Newspaper Clips
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January 25

Centre announces four schemes to promote young scientists

https://www.hindustantimes.com/india-news/centre-announces-four-schemes-to-promote-young-scientists/story-S46yThUUNFevBaVE0abMYI.html

Science and technology minister Harsh Vardhan said the Teacher Associateship for Research Excellence Scheme will connect the educators to institutions like IIT, IISc or CSIR to pursue research.

The government on Thursday announced four new schemes to promote young scientists and researchers in the country.

Science and technology minister Harsh Vardhan said the Teacher Associateship for Research Excellence (TARE) Scheme will connect the educators to leading public funded institutions like IIT, IISc or national institutions like CSIR to pursue research.

They will be paid Rs 5 lakh yearly, and a monthly out- of-pocket expense of Rs 5,000. This will be in addition to the salary from their existing employer, he said.

The second scheme -- Overseas Visiting Doctoral Fellowship -- offers support to 100 PhD scholars for training in universities/laboratories abroad up to 12 months during their doctoral research.

They would be given a monthly fellowship equivalent to $2,000, one-time contingency allowance of Rs 60,000 to cover travel and visa fee.

The third scheme --Distinguished Investigator Award -- offers a maximum of 100 fellowships to principal investigators of Science and Engineering Research Board/Department of Science and Technology projects.

The selected 100 researchers will be given a monthly fellowship of Rs 15,000 for three years and an optional research grant, based on peer review of the project proposal submitted.

The fourth scheme 'Augmenting Writing Skills for Articulating Research (AWSAR)' aims to encourage science writing.

The scheme seeks to tap the potential of over 20,000 PhD scholars in science to popularise and communicate their research outcome.

"The schemes focus on youth to empower, recognise and motivate them," Vardhan said, while announcing the new schemes.

IIT Roorkee researchers develop solution for cancer treatment

https://www.indiatoday.in/education-today/news/story/iit-roorkee-researchers-develop-solution-for-cancer-treatment-1153843-2018-01-25

Researchers at Indian Institute of Technology (IIT) Roorkee have developed a new technique for cancer treatment.

The collaborative effort was taken by Dr. Kaushik Ghosh from Department of Chemistry and Dr. Prabhat Mandal from Department of Biotechnology, who unraveled a method named 'Photo-dynamic Therapy' that works on the concept of targeted drug delivery into the afflicted area, with the use of light.

Speaking about the research, Dr. Ghosh said, "Our concept was to look at a method through which we can deliver the drug in a non-toxic way, only to the area which is affected by cancer, thereby reducing the effect of the drugs on the remaining body."

Research team at IIT Roorkee

THE NEW TECHNIQUE

Since ultraviolet rays are harmful to cellular targets, the researchers looked at an alternative method that is metal-nitrosyls, which can be used under visible light for the release of Nitric Oxide (NO).

According to researchers, results showed that the photo-released NO was cytotoxic and was responsible for death of the cancerous cells.

Mandal further added, "In recent years, target specific delivery of nitric oxide has become an important area in chemical as well as biochemical research. We used the extreme end of the spectrum of visible light to induce the release of NO and the results have been positive. Such interesting results are of extreme interest in photo-dynamic therapy and we hope that there will be further investigations on the use of such activity in treatment of other diseases as well."

IIT Madras' RuTAG launches annual contest to develop technologies for Rural Problems

https://indiaeducationdiary.in/iit-madras-rutag-launches-annual-contest-develop-technologies-rural-problems/

Chennai: Indian Institute of Technology Madras' Rural Technology Action Group- Tamil Nadu (RuTAG-TN) has launched an annual contest to encourage the development of technologies that will solve problems in rural areas of the country.

'Rural Innovative TechnologZ'(RITZ) will be an annual event for Polytechnic Colleges in Tamil Nadu with the objective being to tap into the potential of students and faculty members to contribute to solving rural problems.

Over 140 students belonging to 26 teams from 17 colleges across Chennai participated in the Inaugural Edition of this contest. They were given three problem statements: 'Solar drier for agricultural produce', 'Mechanized palm tree climber' and 'Mechanized vegetable slicer for large-scale rural applications'. The top team in each category will be provided funding of up to Rs. 50,000 each to develop a prototype.

The finals were held in the IIT Madras campus today (Wednesday 24th January 2018) in which 11 teams, comprising 42 students from seven colleges, were shortlisted to demonstrate their models.

Speaking about the contest, Prof. Abhijit Deshpande, Professor-in-Charge, RuTAG-TN said: “RuTAG – Tamil Nadu aims to deliver Science and Technology interventions for rural context. Engineering skillset from different institutions are required for a successful development and dissemination of the technology. We believe that the skills available in polytechnic colleges will be valuable to develop quick and feasible technical solutions. We hope to continue building our network of technical institutions interested to deliver quality interventions, with initiatives such as these.”

Addressing the inaugural function of RITZ 2018, Dr. M. Arul Arasu, Additional Director (Examinations), Directorate of Technical Education who was the chief guest, “”As India is moving from a developing nation into a developed nation, there is a need to take appropriate technologies to rural areas. In order to bridge this gap, RuTAG is doing commendable work and I am sure that events like RITZ will inculcate the spark among students from polytechnic colleges.”

Dr. Muthukrishnaiah, Principal, Dr. Dharmambal Polytechnic College for Women, Taramani, said: I congratulate RuTAG for conducting an event to cultivate creativity in the minds of young people. Such initiatives will encourage students across Tamil Nadu to come up with novel technological innovations for rural areas.

Dr. V. Seetharaman, Programme Coordinator and Nodal Officer, Skills Training Programme, Directorate of Technical Education and Dr. A. Senthil Kumar, Lecturer, State Institute of Commerce Education, Taramani also graced the occasion.

PRIZE WINNING ENTRIES

The team that won the top place for ‘Solar drier for agricultural produce’ problem statement comprised: Mr. Sai Prassana.K, Mr. Poornesh.V and Mr. Charan Chandran.S mentored by their faculty Mr. Mohanarangan.C from Panimalar Polytechnic College

The team that won the top place for ‘Mechanized Vegetable Slicer for large scale rural applications’ comprised: Mr. Tharun Kumar.R, Mr. Abhishek.K.S., Mr. Subash.P, Mr. Aravind.R and Mr. Abaysingh.J.W.N mentored by their faculty Sathish G from Sri Balaji Polytechnic College,

The team that won the top place for ‘Mechanized palm tree climber’ problem statement comprised: Mr. Zubair Ahmed.N , Mr. Kishore Kumar.V , Mr. John Kristien. and Mr. Gopi.E mentored by their faculty Mr. Nijanthan.P and Ms. Chandra Karthik.A from Little Flower Polytechnic College

Solar Drier: Hybrid solar dryer consists of absorber plate, drying chamber, air blower, ventilation and electronics control unit. Absorber plate absorbs as much radiation as possible to generate hot air, which is passed to the drying chamber using an air blower. This removes moisture from the produce. The drier uses easily available materials that makes it affordable at Rs. 27,000.

Vegetable slicer: Vegetables are sent one by one to a two-step conveyor from the hopper. Two blades rotate to chop the vegetables into bigger pieces. A piston presses down the chopped vegetables through the blades to cut them into smaller pieces. The piston pressure changes as per vegetable type, while the blades can be changed as per needed size and shape. The setup is estimated to cost Rs. 35,000.

Palm tree climber: The device is a mechanical device consisting of two pieces. While top segment has a provision to sit comfortably, the bottom segment has a foot grip. It can rotate 360 degrees to facilitate easy collection of produce. Extra features include provision for leaning backwards comfortably and sun protection slider cap. The product is affordable costing up to Rs. 5000

RuTAG-TN, IIT Madras, is an initiative of the Office of Principal Scientific Adviser to the Government of India to enable development and dissemination of demand-driven Science and Technology interventions by technical institutions in rural areas. Over the past decade, RuTAG-TN has only interacted with engineering colleges and R&D institutions in order to develop technical solutions for issues raised from rural areas in the sectors of livelihoods, assistive technologies, textiles, health and sanitation, energy. Potential benefits of the interventions include, inter alia, improving quality of life, drudgery reduction, efficiency improvement and optimization of resource usage.

NIT Srinagar and IIT Jammu sign MoU to collaborate on academics

https://www.aninews.in/news/tech/others/nit-srinagar-and-iit-jammu-sign-mou-to-collaborate-on-academics20180124175725000 3/

National Institute of Technology (NIT) in Srinagar and the Indian Institute of Technology, Jammu, signed a Memorandum of Understanding (MoU) on Wednesday to collaborate in the field of academics and research.

NIT Srinagar Director Professor S.K.Kouland and his counterpart at IIT JammuProfessor M.S. Gaur signed the MoU this evening in the presence of the management of both institutes and office bearers of NIT Srinagar Alumni headed by its Vice President Deepak Bhasin at the IIT Delhi campus here.

Both institutes have agreed to cooperate in academic areas of mutual interest, exchange information on teaching and learning materials , jointly organise seminars, conferences, workshops and engage in research and training programmes sponsored by funding agencies.

The MOU also provides for inviting each other faculty, staff and students to participate in each other's activities and jointly guide research scholars registered for their doctoral and post graduate programmes in achieving their goals.

In addition to this the alumni has arranged with IIT Delhi for using their infrastructure and facilities for its interviews of the NIT Srinagar students.

NIT Srinagar alumni vice president Deepak Bhasin revealed that since October 2017, past students have been visiting the campus and delivering talks on technical and soft skills based on their experience.

He said that the idea is to expose students beyond the curriculum so as to enable them to develop new skills, boost their confidence and prepare them for employment.

In addition, to mentor the students planning to go abroad for further studies and job assignments, the alumni has planned to open its first overseas chapter in the USA by the second quarter of this year.

The above initiative would be instrumental in substantially improve the learning skills of the students and enable them to keep pace with the rapidly changing technology and environment.

'Artificial Intelligence needs to be ever-changing'

https://telanganatoday.com/artificial-intelligence-changing

This ever-changing nature of AI was the subject of discussion at the Microsoft Academic Research Summit 2018 held in International Institute of Information Technology Hyderabad in partnership with Association for Computing Machinery.

Organisations believe that pairing humans with machine intelligence will create a more effective workforce.

Hyderabad: The area of Artificial Intelligence has always been a mystery that is even exciting at times for researchers and industry. And this has been due to the fact that at the very core the definition, perception and application of AI keeps changing. The area constitutes not only fancy research like robotics, drones but also social applications like speech and voice recognition for the differently abled and in turn helping them to communicate better.

This ever-changing nature of AI was the subject of discussion at the Microsoft Academic Research Summit 2018 held in International Institute of Information Technology Hyderabad in partnership with Association for Computing Machinery. According to Mausam, associate professor, AI, Natural Language Processing, IIT Delhi, "AI is almost like magic and for me if it works then it is not AI. We have come to a world where everything is AI and it is moving exponentially fast. Researchers in this field must try and come up with research which can be generalised across situations and not just provide specific solutions."

He was speaking on a panel titled AI Perception and Applications that had panelists Dr Victor Bahl and Dr Venkat Padmanabham from Microsoft Research and Professor Subhasis Chaudhari and Professor Hema Murthy from IIT Bombay and IIT Madras respectively.

Speaking about the advancements in AI, the panelists agreed that while it has varied applications like in speech and voice recognition, conversion of text to speech in native Indian languages, medical imaging, robotics, but there are two things it cannot do – dream and be philosophic. “While AI has given computers power of almost being close to human intelligence, but to dream and to be philosophical is something it cannot do. And that needs to kept in mind by researchers,” said Chaudhari.

However, the major challenge according to researchers in this field in the non-availability of large number of data sets. While some data is available in open forums, but there are some that are not publically available and this makes research in this field even more complex and difficult. And the panelists have called for a need to make more and more data public in order to make research more viable.

AI and Society

The two-day summit that started on Wednesday will have an interesting session on application of Artificial Intelligence and Society.

The panelists for this topic are Ajay Prakash Sawhney, secretary, Ministry of Electronics and Information Technology (MeitY), Dr P Anandan, CEO, Wadhwani Institute of Artificial Intelligence, Professor P J Narayanan, director, IIIT-Hyderabad and Professor Raj Reddy, Carnegie Mellon University.

January 24

Plan to add 1,000 IIT seats, but institutes say there is no room

https://www.hindustantimes.com/mumbai-news/plan-to-add-1-000-iit-seats-but-institutes-say-there-is-no-room/story-Pz2owcB0pzYywBvdrloEBK.html

We don’t want to overburden our classrooms and hostel rooms, IITs say

Even as the Joint Admission Board (JAB) hopes to increase the intake capacity of Indian Institutes of Technology (IITs) by 1,000 seats and has proposed a 14% supernumerary increase in the admission quota for women, some of the institutes are unsure if they will be able to accommodate more students in their campuses.

While all IITs have to make room for women, most of them are unsure of adding seats for reasons other than that.

“Before increasing the intake capacity, we need to make sure we have enough space to accommodate all students, which is our priority at present. We don’t want to overburden our classrooms and hostel rooms,” said Sudhir Jain, director, IIT-Gandhinagar one of the newer institutes.

Last year, IIT-Bombay (IIT-B) had started a new undergraduate course and increased their intake capacity by 30 seats, but the institute has no such plans for the upcoming academic year. It has accommodation for 8,000 students but houses 10,400 students.

The institute boasts of a massive campus with 16 existing hostel buildings, while another two buildings are on the anvil. “One of the new hostel buildings that can accommodate 1,100 rooms should be ready by mid-2019 and another similar hostel building should come up in another two years,” said Devang Khakhar, director, IIT-B. He said while the institute has no plans of increasing the intake capacity of existing courses, they might start a new course, although there is no confirmation as yet. “There’ll be no increase in the intake capacity of IIT-Goa and IIT-Dharwad [the centres are mentored by IIT-B] as well.”

Similarly, officials at IIT-Madras hope to start work on their new hostel building by March this year in order to accommodate more students. “Without making space for more students, we cannot increase our intake capacity,” said Jagadeesh Kumar, dean Academics, IIT-Madras.

He said for the time being, the institute has been accommodating students by making arrangements for double occupancy in their existing hostel rooms.

Over the years, an increasing number of seats are running vacant in IITs across the country. As many as 121 seats were left vacant after seven rounds of counselling across 23 IITs in 2017, up from 96 in 2016 and 50 in 2015. Consequently, the HRD ministry had asked IITs to consider various ways—including the option of scrapping unpopular courses—to address the situation.

“While the JAB has been inching towards increasing the intake capacity, most of the burden will have to be shared by the newer IITs because they are already struggling to provide accommodation, laboratories and classrooms to the existing students,” said a senior faculty of IIT-Delhi.

Shevgaonkar is new V-C of Bennett University

https://economictimes.indiatimes.com/industry/services/education/shevgaonkar-is-new-v-c-of-bennett-university/articleshow/62627629.cms

Eminent academic Raghunath K Shevgaonkar took over as Bennett University vice chancellor on January 22, succeeding Yaj Medury, who had held the post since 2014.

An alumnus of the Indian Institutes of Technology at Kanpur and Mumbai, Shevgaonkar was previously vice chancellor of the University of Pune and director of IIT-Delhi. He's also held leadership posts at IIT-Bombay. Bennett University is backed by the Times of India Group, which publishes ET.

His notable achievements include commissioning one of the world's largest decameter wave radio telescopes at the Indian Institute of Astrophysics. He also played a key role in establishing the Centre

for Distance Engineering Education at IIT-Bombay. He was also institute chair and professor of electrical engineering at IITBombay.

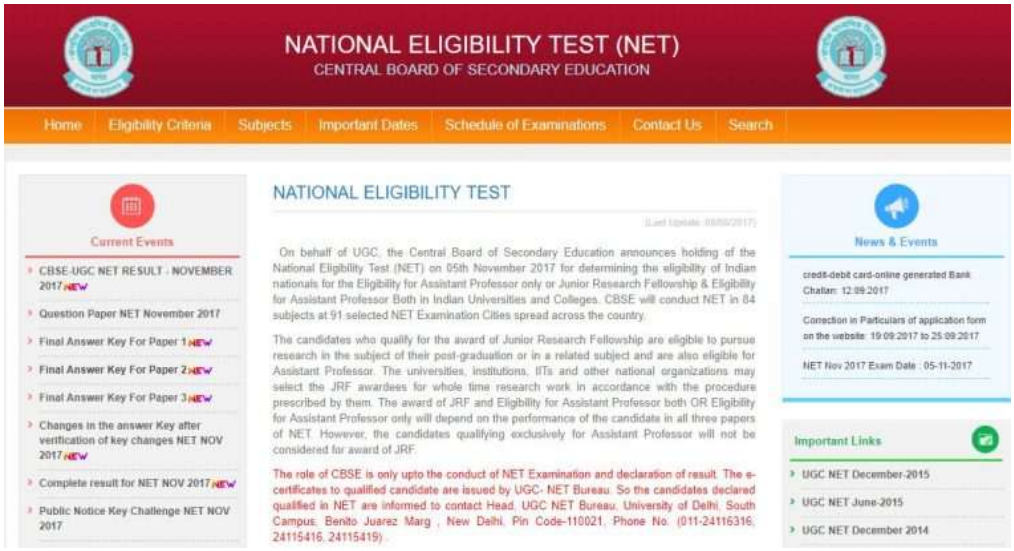
"I have dedicated my whole life in the pursuit of excellence and my work here will attempt to achieve the same," he said in an address to the varsity's members.

"I'm optimistic of working towards leveraging a strong university-industry collaboration that will lead to a progressive relationship. I look forward to working with an outstanding team of faculty and staff from this university."

UGC-NET to be held twice a year again, aspirants will get three hours to finish two papers

http://indianexpress.com/article/education/ugc-net-to-be-held-twice-a-year-again-aspirants-will-get-three-hours-to-finish-two-papers-5036878/

The NET, scheduled to be held on July 8 this year, is conducted by the CBSE to select professors and JRFs.



CBSE UGC NET 2018: For the first time, major changes have been introduced regarding exam pattern and age limit.

From July this year, the UGC-National Eligibility Test (NET) will once again be conducted twice a year, and a two-paper exam will replace the earlier three-paper format.

The cut-off age of candidates applying for the post of Junior Research Fellow (JRF) has also been revised to 30 years from 28 years. The duration of the exam will change from five-and-a-half-hours to three hours.

The NET, scheduled to be held on July 8 this year, is conducted by the CBSE to select professors and JRFs.

As per the new exam pattern, there will be two papers: paper I will comprise objective questions to test the teaching abilities, aptitude and approach of candidates towards engaging students. Aspirants will be given an hour to finish the paper of 50 questions.

Earlier, candidates were allotted 75 minutes. In the second paper, candidates will have to attempt 100 questions in two hours.

January 23

Aiming to give back, Rajasthan IITians return to launch education start-ups

http://www.newindianexpress.com/business/2018/jan/23/aiming-to-give-back-rajasthan-iitians-return-to-launch-education-start-ups-1761966.html

JAIPUR: With a view to giving back to their hometowns, young ex-IITians are returning to take a shot at creating jobs through their tech ventures in Rajasthan, particularly in the field of education. Many of these tech-savvy youngsters realised that education was in dire need of a major change in the state.

"One day, we discussed that if travel, banking, hotels and food can be on phones, why not education? That was the trigger. We wanted to build a one-point communication between teachers and students," Madhup Bansal, from the Indian Institute of Technology, Delhi (IIT-D), and co-founder and Managing Director of Myly, told IANS.

Gaurav Mundra, the other co-founder and CEO of Myly, realised that his son's school circulars sometimes went missing. "So we brought a centralised app where parents had access to kids' timetable, results, fee deposits and other information via one mobile app," he says. Currently working with 800 academic institutions in India, he said they have operations in Dubai and the Philippines and were planning to be in Malaysia soon.

Rishabh Jain, from IIT, Bombay, and COO of Qriyo, India's managed home tuition app, claimed to be first of its kind, says: "Me and Mudit, CEO of Qriyo, had envisioned to be job creators for around 500 people in our hometowns. So we started operations in Jaipur and Jodhpur. Now, it's heartening to see that we have evaluated over 15,000 tutors who are serving over 5,000 students in six cities of India."

Mudit Jain was at the India division of Finmechanics as Country Head and had worked with the consulting arm of PricewaterhouseCoopers, US. "The idea of Qriyo originated while searching for a yoga teacher. Despite hundreds of providers listed online, I could not find a suitable match." In January 2016, Qriyo was born, offering over 400 courses in academics, co-curricular, extra-curricular and fitness activities, Mudit said.

The returnees are all youngsters who wanted to pursue their dreams in distant lands, after finishing the most sought-after degree in the country. But a feeling for their roots and a conducive business atmosphere brought them back home, to use their knowledge about the cyber world for the benefit of their fellow residents.

Nishant Patni, founder and CEO of CultureAlley, had finished his IIT from Bombay, his post-graduate degree from the US and worked with the Boston Consulting Group in Chicago and two start-ups in Delhi and California when he went to China and struggled to learn a new language.

"If I am struggling this hard to learn a new language, what might be the case with others, I thought, and came up with 'Hello English', which is now India's No. 1 educational app with over 35 million learners," Patni told IANS. According to him, Hello English was part of Google's Editor's Choice 2017 and the year before, it was named Google's Best Apps of 2016. It now teaches several other languages.

"We got infrastructural support from our hometown, Jaipur, and this city houses good engineering talent and hence we came here," he said, adding that the "real Bharat is outside top cities; the people you encounter here give you a real insight into everything". The company has also got funding from a global venture capital firm.

SRJNA, which brings modern, innovative aids and methodologies into teaching of science, maths and astronomy, is among a few players helping schools to set up "tinkering labs". They create a design studio kind of place where students can learn via Robotics and 3-D tools. "We help in setting up innovation labs where teachers demonstrate to ensure students learn quickly by using real practical tools," says Sharad Bansal, CEO of SRJNA and an IITian from Delhi.

So impressed was NITI Aayog by the approach that it had decided to set up 500 such labs across the country calling them Atal Tinkering Labs under the Atal Innovation Mission, named after the former Prime Minister. It provides Rs 10 lakh for setting up such a lab in a school and a similar amount each year for five years, for operational expenses. Amitabh Kant, CEO of NITI Aayog, had said at the time of launching the programme that "it will provide school students the opportunity to work with tools and equipment, fostering inventiveness".

SRJNA got some benefit from a Rajasthan government's incubation scheme. Start-up Oasis has been extending a helping hand to provide start-ups with Rs 25 lakh every year for three years, and a built-up area of 25,000 square feet, to make their ventures operational. According to Tarun Agrawal, portfolio manager at Start-Up Oasis, there were 15 IITians who had come back to their hometown to set up tech ventures. But not all took the help of the incubator.

Moinee Foundation, which supports "right to quality education", was set up by Arvind Thanvi, its Chief Mentor. Thanvi, an IITian from Kharagpur, left his corporate career with Accenture, Mumbai, where he worked for a decade as account director. He started smart class intervention with 12 schools in a district, by reviving their existing ICT labs. That has now reached over 1,500 schools in nine districts of three states.

"Our community eLibrary programme received traction after being nominated for the Prime Minister's award last year. We are currently setting up over 125 new eLibraries in three states. We also implement community eLibraries in areas without Internet connectivity," Thanvi told IANS.

The prime crop of IITians in the state is bound to attract many other start-ups. Rajasthan's tech fields are set to undergo change, led by tech-savvy youngsters who come back.

IIT-Kharagpur develops clickbait blocker

https://economictimes.indiatimes.com/industry/services/education/iit-kharagpur-develops-clickbait-blocker/articleshow/62609919.cms

New Delhi: Indian Institute of Technology-Kharagpur (IIT-Kgp) has developed a browser extension that would stop 'clickbaits' from appearing while reading online news. Clickbait is a term used for web content whose main goal is to get a user to click on a link to go to a certain webpage.

Such clicks and page visits are often paid for by advertisers. Postgraduate students along with faculty members have developed this solution. IIT Kharagpur is working with Microsoft to assess the revenue generation model, if there is one, of clickbaits.

"With the help of Microsoft, we are looking at whether certain clickbaits are actually disappointing users. This means, whether the entire revenue model woven around clickbaits can be termed as faulty and the advertisers need to take a relook," said Niloy Ganguly, a professor at IIT-Kgp's department of computer science and engineering.

A luring headline or a tempting photograph makes one click on such news links, only to be disappointed by the content.

IIT-Kgp's solution is a browser extension named 'Stop Clickbait' that can detect and block clickbaits with more than 90% accuracy. Ganguly and his team have been working on this browser extension which already has more than 2,000 downloads.

To make the open source solution accurate, the team has been tracking several Indian as well as international news websites which thrive on clickbaits. "The extension looks for certain words, phrases and other linguistic patterns used by clickbaits and according to the user's instruction, eliminates them from the browser," Ganguly said.

To make it work mathematically, IIT-Kgp's team also scanned through traditional news articles to represent the nonclickbait type. It also helped identify domains on which clickbaits are regularly published. "The process ensures they do not appear in your search at all if you don't like clickbaits," he added. The institute analysed more than 11 million Twitter messages posted by different media organisations and their followers over eight months.

"We found that clickbait messages are retweeted more commonly by younger people than by older people, and more often by women than men," Ganguly said.

"Our primary aim is to offer a choice to the readers," Ganguly said. "If they like clickbaits, they are free to pursue them. If they don't like, our extension can come to the rescue."

MHRD to constitute committee to monitor working of Research Parks in IITs

https://engineering.careers360.com/news/mhrd-constitute-committee-monitor-working-of-research-parks-in-iits-355830

The Minister of Human Resource Development (MHRD) will constitute a committee to look into the working of research parks established at the Indian Institutes of Technology (IITs).

The Union Minister for HRD, Prakash Javadekar while inaugurating new facilities at the IIT Madras Research Park said, “The IIT Madras Research Park is a modern temple, which will guide the society for years together. The IIT Madras Incubation Cell and Research Park is a real collaboration between Industry and Academia.”

"We've provided funds for several IITs to set up such research parks. We'll set up a committee to ensure the efforts of IIT Madras is replicated everywhere else," he said.

"Industry-Academia collaboration has been talked about a lot but here it is being done effectively. There are startup companies, innovators and corporates in an ecosystem of innovation. They're enthused by the innovation of others in this ecosystem," Javadekar said.

Home to India’s first university-driven research park, the research park at IIT Madras is modeled along the lines of successful research parks found in top institutes like Stanford, MIT and Harvard.

Javadekar said that Incubation Cells, like the one at IIT Madras, are the real key to 'Make in India.' Encouraged by the success of the IIT Madras experiment, many Indian companies and universities are now starting to fund research in India rather than funding research abroad. The Minister also lauded the facilities at the IIT Madras Research Park, which was completely eco-friendly.

The HRD Minister said, "We're having a big campaign of 'Smart Campus,' which aims to 'Save, Conserve and Recycle Water' besides 'promoting water harvesting.' The objective of research being done at such premier institutes is to carry out 'Relevant Research.' The second aspect of this Smart Campus is 'Save and generate electricity.'

The research park at IIT Madras seeks to catalyze collaborative research between industry and academia and enable technological innovation and nurture entrepreneurship. It houses the R&D and innovation wings of industry majors engaged in collaborative research and technology transfer with the faculty.

Speaking on the occasion, Prof. Bhaskar Ramamurthi, Director, IIT Madras, said, “The research park is a game-changer for the faculty and students of IIT Madras as well as the companies collaborating with us. The alchemy created by the coming together of faculty, students and professionals from industry has led to many disruptive innovations, exemplified by the award-winning start-ups emerging from the Incubators at the research park.”

Prof. Ashok Jhunjhunwala, Faculty-in-charge of IITMRP, and Principal Advisor, Ministry of Railways, Government of India, gave a presentation on the research park and its achievements since its inception. He also outline its future plans.

“An important component of the eco-system to make India a nation which designs, develops, owns, manufactures and commercializes products, will be undertaken at the university-associated Research Parks (RPs). These research parks could take the industry-academia interaction to a new height,” he added.

CUK construction: IIT Delhi experts to visit Ganderbal campus site

http://www.greaterkashmir.com/news/kashmir/cuk-construction-iit-delhi-experts-to-visit-ganderbal-campus-site/273165.html

Executing agency asked to stop construction work; locals apprehend shifting of campus from Ganderbal

There seems to be no end to the uncertainty over the establishment of the permanent campus for the much-awaited Central University of Kashmir (CUK) coming up in Ganderbal district.

The construction work for permanent campus being established in Tulmulla tehsil of Ganderbal district has already been hit with the major issue confronting it is the quality of the land available for its construction.

Sources told Greater Kashmir that the university authorities are apprehensive whether the land, which is mostly marshy, will be suitable for construction.

Sources said an expert committee of Project Management Unit (PMU) from IIT Delhi is coming to visit the campus site in Ganderbal soon “where they will assess whether it is feasible to go with the vertical construction work.”

Sources said the university authorities have in a communiqué asked the executing agency NBCC to stop the construction work till the visit of expert committee.

Talking to Greater Kashmir, the Vice Chancellor CUK Prof Mehraj Ud Din confirmed that the expert committee from IIT Delhi will be visiting the site soon.

"The major issue we are facing is the quality of the land due to which the foundation cost is about 45% of the total cost of the project. This is the highest as compared to construction of other universities which is about 15% only," the VC said.

He said that they have done the area grading of about 100 hectares so far.

Meanwhile the locals said it will be unjust "if the government shifts the university from the district." MLA Ganderbal Sheikh Ishfaq Jabbar said he had raised the issue during question hour on Monday, adding that the government in reply to his question said "there is no proposal of shifting of CUK from Ganderbal."

2 Chhattisgarh tribal boys selected for IIT-D

http://www.freepressjournal.in/india/2-chhattisgarh-tribal-boys-selected-for-iit-d/1208197

Jashpur : Chhattisgarh's north east Jashpur District was in a joyous mood after two boys were selected to attend courses at the Indian Institute of Technology (IIT) in Delhi.
Deepak Kumar and Nitesh Painkra from the tribal villages of Kudekela and Jargam respectively have secured admission in the textiles department of the premier institution, making their families proud.

"21 students from Jashpur were selected for National Institute of Technology (NIT) and IIT, out of which two are in IIT Delhi," Jashpur Collector Priyanka Shukla told ANI.

Deepak Kumar's father is a labourer. He completed his education from a government school and then joined a coaching unit run by the district administration to prepare for the IIT entrance examination.

Reforms are working great, but more needed: Arvind Panagriya

https://www.americanbazaaronline.com/2018/01/23/reforms-working-great-more-needed-arvind-panagriya-432120/

Prominent economist Arvind Panagriya (center) delivering the inaugural New India Lecture Series in New York on January 22. Moderator Sanjay Bhatnagar (left) and Consul General of Indian in New York Sandeep Chakravorty are also seen.

Noted economist and professor at Columbia University Arvind Panagriya engaged in a wide-ranging conversation on Monday evening at the Indian Consulate in New York. The backdrop was the start of the "New India" lecture series to highlight the vision of Prime Minister Modi for a "New India" by 2022.

Discussing the larger direction of the Indian economy, Dr. Panagriya expressed optimism both for the near and medium term. "India is on course to become the world's fifth largest economy in not too distant future," he said. "There was some expected dislocation because of the introduction of GST and the demonetization exercise. But India is expected to have a growth rate of 7.3% as projected by the World Bank and could easily cross 8%."

The conversation hovered around the topic of agriculture and the challenges of the agricultural economy. Dr. Panagriya felt that there should be a stronger emphasis on agriculture including in the upcoming budget.

"Although it contributes to only 15% of India's GDP, a large part of the population is dependent on agriculture," he said. "So both for the sake of the real lives that will be impacted and for political reasons, it will be an important focus area."

The economist went on to add, "Loan forgiveness is not the solution. We have to find other ways to make agriculture more viable." He highlighted schemes such as farm insurance, streamlining tenancy laws, creation of soil cards and other such reforms. "Karnataka pioneered the E-Auction at the ***Mandis*** and it will be great to link the 600 or so ***Mandis*** around the country," he added.

To a question by the moderator Sanjay Bhatnagar of WaterHealth International about the best places in India for investors to invest in, Dr. Panagriya quipped, "Good economists talk about good policies but never say invest in this sector or that sector."

"There are so many areas that create disproportionately high number of jobs vis-à-vis the investment," Dr. Panagriya said, lamenting, "But very few big industrialists want to go into those areas. They think garments, footwear, furniture and a lot of consumer goods are not meant for them, despite the huge job creation potential of these industries." According to him, this is a long standing problem that has hindered job growth and job creation primarily because the incentives are very limited for employers in these areas.

The last big area that he touched upon was the area of higher education. "The entire system is beholden to the University Grants Commission, " he said. The economist narrated his own experience introducing a new course in Columbia University on Indian Political Economy. "I wrote a short note on my new course and sent it to the university and it was accepted," he said. "The course was up and running. Try introducing a new course in an Indian university!" He implied that one would get lost in the labyrinth of UGC making it impossible to usher in new courses and new realms of learning.

One of the last things that Dr. Panagriya worked on during his closing days at Niti Aayog was a recommendation to the government and concerned ministries to reform higher education in India. "If those are taken seriously by the government, you will see a lot of changes in the coming years," he predicted.

Consul General Sandeep Chakravorty welcomed the gathering which included a number of leading academics, industrialists and potential investors.

January 22

Researchers at IIT, Roorkee come out with major breakthrough in cancer treatment

http://www.newindianexpress.com/lifestyle/health/2018/jan/22/researchers-at-iit-roorkee-come-out-with-major-breakthrough-in-cancer-treatment-1761359.html

NEW DELHI: In a major breakthrough, researchers at Indian Institute of Technology, Roorkee have discovered a new method of treating cancer using a highly reactive molecule under ultraviolet light, which has so far been considered largely harmful.

The method called Photodynamic Therapy, the researchers say, works on the concept of targeted drug delivery into the afflicted area, with the use of ultraviolet light.

The researchers, led by Kaushik Ghosjh of the department of Chemistry and Prabhat Mandal of the department of Biotechnology at IIT, Roorkee, used the extreme end of the visible light spectrum to induce skin penetration and Nitric Oxide (NO) release.

The results showed that the photo-released Nitric Oxide (Nitric Oxide in presence of UV light) turned out be cytotoxic and led to the death of the cancerous cells.

Talking about the research findings, Ghosh told The New Indian Express, “Radiation or chemotherapy which is vastly used in the treatment of cancer severely impact other fast-growing cells and also have many side effects. We have discovered a treatment method that overcomes that hurdle.”

“Our aim was to look at a method through which we can deliver the drug in a non-toxic way, only to the area which is affected by cancer, thereby reducing the effect of the drugs on the remaining body.”

“In recent years, target specific delivery of Nitric Oxide (NO) has become an important area in chemical as well as biochemical research. Molecules which could deliver Nitric Oxide (NO) upon

illumination with light are important for photodynamic therapy. However, no one had tried it under the spectrum of visible light," Ghosh added.

"We used the extreme end of the spectrum of visible light to induce the release of Nitric Oxide (NO) and the results have been positive. Such interesting results are of extreme interest in photodynamic therapy and we hope that there will be further investigations on the use of such activity in treatment of diseases like hypertension as well."

The research, which was published in the European Journal of Inorganic Chemistry, can usher a new era in the area of cancer treatment, a doctor at the Tata Memorial Hospital—leading institute for cancer confirmed.

The researchers are in touch with the TMH to test the efficacy of the new treatment method in real patients.

How are research parks doing? HRD ministry to monitor their progress

https://www.hindustantimes.com/education/how-are-research-parks-doing-hrd-ministry-to-monitor-their-progress/story-4zkhBly4BSUUNBfWLv1tqO.html

HRD minister Prakash Javadekar has said that he wants the IIT Madras research park model to be replicated across the country

Human resource development minister Prakash Javadekar checking out facilities at the IIT Madras Research Park.

Chennai The HRD ministry will review centrally-funded research parks in the country to monitor their progress. A panel will be set up for the purpose and efforts made to replicate the IIT Madras Research Park model, which is working successfully, human resource development (HRD) minister Prakash Javadekar has said.

Inaugurating new facilities at the IIT Madras Research Park recently, the minister emphasised on the importance of socially relevant research by academic hubs "so that they can help serve the nation." The panel will look at how much progress has been made so far, he added.

"I will review the progress of all IIT research parks once I am back in Delhi. We have decided to form a committee for this. I want that the IIT Madras research park model, which is working successfully, is replicated across the country," he said.

There are a number of government funded research parks coming up at IIT Bombay, Gandhinagar, Kharagpur, Hyderabad, Delhi and Guwahati, among others.

“We have provided funds for several IITs to setup such research parks. Now by seeing the IIT Madras experiment many Indian companies and universities are now funding research in India rather than funding research abroad,” he added.

Citing an example of demonetisation he said that none of the premier educational institutions such as IIMs “bothered” to carry out research on “what people actually felt about demonetisation while they stood in queues for over 50 days”.

“While Google, Whatsapp, Twitter, Facebook, none of them have been innovated by India. But most of the brains associated with them are Indians. So we want people to come to India and innovate, an area where we are lacking,” he said. The Minister also announced launch of “Smart Campus” campaign which will have various components including saving, conserving and recycling water.

Javadekar further said they have launched a big campaign of smart campus that aims to ‘Save, conserve and recycle water’ besides water harvesting. He also announced that he will write to various ministries and companies asking them to compulsorily set the temperature of air conditioners at 24 degrees.

“I am environmentalist at heart. I have been environment minister too. I believe energy conservation is need of the hour and a lot of energy is wasted as people set AC temperature as low as 18 degrees. I am going to write to companies and ministries to issue guidelines to keep the AC temperature at 24 degrees,” he said.

India’s first university-driven research park is in IIT Madras. It was modelled along the lines of successful research parks at Stanford University, Massachusetts Institute of Technology and Harvard University. It houses the research and development and innovation wings of industry majors engaged in collaborative research and technology transfer with the faculty.

24 जनवरी को आएगा इंजीनियरिंग का नया सिलेबस, इन सब्जेक्ट्स को किया गया शामिल

https://www.livehindustan.com/career/story-new-syllabus-for-engineering-courses-to-be-unveiled-on-24-january-1762598.html

शैक्षणिक सत्र 2018-19 से देशभर के सभी इंजीनियरिंग कॉलेजों में नए सिलेबस के हिसाब से छात्रों को इंजीनियरिंग के विभिन्न कोर्स कराए जाएंगे। केंद्रीय मानव संसाधन विकास मंत्री प्रकाश जावड़ेकर राजधानी दिल्ली में 24 जनवरी को नया सिलेबस पेश करेंगे। यह जानकारी अखिल भारतीय तकनीकी शिक्षा परिषद (एआईसीटीई) के निदेशक डॉ अनिल सहस्रबुद्धे ने दी। उन्होंने कहा कि आईआईटी

संस्थानों को छोड़कर देशभर के सभी इंजीनियरिंग कॉलेजों के लिए नए सिलेबस को लागू करना अनिवार्य होगा और इसी के मुताबिक पढ़ाई होगी।

नया सिलेबस पुराने से भिन्न होगा

डॉ सहस्रबुद्धे ने कहा कि नया सिलेबस पुराने सिलेबस से भिन्न होगा। नए सिलेबस में इंजीनियरिंग और तकनीक के क्षेत्र में हुए नवीनतम सुधार, नई खोज और प्रगति को शामिल किया गया है, ताकि इसे इंडस्ट्री-ओरिएंटेड बनाया जा सके और छात्रों को नौकरी मिलने में आसानी हो। साथ ही बाजार की मांग के अनुरूप टैलेंट तैयार किए जा सकें। नए सिलेबस में थ्योरी से ज्यादा प्रैक्टिकल पर जोर होगा। छात्रों के लिए खास वर्कशॉप भी होंगे जिससे उन्हें पढ़ाई के बाद नौकरी में परेशानी नीं हो। उन्होंने बताया कि इन बदलावों को नए सिलेबस में शामिल करने और पुराने सिलेबस को संशोधित करने के लिए विशेषज्ञों की 11 सिमितियों ने दिन-रात काम किया।

3 सप्ताह का ओरिएंटेशन प्रोग्राम अनिवार्य

नए सिलेबस में इंजीनियरिंग प्रथम वर्ष के छात्रों के लिए कक्षा के पहले तीन सप्ताह ओरिएंटेशन या इंडक्शन प्रोग्राम का आयोजन होगा। ओरिएंटेशन प्रोग्राम को छात्रों और कॉलेजों के लिए अनिवार्य बनाया गया है। इस दौरान उन्हें अंग्रेजी भाषा की खास ट्रेनिंग दी जाएगी और उनके सॉफ्ट स्किल्स को उभारा जाएगा। इसमें योग, सांस्कृतिक कार्यक्रम, प्रतियोगिताएं आदि आयोजित की जाएंगी। साथ ही छात्रों और शिक्षकों के बीच इंटरैक्शन होगा। डॉ सहस्रबुद्धे ने कहा कि इससे विभिन्न पृष्ठभूमि से आए छात्रों को समान अवसर मिलेगा, उनके बीच की दूरियां कम होंगी और उनमें पॉजीटिव एटीट्यूड का संचार होगा। साथ ही वे कोर्स को समझ सकेंगे और जरूरी स्किल्स भी खुद में डेवलप कर सकेंगे।

शिक्षकों की मदद के लिए हैंडबुक

नए सिलेबस के मुताबिक छात्रों को पढ़ाने में शिक्षकों को आसानी हो, इसके लिए एआईसीटीई ने एक हैंडबुक तैयार किया है। डॉ सहस्रबुद्धे ने कहा कि यह हैंडबुक शिक्षकों के नए सिलेबस को समझने में मदद करेगा और एक नई शिक्षा पद्धति का विकास होगा। इसके अलावा शिक्षकों के लिए ट्रेनिंग सेशन चल रहे हैं और देश के अलग-अलग हिस्सों में कॉलेज प्रतिनिधियों के लिए वर्कशॉप आयोजित कराए जा रहे हैं। हरेक वर्कशॉप में 10 से 15 प्रमुख कॉलेजों के प्रतिनिधियों को बुलाया जाता है उन्हें अपने क्षेत्र के इंजीनियरिंग कॉलेजों के सिक्षकों के ट्रेनिंग देने के लिए प्रशिक्षित किया जाता है। एआईसीटीई को उम्मीद है कि एक साल के भीतर सभी शिक्षकों को ट्रेनिंग देने का काम पूरा हो जाएगा।

IIT के स्टूडेंट्स ने बनाई मच्छर पकड़ने की मशीन, ये है कीमत

https://www.livehindustan.com/national/story-iit-students-created-mosquito-capture-machine-know-the-price-1762335.html

भारतीय प्रौद्योगिकी संस्थान (आईआईटी) के छात्रों ने लोगों को मच्छरों और बैक्टीरिया से निजात दिलाने की एक अनोखी मशीन बनाई है जिसमें जाकर मच्छर कैद हो जाते हैं।

आईआईटी मद्रास के छात्रों ने तकनीकी शिक्षा में नवाचार कार्यक्रम के तहत यह मशीन बनाई है जिससे मच्छरों को पकड़ा जा सकता है। यह विश्व की अपनी तरह की पहली मशीन है और इसका नाम 'बोगोर्चिट' है। इस मशीन को सात सदस्यीय टीम ने बनाया है। आईआईटी मद्रास रिसर्च पार्क में तैयार इस मशीन को अभी बाजार में उतारा नहीं गया है, लेकिन ऑर्डर पर यह बनाई जा रही है।

मानव संसाधन विकास मंत्री प्रकाश जावड़ेकर ने गत दिनों इस रिसर्च पार्क के दौरे के दौरान इस मशीन का अवलोकन किया तथा उसमें विशेष दिलचस्पी दिखाई। साथ ही इस उत्पाद के बारे में पूछताछ की तथा छात्रों को इसके लिए बधाई भी दी। इस मशीन की कीमत दो हजार रुपये है और इसके साथ इसमें उपयोग होने वाले चार रिफिल मुफ्त मिलेंगे जो एक साल तक चलेगें। यह मशीन बिजली से चलती है और दो घंटे जलने पर यह धीरे-धीरे आसपास के मच्छरों को पकड़ लेती है।

मशीन में प्रयुक्त होने वाला रिफिल जहरीला नहीं

इस मशीन की खासियत यह है कि इसमें प्रयुक्त होने वाला रिफिल जहरीला नहीं है। इसमें से निकलनेवाली तरंगों से आकर्षित होकर ये मच्छर इसमें लगे एक नेट यानी जाली में फंस जाते हैं और उनके एंटीना टूट कर गिर जाते हैं। इसके कारण मच्छर उड़ नहीं पाते। जाली के ढक्कन को हटा कर इन मच्छरों को साफ कर दिया जा सकता है।

अच्छी खबर: बिना मिट्टी पैदा होंगी सब्जियां, पोषक तत्वों का मिलेगा घोल

https://www.livehindustan.com/jharkhand/story-vegetables-will-produce-without-soil-1762315.html

छतों पर किचन गार्डन के लिए मिट्टी का झंझट नहीं रहेगा। बिना मिट्टी के ही पौधे लगाकर टमाटर और बैंगन उगा सकेंगे। आईआईटी धनबाद धनबाद के छात्रों ने यह तकनीक ईजाद की है। छात्र गेंदे के फूल उगाने में भी सफल रहे हैं।

दरअसल छात्रों ने केमिकल के सहारे मिट्टी के 15 प्रमुख पोषक तत्व बनाए हैं। इन्हें सीधे पौधों तक पहुंचाकर उन्हें उगाया। पौधों की जड़ों को बांधने के लिए मिट्टी की बजाय थर्मोकोल और नारियल के छिलकों की मदद ली गई। इस तकनीक को टोवेसोपोनिक्स नाम दिया गया है।

शुरुआत में असफल रहे :

आईआईटी छात्रों की संस्था 'टोवेसो' से जुड़ी चार छात्र-छात्रओं की टीम ने इस तकनीक पर काम किया। टीम के सदस्य छात्र सौरव ने बताया कि तीन महीने पहले स्ट्रॉबेरी से इसकी शुरुआत की थी, लेकिन इसे उगाने में असफल रहे। इसके बाद गेंदा के फूल, टमाटर, बैंगन और पालक के पौधे लगाए। लगभग 15 दिनों में फूल निकलने लगे। टीम में सोनी, पूजा और पुष्पा भी शामिल हैं।

पानी की बचत :

इस तकनीक से पानी भी बच रहा है। पानी को पाइप से जड़ों तक पहुंचाया जा रहा है। नीचे गिरने वाले पानी को टब में जमा कर फिर से पौधों को दिया जाता है।बड़े सवाल : छात्रों की इस सफलता के बीच कुछ सवाल भी हैं, जिनका जवाब मिलना बाकी है। जैसे रसायनों की मदद से बने पोषक तत्व मिट्टी जितने ही सेहतमंद हैं? बिना मिट्टी उगी सब्जियां बड़ी बीमारी का कारक तो नहीं बनेंगी।

January 21

Existence of other biometric databases may pose new challenge to Aadhaar

http://www.hindustantimes.com/india-news/existence-of-other-biometric-databases-may-pose-new-challenge-to-aadhaar/story-nv12eC1qypTVnSaLboc5cN.html

The existence of independent biometric databases means the information the UIDAI holds under lock and key is also scattered among scores of government departments. The real database problem for Aadhaar is not as much with its database but with these other databases.

Employees mark their attendance through Aadhaar-based system at the Yojana Bhawan.

The widespread and largely unsupervised use of biometrics for everything from accessing university classrooms to identifying sea-faring fishermen along India's coasts has resulted in the proliferation of public and private databases that could compromise the integrity of India's Aadhaar-based authentication system.

"Ordinarily, the existence of these biometric databases would not scare me," said Subhashis Banerjee, Professor of Computer Science Engineering at IIT Delhi. "But given the UIDAI uses biometrics for authorising transactions, these databases are a risk."

In effect, the real database problem for Aadhaar is not as much with its database but with these other databases.

The Unique Identification Authority of India (UIDAI), the agency responsible for the Aadhaar programme, did not respond to HT's request for comment.

Earlier this month, **The Tribune reported** that Aadhaar numbers and demographic information could be purchased for as little as Rs 500.

The UIDAI insisted that the biometrics of over 1 billion citizens were secure in the Central Identities Data Repository (CIDR) maintained by the agency.

That's true, but the existence of independent biometric databases means the information the UIDAI holds under lock and key is also scattered among scores of government departments, many of whom have little conception of data security.

Repeated government directives to seed databases with Aadhaar numbers has only worsened this threat, two senior IT administrators said.

This is because any biometric database that seeds Aadhaar numbers, by default, has the same information as UIDAI's CIDR for those particular Aadhaar numbers.

Thus far, there have been no public reports of hackers stealing Indian biometric stashes, but in 2015 hackers believed to have ties with Chinese security agencies stole 5.6 million fingerprints from the servers of the Office of Personnel Management, the human resource department of the US government.

50 million prints

From 2012 to 2016, the Employees State Insurance Corporation (ESIC) of India gathered 50 million biometric records to issue identity cards for workers and their family members, according to project documents reviewed by HT.

The ESIC then switched to Aadhaar-based authentication, and had linked 10 million Aadhaar numbers to their insurance database by 31 July 2017, according to a reply to a Lok Sabha question.

This means a server in the ESIC office on Delhi's outskirts, and its backup in Hyderabad, hold a database that integrates Aadhaar numbers with biometrics and demographic details, effectively mirroring a portion of the UIDAI's top secret CIDR.

In an interview, Mr. Sanjay Sinha, Additional Commissioner at the ESIC, said the database was safe, and encrypted. But databases must be continuously upgraded to stay secure. The ESIC system was built by Wipro in February 2009 under a five-year agreement to maintain it.

When the agreement expired in 2014, ESIC signed a maintenance contract with Railtel Corporation of India, a subsidiary of the Indian Railways, Mr. Sinha said. This means the corporation no longer receives security upgrades from Wipro, and relies on Railtel to secure a system they haven't built.

Databases galore

The ESIC is not the only organisation to unwittingly build a slice of the CIDR.

Gujarat's ration card project captured the biometrics of 7 million residents. This database is being seeded with Aadhaar numbers as well, a senior IT official in the state said, implying that the Gujarat government has their own abbreviated version of the UIDAI's CIDR as well.

Meanwhile, the fingerprints of 2.1 million coastal fishermen are stored in the "National Marine Fishers Database" built by a consortium of public sector companies.

"The enumeration of fisherman by conducting many number of camps in fishing villages has been completed," a spokesperson for Bharat Electronics Limited, the consortium leader said, "The data collected has been converted to smart cards and issued to fishermen through state authorities."

BEL did not explain how the information was stored, but a 2012 order by the Central Information Commission notes that the data is the "proprietary information of the Registrar General" and that these "PSUs will take all care to safeguard the confidentiality of this information."

These 2.1 million fingerprints would probably be held by the Department of Animal Husbandry, Dairying and Fisheries, an official said.

"Who knows what they know about data security," the official observed, seeking anonymity as the matter is deemed too sensitive to discuss with the press.

From database to fingerprint

Biometrics are protected by encryption and by condensing fingerprints into templates obtained by using software to extract unique features of a given print.

But encrypted data needs decryption keys, which may be leaked if a database is accessed by multiple users.

Templates do not offer total security either.

"There was a misconception that a template cannot be inverted, but that is not true anymore," said Anil Jain, Professor at the Department of Computer Science and Engineering at Michigan State University. "It is possible to use a template to reconstruct a fingerprint to a high degree of accuracy."

The reconstructed fingerprint, Prof. Jain has shown, can be used to build spoof fingerprints that fool most biometric readers.

Meanwhile the ESIC continues to sit on its enormous archive of fingerprints. "We can't just delete the data," said an ESIC official. "That will happen as and when we get the appropriate orders."

January 20

IIT Delhi develops a novel platform to test drug sensitivity in bacteria

http://www.thehindu.com/sci-tech/health/iit-delhi-develops-a-novel-platform-to-test-drug-sensitivity-in-bacteria/article22480759.ece

"The change in the pH, either acidic or basic, due to bacterial growth can be detected," says Neetu Singh.

It will help in carrying out drug susceptibility testing within a short time period

A two-member team from the Indian Institute of Technology (IIT) Delhi has used a novel method to culture bacteria and determine its growth at much lower concentration in relatively less time — four–six hours. *E. coli* and *S. aureus* bacteria were studied. Currently available clinical methods require more than 10 hours to culture and observe growth of pathogenic bacteria and a higher bacterial concentration for laboratory confirmation.

While the new method will not be useful in identifying the species of bacteria isolated from a patient sample, it will help in early detection of the presence of bacteria and carrying out drug susceptibility testing within a short time period.

The team led by Dr. Neetu Singh from the Centre for Biomedical Engineering at IIT Delhi prepared alginate microgels that encapsulate *E. coli* bacteria and carbon dots. The microgel was prepared using sodium alginate solution to which the bacteria and carbon dots were added. Micron-sized droplets of

the solution were produced using static electricity and dropped into a solution of calcium chloride for crosslinking.

The carbon dots used are pH sensitive. They emit light of two different wavelengths (450 nm and 550 nm) but the intensity of only one wavelength (550 nm) changes in response to a change in the pH. Measuring the ratio of the intensity of emission of light at two different wavelengths helps in detecting any change in the pH.

The microgels were found to support bacterial growth and colony formation, and the pH changes in response to bacterial growth. Generally, the pH becomes acidic when bacteria grow and multiply. But in some cases, the pH could become alkaline (basic) too. “The change in the pH, either acidic or basic, in response to bacterial growth can be detected by the change in the emission ratio of the two wavelengths,” says Dr. Singh.

Unlike conventional methods that require 105 CFU (colony forming units) and typically use 107 CFU for detecting bacterial growth and take about 10 hours, the microgels needed only 104 CFU. “A change in the pH was seen in about four-six hours when 104 CFU were used and about eight hours when 103 CFU were used,” says Anil Chandra from the Centre for Biomedical Engineering at IIT Delhi and first author of a paper published in the journal *Chemical Communications.*

The team used the platform to test for antibiotic sensitivity by treating E. coli with ampicillin drug of different concentrations. “The microgel is porous and drugs could easily diffuse through the microgel,” says Dr. Singh.

While the drug-sensitive E. coli showed less growth and produced only 5% change in fluorescence emission when ampicillin was added, the drug-resistant bacteria exhibited as high 35% change in emission. “This suggests that the bacteria were growing even in the presence of ampicillin and hence were drug-resistant,” says Chandra.

“Our platform will help in simultaneously studying resistance to different drugs, combination of drugs and resistance to different concentrations of drugs,” says Dr. Singh. “But it cannot be used when the drug has a buffering effect or when it is acidic, as the drug itself will change the pH of the microgel.” The team will be collaborating to develop a portable device with multiple functionalities and be testing clinical samples soon.

CSIR leveraging technology development by forging synergistic partnership with the Japanese Universities and R&D Organizations

http://www.business-standard.com/article/government-press-release/csir-leveraging-technology-development-by-forging-synergistic-partnership-with-the-japanese-118011900993_1.html

Council of Scientific and Industrial Research (CSIR) has been making endeavours to forge synergistic partnership with the Japanese Universities and Research & Development (R&D) organizations to leverage technology development in cutting edge domains. The partnership with the Hiroshima University has started bearing fruits. The technology areas for cooperation include electronics, robotics, mechatronics, advanced manufacturing, environment and intelligent transportation.

Director General, CSIR, Dr. Girish Sahni, with President, Hiroshima University held the 1st meeting of International Linkage Degree Program (ILDP) on January17-18, 2018 in Hiroshima, Japan. Senior representatives of other partnering Institutes namely IIT-D, IIT-B, IIM-A, BITS-Pilani, IIEST-Sibpur also participated in the meeting to promote student/researchers exchanges and R&D partnership.

Indian Ambassador in Japan Mr. Sujan Chinoy and Dr. Girish Sahni, Director General, CSIR delivered special addresses at the event, alongside Governor of Hiroshima prefecture.

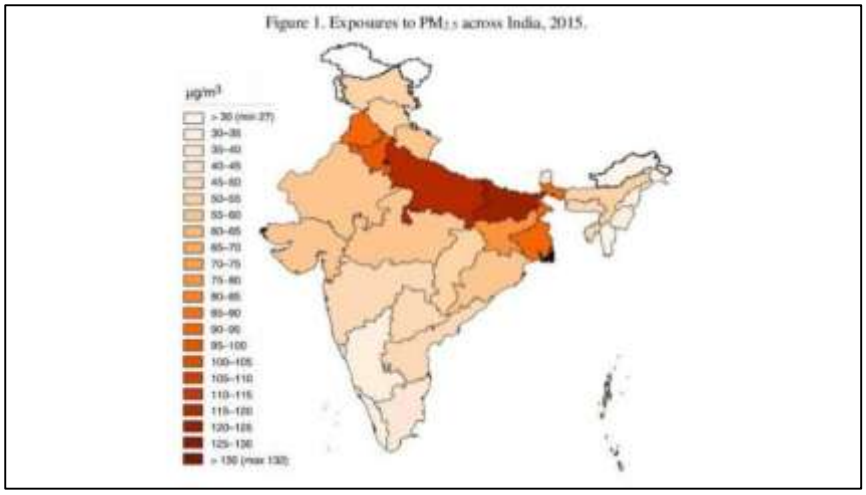
DG, CSIR, Dr. Sahni, has led the CSIR delegation to Japan to vitalise CSIR's ongoing partnership with Japanese National Institute of Advanced Science & Technology (AIST) in Tsukuba. CSIR in collaboration with AIST, Japan is in the process of setting up a unique low cost semiconductor device fabrication scheme Minimal Fab, which will not require setting up of costly clean room and chip fabrication facility. CSIR, with this facility, will be creating an avenue for Electronics System Design Manufacturing (ESDM) sector industries to fabricate semiconductor chips meeting the demand of IOT devices in India and abroad.

CSIR delegation also held bilateral meetings with University of Tokyo and RIKEN Brain Science Institute to build R&D cooperation in the areas of mutual interest, aimed at translational research.

In recent times, CSIR has accelerated its efforts for translational research addressed at unmet needs with strong stakeholder and people connect. In doing so, seamless and synergistic partnership with international R&D organizations of eminence is of prime importance for CSIR to leverage its technology development efforts. In this march of CSIR, Japan has emerged as one of the major country for desired partnerships.

The air-pollution death knell -- Are we listening?

https://researchmatters.in/news/air-pollution-death-knell-are-we-listening



3.6 million lives could be lost in 2050 due to air pollution, says a recent study.

According to a new study by researchers from the Indian Institute of Technology-Bombay (IIT-B), the Health Effects Institute (HEI), and the Institute for Health Metrics and Evaluation (IHME), in 2015, only one in 1000 Indians lived in areas where particulate pollution did not exceed the permissible levels prescribed by World Health Organization (WHO).

The study, titled 'Burden of Disease Attributable to Major Air Pollution Sources in India' is the first comprehensive assessment on fine particulate matter (PM2.5) and their impacts on human health conducted in the country at the state and national level.

The study also found that in the same year, inhabitants of 21 Indian states and six union territories were exposed to PM2.5 levels higher than those deemed safe by the Indian annual standards. PM2.5 is a kind of air pollutant that consists of fine particles with a diameter of 2.5 microns or less. These particles can be detrimental to a person's health, as their small size ensures that they escape the body's mechanisms for protection against aerial pollutants, and settle in the respiratory system. Long term exposure to PM2.5 can lead to serious health complications.

The biggest culprit for air-pollution related health issues in India, in 2015, was found to be household biomass burning (23.9%) and coal combustion (15.3%), which contributed to around 268,000 and 169,000 deaths respectively. Emissions from agricultural burning, dust, transport, other diesels, and brick kilns also contributed to the burden of air pollution, which collectively contributed to 231,000 deaths in the country.

The study was greatly helped by enhanced satellite data and India's growing network of air pollution monitors. It builds on the data collected by prior studies, which identified air pollution as the second highest public health risk factor, after malnutrition. Based on this data, the researchers evaluated future scenarios projecting to the year 2050 to identify the key challenges faced and to highlight possible mitigation measures.

"This systematic analysis of emissions from all sources and their impact on ambient air pollution exposure found significant contributions from regional sources (like residential biomass, agricultural residue burning and industrial coal), underlying that from local sources (like transportation and brick

kilns)", said Professor Chandra Venkataraman of IIT Bombay and one of the scientists involved in the study, in a press release. If no further measures are taken to reduce air pollution, 3.6 million lives could be lost in 2050, says the study.

To overcome these challenges, the researchers of this study recommend several actions that can be taken which could also reduce the number of human deaths by 2050. The use of LPG, piped gas and other alternative fuels could lead to the elimination of biomass use. A shift from using kerosene lamps to solar or electric sources of lighting would also significantly reduce the use of biomass. The authors recommend moving away from coal based power generation, and suggest that by 2050, 75%–80% of power generation has to be non-coal to reduce air pollution.

This study is one of the many that has sounded a warning death bell on air pollution in the country. But, are we listening?

IIT-M Research Park to be replicated in India

https://www.newstodaynet.com/index.php/2018/01/19/iit-m-research-park-to-be-replicated-in-india/

HRD Minister Prakash Javadekar inaugurating the newly-built state-of-the-art conferencing facility at IIT-M in Chennai on Thursday. IIT-M Director Bhaskar Ramamurthi is present.

Chennai: The Ministry of Human Resource Development will form a committee to review the progress of research parks under way at various Indian Institutes of Technology (IITs) to enhance the focus on research and innovation, said HRD Minister Prakash Javadekar.

The Minister who visited the research park in IIT Madras, the first of its kind, on Thursday, said he will urge other IITs to develop their research parks on the lines of IIT Madras, which has more than 70 companies and have incubated more than 140 start-ups.

IIT Madras is home to India's first university-driven research park, modelled along the lines of successful research parks of Stanford, MIT and Harvard, he said.

During the occasion, the HRD Minister also inaugurated a newly-built, state-of-the-art conferencing facility. It consists of a 150-seater conference hall named after Sir C V Raman and a 50-seater conference hall named after S Ramanujan and a multi-purpose lounge.

The Union Minister interacted with the start-ups and corporate members at the IIT Madras Research Park.

Urging technical institutes to focus on research and innovation, Javadekar said, "We lack innovation, therefore, this research park is a new way forward. After going to Delhi, I will review the process of

setting up research facilities in all IITs, specially the progress of all the research parks. We will also form a committee to take concentrated efforts towards developing these research parks and make sure that IIT Madras is replicated everywhere."

In an operational area of 0.4 mn sq ft, IIT Madras Research Park has more than 70 companies, including 57 R&D companies. The research park here is the first-of-its-kind in the country and the government now wants other institutes to also have similar research facility, he said.

"These companies that are working out of the research park have learnt to work with the professors, students and best brains here, this is what the concept of a research park is, it mutually benefits everyone. Incubation is the real Make in India, which is what is happening in this research park. Now, even foreign companies have gained confidence on Indian students, that they can also provide solution to their problems. So, the world has started looking towards India now," he added.

Javadekar took a review of the research park and inspected many projects, which were developed in the incubation centre. He particularly praised a mosquito killer machine that uses pheromone technology to attract mosquitoes and kill them in an eco-friendly manner. Electric cars, one of the major projects of the research facility, was also appreciated by the Minister.

Earlier, speaking on the occasion, IIT Madras director Bhaskar Ramamurthi said, "The research park is a game-changer for the faculty and students of IIT Madras as well as the companies collaborating with us. The alchemy created by the coming together of faculty, students and professionals from industry has led to many innovations, exemplified by the award-winning start-ups emerging from the incubators at the research park."