

- IIT-D has set up a Centre of Excellence for Sustainable Infrastructure
- This is set up for the first time in India
- The centre for excellence aims to boost research

In order to create awareness on sustainable infrastructure in the national capital, the Indian Institute of Technology-Delhi (IIT D) has set up a Centre of Excellence for Sustainable Infrastructure.

Set up for the first time in India, the Centre of Excellence aims to encourage research on using technology to boost infrastructure in the Capital.

A senior professor, who is part of the newly launched Centre, told Mail Today, "The Centre of Excellence has signed a Memorandum of Understanding (MoU) with Anant Yardi Software India Ltd. The centre will use sensor based technology. We will study the use of recyclable material like sewage waste which can be used in making bricks for buildings. By using sensor technology, we will study how it can help in reducing air pollution. For instance, by fitting the sensors in a building, we can control the room temperature. The idea is to curb pollution emanating from wastes."

Delhi-NCR ranks worst in vehicular pollution: Study

https://www.hindustantimes.com/delhi-news/delhi-ncr-ranks-worst-in-vehicular-pollution-study/story-v867fE0olPQprku1s5ZrEI.html

Delhi has to work towards improving its roads and integrating transport and traffic management, suggest experts.

The ranking was done on the basis of a study conducted by the Centre for Science and Environment (CSE) — a Delhi-based research organisation to assess transport-related emissions from urban commuting.

The National Capital has been ranked last among 14 cities of India on the basis of vehicular emissions in a survey. This despite the fact that Delhi uses CNG — a cleaner fuel — for its public transport system and has a relatively higher share of public transport ridership.

The ranking was done on the basis of a study conducted by the Centre for Science and Environment (CSE) — a Delhi-based research organisation to assess transport-related emissions from urban commuting.

“Delhi ranks the worst in terms of overall toxic emissions, heat-trapping emission and energy consumption. This is despite the fact that most of its parameters — such as average trip length and public transport share — are better than other megacities, the study stated.

The study found that the major factors behind the abysmal ranking of Delhi include high volume of vehicles and relatively higher population than other cities. Delhi’s population in 2017 was 1.25 times that of Mumbai, 2.5 times that of Bengaluru, 1.8 times that of Kolkata, 2.9 times that of Hyderabad and 2.6 times that of Chennai.

“This is Delhi’s paradox. Even though the city has done well in some aspects of urban commute, such as per-trip emissions, those efforts have been negated by the high magnitude of population and number of vehicles. Delhi has the highest vehicle stock, which is dominated by personal vehicles and a relatively high population,” said Anumita Roychowdhury, executive director, research and advocacy.

A 2016 study by IIT-Kanpur had found that vehicular emissions contribute to around 9% of the PM10 load in Delhi and around 20%of the PM2.5 load. A study by TERI and ARAI earlier this month found that the contribution of vehicular emissions in Delhi’s air could go up to 30% if secondary particles are taken into account.

The CSE study — titled The Urban Commute and How it Contributed to Pollution and Energy Consumption — ranks cities on emissions of heat-trapping carbon dioxide and toxic pollutants like particulate matter and nitrogen oxides, as well as energy guzzling from urban commuting. It classified six urban agglomerations — Delhi, Mumbai, Kolkata, Hyderabad, Bengaluru and Chennai — as megacities and Bhopal, Vijaywada, Lucknow, Jaipur, Chandigarh, Kochi, Pune, Ahmedabad as metro cities. Bhopal was ranked the best for its lowest overall vehicular emission and fuel consumption, followed by Vijaywada and Chandigarh. Kolkata and Mumbai was ranked 7th and 10th on the list, respectively.

According to Dipankar Saha, former head of the Central Pollution Control Board’s (CPCB) air quality lab, Delhi has big achievements to its credit, including using of CNG and scrapping of old vehicles. However, it can do better in terms of emissions by having a robust public transport and traffic management system.

“The emissions, such as CO2, is released due to unburnt hydrocarbons. This happens because of various factors such as vehicle speed not being maintained, overloaded heavy-duty vehicles, poor roads and poor management of traffic. Delhi has to work toward improving its roads and integrating transport and traffic management,” Saha said.

IIT-H hosts international workshop on reproduction

https://www.thehindu.com/news/national/telangana/iit-h-hosts-international-workshop-on-reproduction/article24763340.ece

Ravinder Kaur, professor at IIT-Delhi, and Anindita Majumdar, assistant professor at IIT-H, with delegates at the conference at Kandi in Sangareddy district.

'The conference gave us a comparative perspective on ageing and reproduction'

The Indian Institute of Technology-Hyderabad hosted an international workshop on 'Reframing the Biological Clock' as part of a project funded under Wellcome Foundation U.K. Small Projects Grant for 2018.

Students at IIT-H have been working on a pilot research looking at how age and ageing are conceptualised in assisted reproduction.

Principal investigator Anindita Majumdar, assistant professor, Department of Liberal Arts, IIT-H, is researching on ageing and IVF (In vitro fertilisation) in rural north India where she interviewed couples above a certain age regarding their experiences with IVF and birthing children.

The outcomes from the field research were presented at a conference at Reproductive Sociology Group, University of Cambridge, U.K., in June 2018, and European Conference on South Asian Studies, Paris, in July 2018.

The Department of Liberal Arts, IIT-H, coordinated the workshop held on August 17 and 18 that brought together a set of scholars exploring the dynamics of ageing and reproduction through the lens of egg freezing, menopause, male infertility and sex ratio deficit, according to a release here on Thursday. Addressing the workshop, chief guest Ravinder Kaur, professor at Department of Humanities and Social Sciences, IIT-Delhi, said: "This was a great conference and extremely topical. Engaging with new reproductive technologies, the conference brought together papers that are looking at its relationship with kinship and family. Some of the conversations here were futuristic, engaging with issues that are going to become relevant as we forge ahead, such as egg freezing. But, most importantly, the conference brought together voices from different parts of the world and from within India, giving us a comparative perspective on the issue of ageing and reproduction."

Lucy van de Wiel, member of Reproductive Sociology Group, Department of Sociology, University of Cambridge, said: "I have met people from all over the world, with discussions on how reproduction is organised, and the kind of inequalities it carries in countries like Mexico, the U.S., and the U.K."

The workshop brought to the fore the ways in which technology is both detrimental and beneficial in imagining new reproductive futures for different cultures and communities across the world, including Mexico, Japan, U.S., U.K., Denmark, India, Bangladesh, amongst others.

Scholars from Denmark, U.S., U.K., India, Japan, Germany and Bangladesh presented their work on the idea of biological clock to understand how reproduction impacts deeper anxieties about the family, kin and nationhood.

IIT Ropar Finds Painless Way To Reduce Burns During Breast Cancer Treatment!

https://www.thebetterindia.com/157068/iit-ropar-method-breast-cancer-treatment/

The heat is literally used to “cook” a tumour as its cells burn. This procedure has some serious side-effects to the body. But the new method can reduce that considerably well.

The shock that comes from a diagnosis of cancer is one that stems from the knowledge that there is no definitive cure for it yet. Whatever treatment is advised by the doctor, one thing is for sure, that the disease and its treatment will take a toll on your body.

Cancer treatments comprise a dynamic arrangement of methods and practices such as chemotherapy, radiotherapy, tumour surgery, and — in some cases– hormonal therapy, all to inhibit cancer cell growth.

But all these treatments have one thing in common– the after-effects.

A traditional treatment for lung cancer. Source: Oncocare

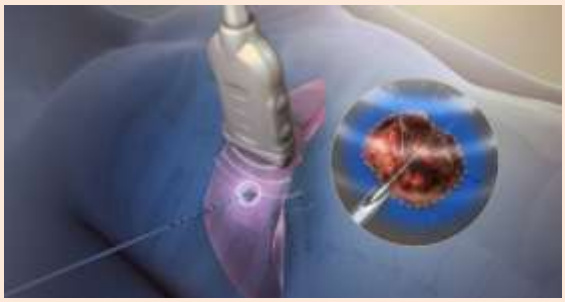
Nausea and vomiting characterise chemotherapy, tumour surgery comes with its own risks, and hormonal therapy can even cause hormonal imbalance.

One of the types of treatment – Radiofrequency Ablation (RFA) – is a successful treatment for a particular type of cancer. The RFA uses radiofrequency to generate alternating current to denature proteins in a tumour. This causes localised cell death– necrosis – in the tumour, eventually ceasing cancer cell growth.

What sounds technical here, in real time, is painful and gruesome.

The RFA consists of an array of needles sitting inside a hollow syringe. When the plunger of the syringe is pressed, the needles are pushed out and sear through the cells, sort of like a hook. These needles are then made to conduct radio waves which will constantly vibrate the molecules in the cell, releasing heat in turn.

The heat is literally used to “cook” a tumour as its cells burn. The burnt cells will die, and later be reabsorbed by the body.



The RFA procedure. Source: Wikipedia

This procedure has some serious side-effects to the body. For example, when used for breast cancer, the soft cells around the tissues suffer a degree of burns. It is painful and leaves behind burn marks. The pains are so incessant that the treatment weakens the patient not only physically, but also mentally, causing depression.

But now, scientists at IIT Ropar have developed a novel method of RFA that reduces skin burns considerably. This could mean that patients suffer less trauma from the treatment, hence keeping them psychologically well.

The method uses convective cooling, where the motion of the liquid helps disperse heat. In this new method, the RFA is applied in a controlled manner and by using convection, the heat is distributed evenly.

Researchers used a heterogeneous three-dimensional model of a breast that has been constructed based on the anatomical details available in the literature. A spherical tumour of 1.5 cm was embedded in the model to represent an in-situ tumour in its early stage.

With observations like temperature and thermal conductivity noted down, the procedure was started. The results measured the time it took for cell necrosis to occur.

Though the time it took to “cook” the tumour saw a slight increase, from 11.67 minutes to a maximum of 18 minutes, the procedure saw less heat in surrounding areas of a tumour when compared to traditional RAF.

Dr Ramjee Repaka, Associate Professor, Department of Mechanical Engineering, IIT Ropar, who headed the study, told The Sunday Standard, “Skin burn is a major issue during RF heating of tumour, located close to the breast surface. Quantification of the requirement of convective cooling during RF heating can circumvent the skin burns effectively.”

Though the procedure has some limitations, such as being used on only single tumours, the method could mean that it can be used for tumours in other organs like kidney and liver as well.

Kudos to the team for developing a painless medical treatment for cancer patients